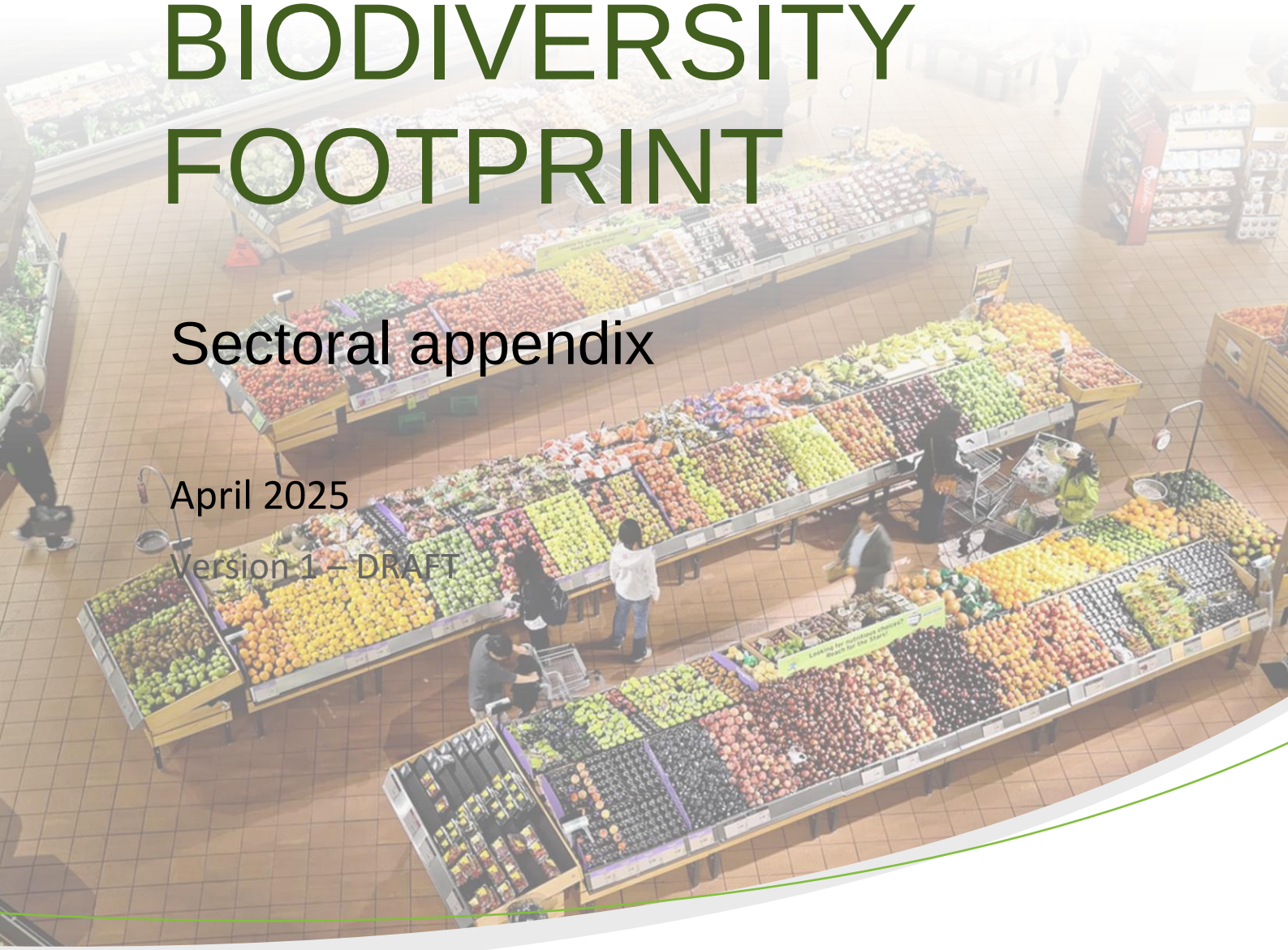
GLOBAL BIODIVERSITY SCORE

WHOLESALE AND RETAIL BIODIVERSITY FOOTPRINT

Sectoral appendix



April 2025

Version 1 – DRAFT

CDC BIODIVERSITÉ | Caisse des Dépôts GROUPE

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A. PURPOSE OF THE DOCUMENT

The current **sectoral appendix** supports the **Wholesale and Retail benchmark factsheet** and provides additional content that could not be included in the factsheet due to space constraints. Such additional content relates to the perimeter of the factsheet, more detailed results and charts and specific methodology and references.

In addition to the sectoral appendix, this factsheet is supplemented by two documents, common to all the factsheets:

- A **general appendix**, which provides methodological elements to understand how the sectoral benchmark factsheets are built and how computations and charts are obtained. It includes all the methodology and references which are common to all the factsheets, as well as guidance on how to read and use the factsheets.

- A **reading guide**, which explains the structure of the factsheets. It provides the main contents, definitions and necessary elements to know how to read the factsheets for readers with limited knowledge about the Global Biodiversity Score.

Figure 1 below encapsulates the four benchmark documents available for each sector.

Figure 1: The four benchmark documents.

B. WHAT DOES THE SECTOR INCLUDE?

1. Perimeter of the factsheet in terms of impacts calculation

1.1. Overview of the sector

The Wholesale and Retail sector covers **trade activities of any kind of goods** (raw materials, agriculture products, manufactured or processed products):

- directly from the producer to the retailer or wholesaler

- from wholesaler to wholesaler or retailer
- and from the retailer to the final consumer

Therefore, the sector can tackle different steps of a good's value chain.

Figure 2 below explains the sector's revenue repartition depending on the trade activity for the Top 250 global wholesalers and retailers in 2021. The sector's most important companies regarding their revenue are mainly **supermarkets and hypermarkets**, accounting respectively for **21 % and 20 % of the total revenue** of the 2021 Top 250 Global Wholesale and Retail companies (Deloitte 2023). Moreover, approximately **45 % of the sector's total revenue is held by American companies**, as shown on Figure 3 (Deloitte 2023). Please note the different activities can include both wholesalers and retailers: the "Retail revenue" also includes wholesalers' revenue (The Business Research Company 2024; Deloitte 2023).

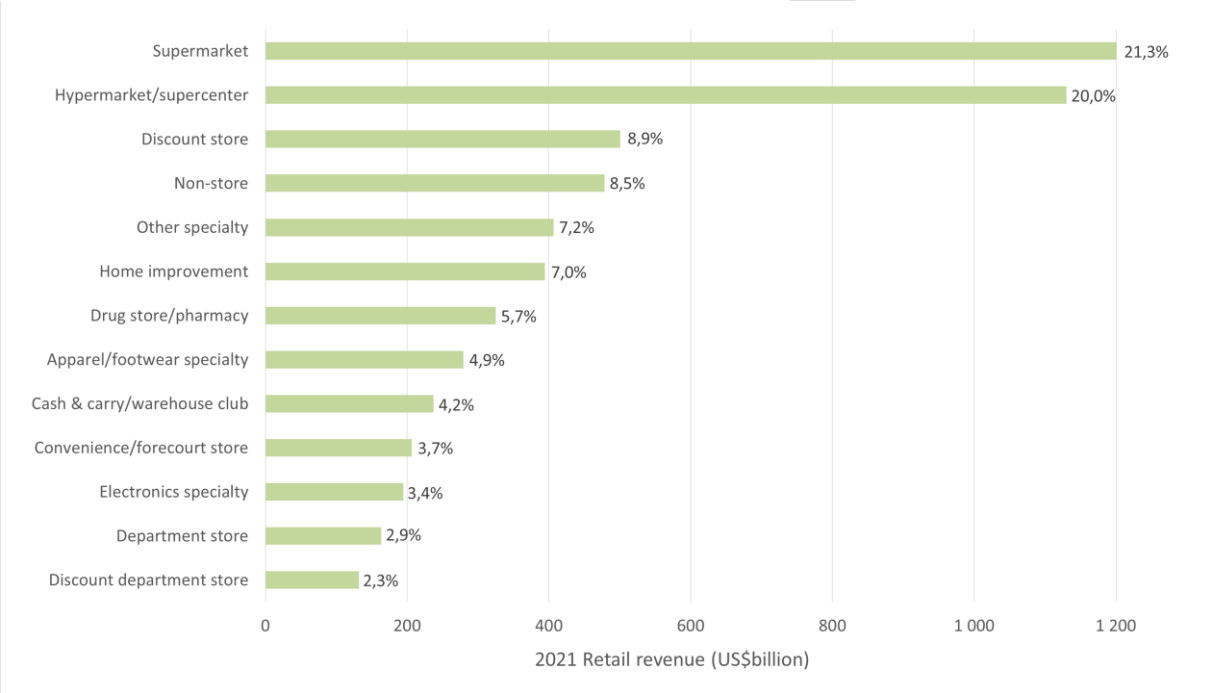
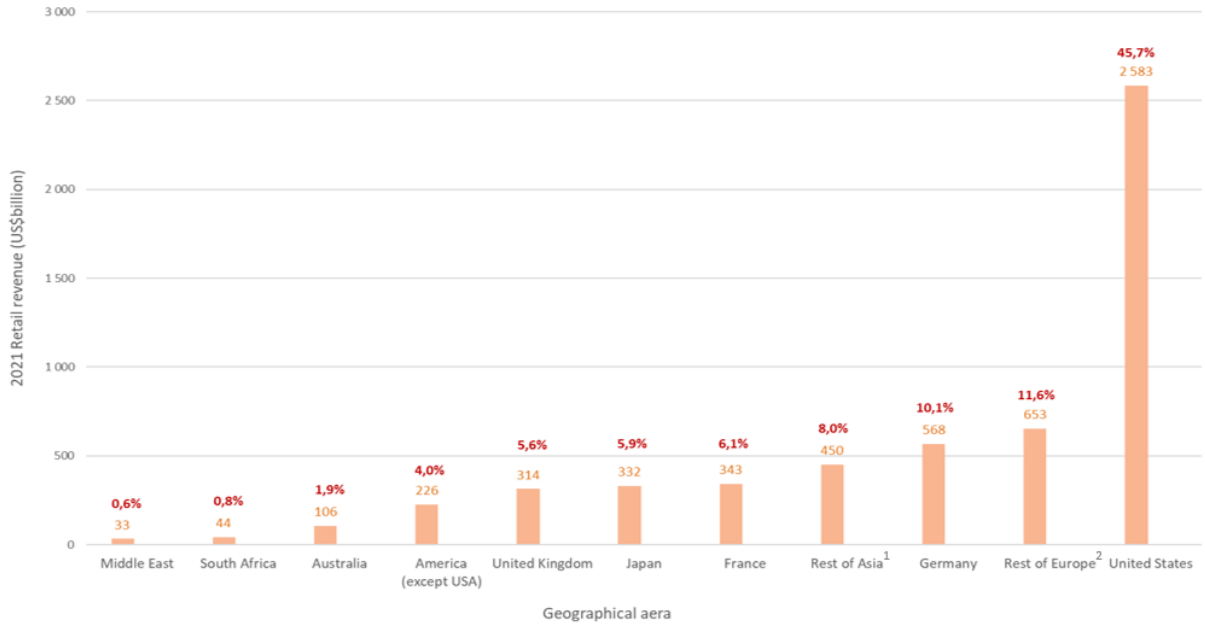


Figure 2: Repartition of wholesale and retail revenues according to the trade activity for the Top 250 global wholesalers and retailers in 2021. Source: Deloitte, 2023.



1. Rest of Asia: China, Hong Kong, Indonesia, Philippines, South Korea, Taiwan, Thailand, Vietnam
2. Rest of Europe: Austria, Belgium, Denmark, Finland, Greece, Italy, Lithuania, Netherlands, Norway, Portugal, Russia, Spain, Sweden, Switzerland, Ukraine

Figure 3: Repartition of wholesale and retail revenues according to the geographical area for the Top 250 global wholesalers and retailers in 2021. Based on data from Deloitte, 2023.

1.2. EXIOBASE industries

The factsheet covers the Wholesale and Retail sector, which includes three EXIOBASE industry groups and four industries:

- **Wholesale and retail trade and repair of motor vehicles and motorcycles**
  i50.a. Sale, maintenance and repair of motor vehicles, motor vehicles parts, motorcycles, motorcycles parts and accessories
  i50.b. Retail sale of automotive fuel
- **Wholesale trade, except of motor vehicles and motorcycles**
  i51. Wholesale trade and commission trade, except of motor vehicles and motorcycles
- **Retail trade, except for motor vehicles and motorcycles**
  i52. Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods.

These EXIOBASE industry groups are consistent with the divisions from the NACE rev. 2 classification section G "Wholesale and retail trade ; repair of motor vehicles and motorcycles" and also include the NACE division S.95 "Repair of personal and household goods" (EUROSTAT 2008).

The NACE section G "Wholesale and retail trade; repair of motor vehicles and motorcycles" covers:

- The wholesale and retail trade and repair of motor vehicles and motorcycles;
- The retail sale of automotive fuel in specialised stores;
- The wholesale trade, except of motor vehicles and motorcycles;
- The retail trade, except of motor vehicles and motorcycles.

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Figure 4 below shows the correspondences between the EXIOBASE industries and the NACE divisions for the retail factsheet.

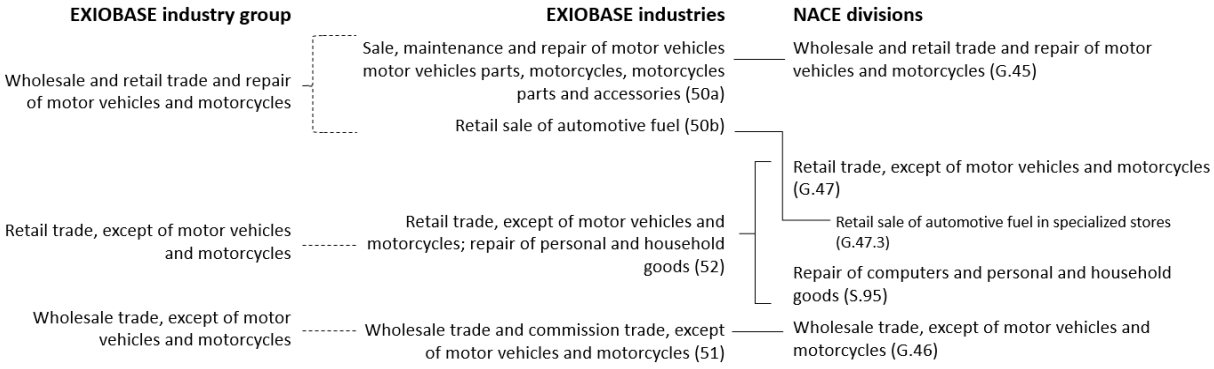

Figure 4: Correspondence between EXIOBASE and NACE rev. 2 for the Wholesale and Retail benchmark factsheet.

Please note that the sector includes the **repair** of motor vehicles, personal and household goods. Moreover, it covers **ancillary activities related to trade**, such as repacking, storage and delivery, when the latter are not operated by a specialized company (otherwise, transport and warehousing are covered by the NACE rev. 2 section H).

The EXIOBASE industries for the retail benchmark have a very **little level of detail**: the trade of all types of goods, except motor vehicles, is grouped in the industries "Wholesale trade, except of motor vehicles and motorcycles" and "Retail trade, except of motor vehicles and motorcycles". **Therefore, the GBS will not be able to break down the results depending on the traded goods category**. This limit will be partially assessed in the focuses presented in section 3.9.C of this technical annex.

The available NACE rev.2 classification gives a more detailed overview of the types of traded goods falling under the scope of the Wholesale and Retail benchmark factsheet.

Regarding wholesale trade:

- G.46.2. Agricultural raw materials
- G.46.3. Food, beverages and tobacco
- G.46.4. Household goods, such as textiles, clothes, footwear, electrical appliances, pharmaceutical goods, watches and jewellery, furniture, cosmetics, etc.
- G.46.5. Information and communication equipment
- G.46.6 Other machinery and equipment, such as agricultural machinery, mining and construction machinery, machinery for the textile industry, etc.
- G.46.7. Other goods, such as metals, chemical products, waste and scrap, wood and construction materials, etc.

Regarding retail trade:

- G.47.1. Sale in non-specialized stores, such as supermarkets or department stores
- G.47.2. Food, beverages and tobacco (in specialized stores)
- G.47.3. Automotive fuel
- G.47.4. Information and communication equipment (in specialized stores)

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- G.47.5. Other household equipment, such as textiles, carpets, electrical appliances, lighting (in specialized stores)
- G.47.6. Cultural and recreational goods, such as books, newspapers, music and video, sporting, games and toys, etc (in specialized stores)
- G.47.7. Other goods sold in specialized stores, such as clothes, footwear, medical articles, cosmetics, flowers, watches and jewellery
- G.47.8. Goods sold via stalls and markets
- G.47.9. Goods sold neither in stores, stalls and markets: in particular **e-trade**.

The **repaired goods** falling under the scope of the Wholesale and Retail factsheet are described in the division S.95 of NACE classification:

- S.95.1. Computers and communication equipment
- S.95.2. Personal and household goods, such as home and garden equipment, footwear and leather goods, furniture, watches and jewellery, etc.

Finally, the sector covers every wholesale, retail or repair activity around **motor vehicles and motorcycles** as well as related accessories. These activities are covered by the NACE section G.45 "Wholesale and retail trade and repair of motor vehicles and motorcycles".

For further details, please have a look to the detailed NACE classification provided in section 3.9.3.

1.3. Scopes of the Wholesale and Retail sector

Figure 5 below encapsulates the scopes of the Wholesale and Retail sector.

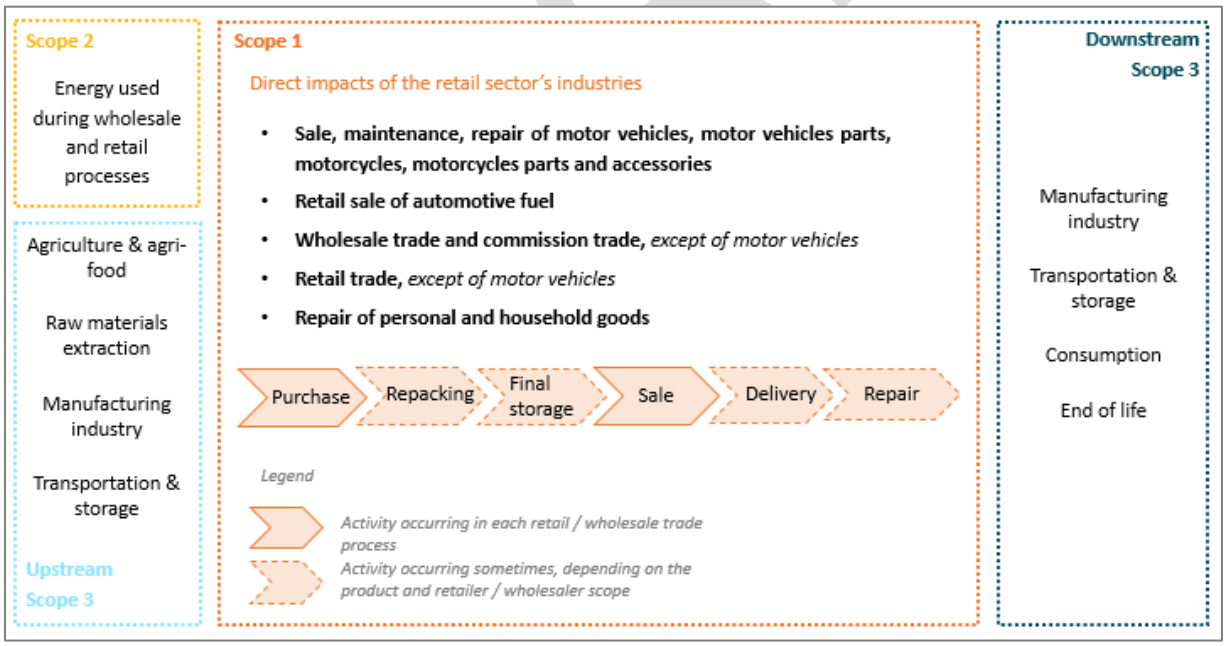

Figure 5: Perimeter of the Wholesale and Retail benchmark factsheet.

Please note that some processes, such as manufacturing or transportation and storage, are present both in the upstream and downstream Scope 3 of the sector. Indeed, depending on the good, the trade can occur before the industrial transformation of the product (*e.g.* agriculture direct products) or after it (*e.g.* agrifood products).

Moreover, the transportation and storage in warehouses, when operated by specialized companies outside the Wholesale and Retail sector, can occur before or after the sale.

Scope 2 covers the impacts due to the use of energy for the Wholesale and Retail processes such as lighting, heating, or air conditioning in stores, and in particular refrigeration in food retail stores.

Additional details on the value chain of the Wholesale and Retail sector are available on Figure 6 below.

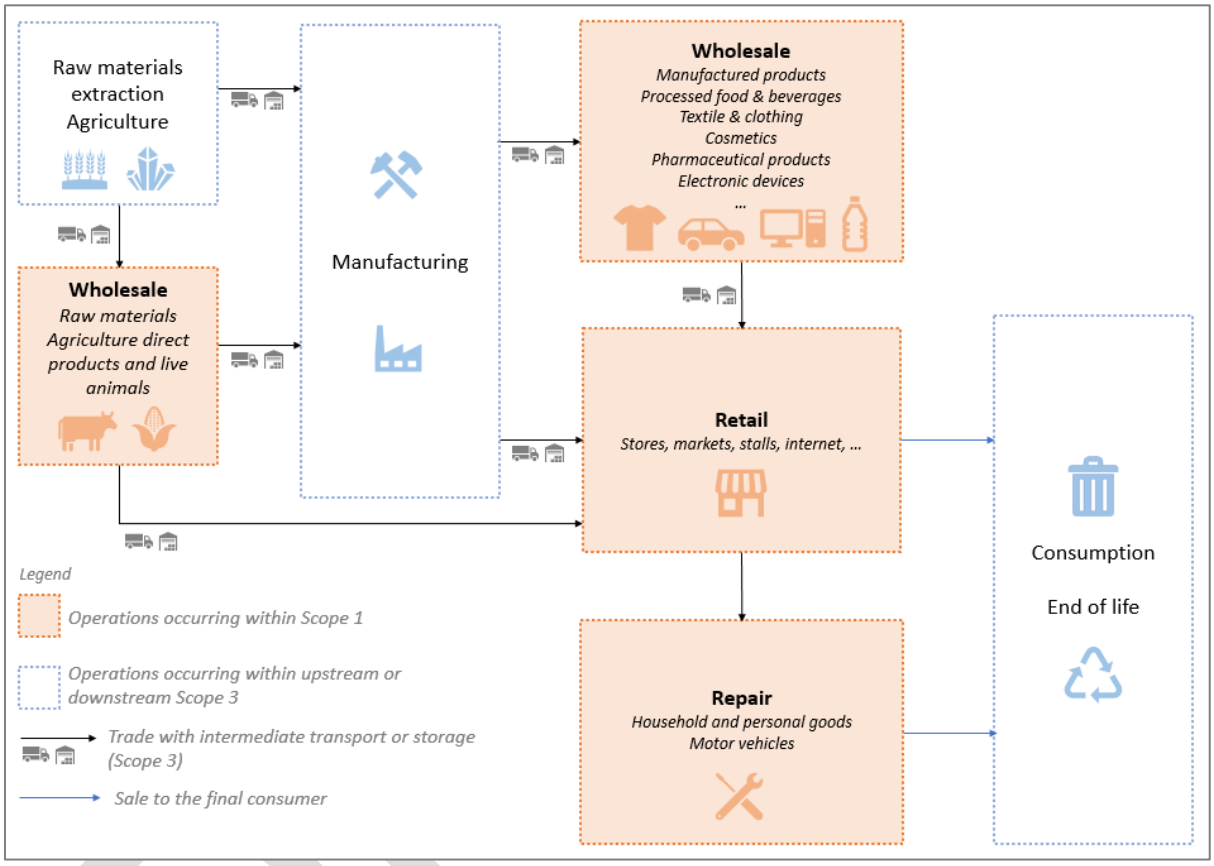

Figure 6: Value chain of the Wholesale and Retail sector.

Most results in the factsheet are expressed in MSA.m²/kEUR of turnover. The impacts are indeed divided by the turnover of the EXIOBASE industries (the associated unit is therefore the *MSA.m²/kEUR of the EXIOBASE industry*) or by the turnover of a group of industries (expressed in *MSA.m²/kEUR*). Please note that version 1.4.8 of the GBS uses **2011 turnover data from EXIOBASE 3.8.1 version.** The geographical area covered by the factsheet is the **whole world**.

Table 1 below describes the share of each EXIOBASE industry in the benchmark sector's turnover. According to EXIOBASE data, the overall turnover of the Wholesale and Retail sector accounts for **5.2 % of the global turnover**, all sectors included.

In the whole factsheet and the annex, **rounded values** are presented. Thus, **the sum of rounded values may not be equal to the rounded value of the total**.

EXIOBASE industry	Turnover (bEUR)	Share in the benchmark sector's total turnover
Sale, maintenance, repair of motor vehicles, motor vehicles parts, motorcycles, motorcycles parts and accessories	1 500	24 %
Retail sale of automotive fuel	64	1.1 %
Wholesale trade and commission trade, except of motor vehicles and motorcycles	2 900	48 %
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	1 600	26 %
TOTAL	**6 047**	**100,0 %**

Table 1: Turnover of the EXIOBASE industries included in the Wholesale and Retail benchmark factsheet (data obtained from GBS 1.4.8 and therefore from EXIOBASE 3.8.1, 2011).

For practical reasons, the EXIOBASE industry groups and industries of the sector will be abbreviated in the factsheet and the annex as follows in Table 2:

Official EXIOBASE name	Abbreviated name
Wholesale and retail trade and repair of motor vehicles and motorcycles - Sale, maintenance and repair of motor vehicles motor vehicles parts, motorcycles, motorcycles parts and accessories - Retail sale of automotive fuel	**Wholesale and retail trade of motor vehicles** - Sale and repair of motor vehicles - Sale of automotive fuel
Wholesale trade, except of motor vehicles and motorcycles Wholesale trade and commission trade, except of motor vehicles and motorcycles	**Wholesale trade of other goods** Wholesale trade of other goods
Retail trade, except for motor vehicles and motorcycles Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	**Retail trade of other goods** Retail trade of other goods

Table 2: Correspondence table between official EXIOBASE industry groups and industries and abbreviated names used in the factsheet and the annex.

2. Perimeter of the factsheet for the dependencies analysis

To understand the dependencies of the Wholesale and Retail sector, a correspondence of EXIOBASE and ENCORE is necessary. The dependencies to ecosystem services are expressed in scores by the GBS using 2018-2023 version of the ENCORE knowledge base.

. The 2018-2023 version of the ENCORE knowledge base sorts industries thanks to three levels of detail: sector, subindustry and process. To calculate the Scope 1 dependencies, the model only relies on **the process** level. Therefore**, two subindustries included in the same process will have the same Scope 1** dependencies.

In the case of the Wholesale and Retail sector, the EXIOBASE industries are divided under two ENCORE processes: **Infrastructure holdings** and **Distribution**. Thus, **the Retail trade of other goods, Sale and repair of motor vehicles and Sale of automotive fuel industries will have the same Scope 1 dependencies**, which may differ

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from the Wholesale of other goods industry's dependencies. However, as each ENCORE subindustry calls different upstream processes, **the upstream Scope 3 dependencies will differ for each EXIOBASE industry**.

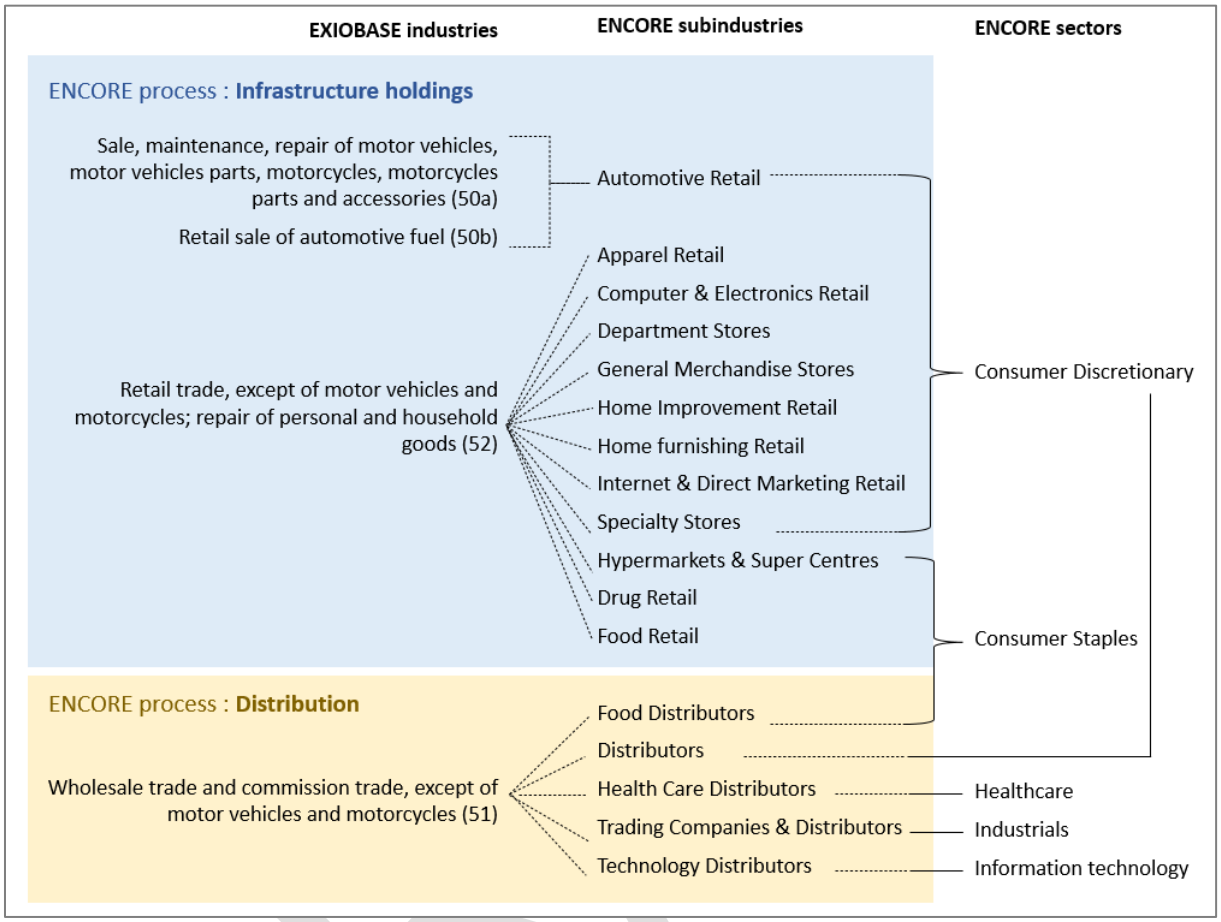

Figure 7 below illustrates the correspondence between the EXIOBASE industries and the ENCORE subindustries for the Wholesale and Retail sector. The 2018-2023 version of the ENCORE knowledge base sorts industries thanks to three levels of detail: sector, subindustry and process. To calculate the Scope 1 dependencies, the model only relies on the **process level**. Therefore, **two subindustries included in the same process will have the same Scope 1 dependencies**.

In the case of the Wholesale and Retail sector, the EXIOBASE industries are divided under two ENCORE processes: **Infrastructure holdings** and **Distribution**. Thus, **the Retail trade of other goods, Sale and repair of motor vehicles and Sale of automotive fuel industries will have the same Scope 1 dependencies**, which may differ from the Wholesale of other goods industry's dependencies. However, as each ENCORE subindustry calls different upstream processes, **the upstream Scope 3 dependencies will differ for each EXIOBASE industry**.

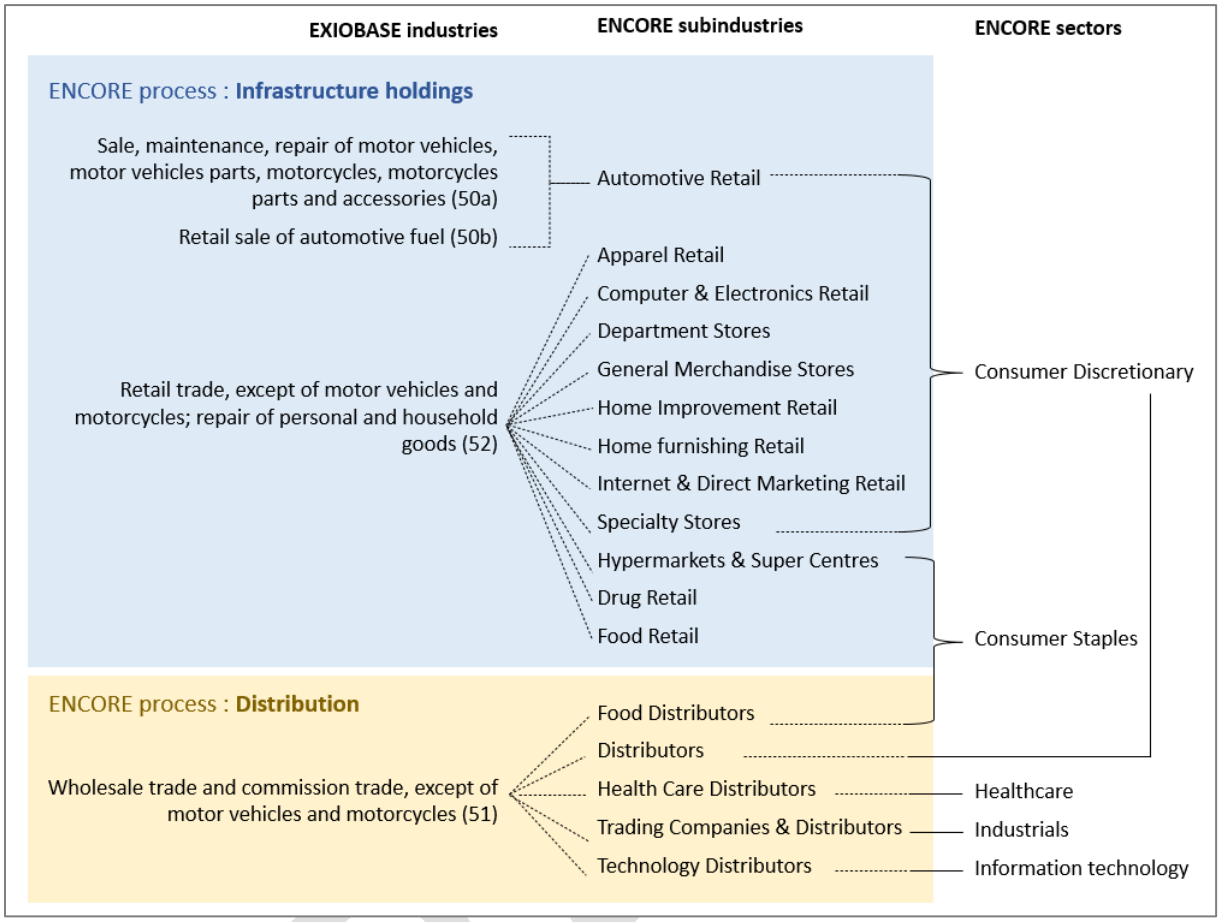

Figure 7: Correspondence between EXIOBASE and ENCORE for the Wholesale and Retail benchmark factsheet.

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C. ADDITIONAL RESULTS

1. Overall sector's impacts

1.1. Absolute impacts of the sector

The following calculations were performed using GBS 1.4.8 in May 2024. The previous factsheets are based on older versions of the GBS, which can explain some differences. Please note that the terrestrial static results include the results associated with the Climate change pressure. Further details are available in section 2.5 of the general technical annex (CDC Biodiversité 2021). The aquatic dynamic results are included in the following tables to compute aggregated scores in MSAppb*/bEUR but they are not reported in the rest of the results due to uncertainty. Please refer to the section Limits and uncertainties for further information.

3 and Table 4 below display the absolute impacts in MSA.km² of the different industries of the sector, within their Scope 1 and vertically integrated. The **most impactful industry**, in its Scope 1 as well as in its entire value chain, for every realm and accounting category, is the **Wholesale trade of other goods**. It is also the industry having the most important turnover (see Table 1). Generally speaking, the results show that the **industries' impacts increase with their turnover**. However, this relation **is not proportional**.

Regarding the **absolute total impacts**, Scope 1 terrestrial static impacts of the sector reach **54 000 MSA.km² and 620 000 MSA.km²** for its vertically integrated terrestrial static impacts. These impacts are relatively low compared to other sectors, due to the sector's position downstream value chains. For instance, Scope 1 impacts of Raw materials extraction is about 4 700 000 MSA.km².

Even though the upstream value chain of the Wholesale and Retail sector includes impactful activities such as agriculture and raw material extraction, each activity accounts for a very small part of the total purchases because of the large diversity of upstream industries. Consequently, the vertically integrated impacts of the sectors may seem low. The same comparison may be drawn between the Wholesale and Retail sector and the Manufacturing sector: the latter has greater vertically integrated impacts than the former, which can seem surprising. Actually, all the sales of the Manufacturing sector do not go to the Wholesale and Retail sector. Therefore, the upstream value chain of Wholesale and Retail does not include the entire value chain of manufacturing industries, and the vertically integrated impacts of manufacturing are not necessarily lower than the Wholesale and Retail ones.

Sankey charts on Figure 8 and Figure 9 below illustrate the diversity of industries to which the manufacturing sector sells its production in the EXIOBASE input-output model. Wholesale and Retail industries only account for a small proportion of manufacturing sales, and therefore their impacts only include few upstream impacts of the manufacturing sector.

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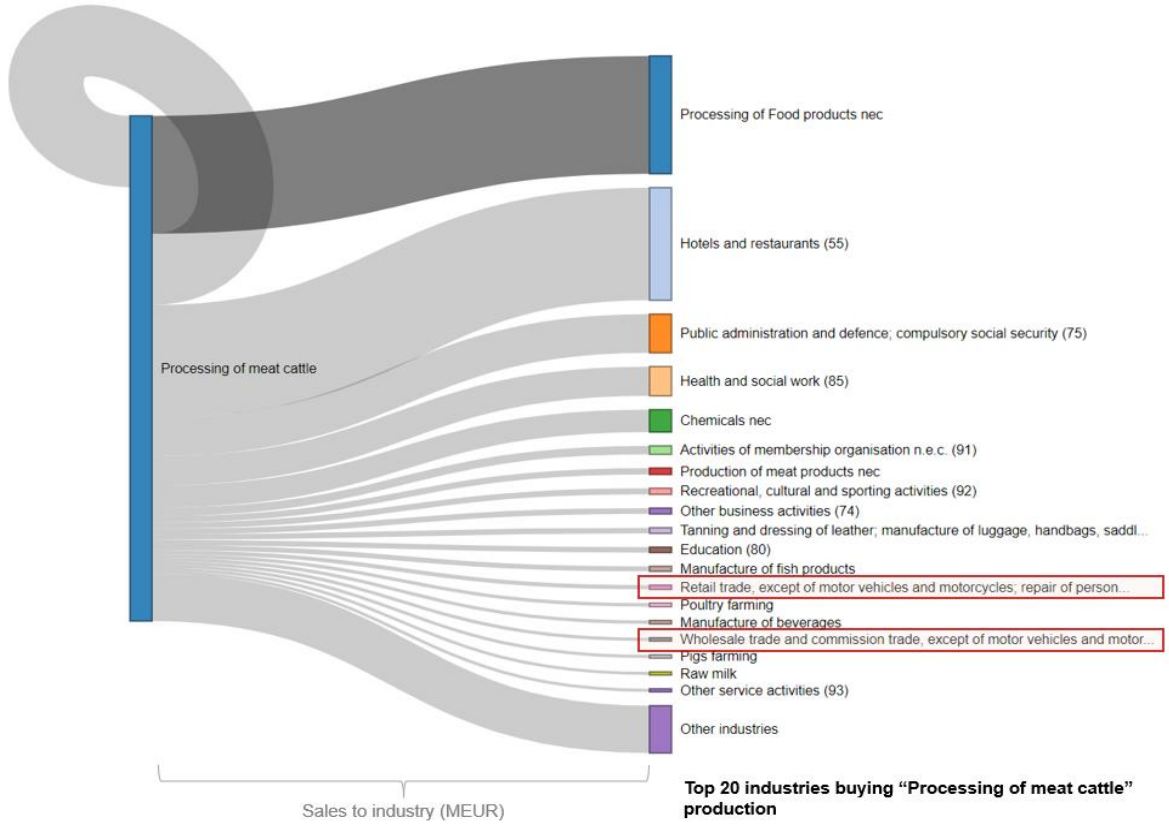

Figure 8: Top 20 main industries buying "Processing of meat cattle" production. The red frames outline the Wholesale and Retail industries among all direct buyers. Source: EXIOBASE

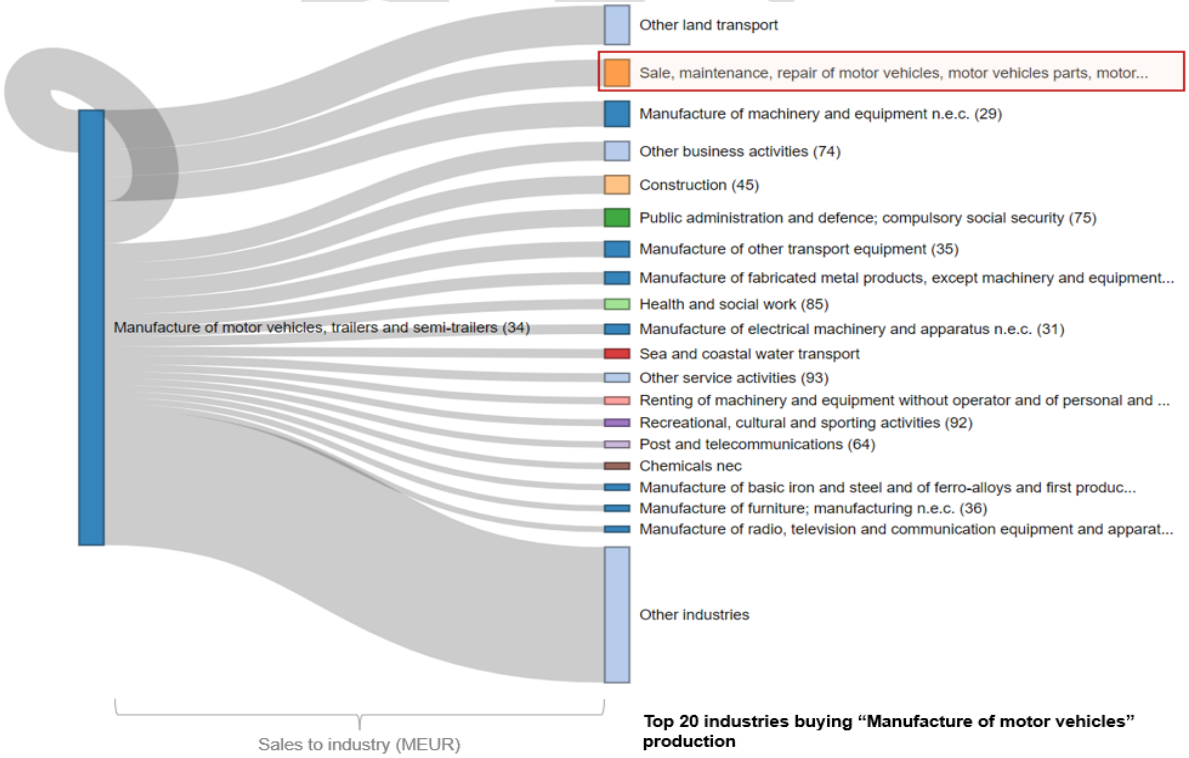

Figure 9: Top 20 main industries buying "Manufacture of motor vehicles" production. The red frames outline the Wholesale and Retail industries among all direct buyers. Source: EXIOBASE

More details about upstream impacts are available in section C.7 of the annex. The Sale of automotive fuel industry has the lowest results for Scope 1 as well as for the vertically integrated impacts. Indeed, it is a very specific market which affects a limited number of products, whereas the Wholesale or Retail trade of other goods include a wider range of products and distribution sites.

Realm	Accounting category	Scope 1 impacts in MSA.km²				
		Sale and repair of motor vehicles	Sale of automotive fuel	Wholesale trade of other goods	Retail trade of other goods	Total
Terrestrial	Static	6 900	6 300	27 000	14 000	**54 000**
	Dynamic	130	120	360	230	**840**
Aquatic	Static	30	15	190	88	**320**
	Dynamic	1.4	1.3	3.9	2.5	**9.0**

Table 3: Absolute Scope 1 biodiversity impacts of the Wholesale and Retail sector. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

Realm	Accounting category	Vertically integrated impacts in MSA.km²				
		Sale and repair of motor vehicles	Sale of automotive fuel	Wholesale trade of other goods	Retail trade of other goods	Total
Terrestrial	Static	98 000	35 000	290 000	200 000	**620 000**
	Dynamic	910	330	2 400	1 700	**5 300**
Aquatic	Static	4 800	1 800	13 000	10 000	**30 000**
	Dynamic	32	11	72	64	**180**

Table 4: Absolute vertically integrated biodiversity impacts of the Wholesale and Retail sector. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

1.2. Impact intensities of the sector

Table 5 and Table 6 below show the impact intensities as well as aggregated results of the sector, within their Scope 1 as well as vertically integrated. The impact intensities in MSA.m²/kEUR were obtained by dividing the absolute impacts of the sector in MSA.m² by the total turnover of the sector. The results are also converted into MSAppb per bEUR and are then aggregated to MSAppb* per bEUR. Further methodological details are available in section 2.2 of the general technical annex of benchmark factsheets (CDC Biodiversité 2021).

In the same way as for the absolute impacts, impact intensities of Wholesale and Retail are relatively low compared to other sectors. For instance, the raw material extraction sector has a Scope 1 aggregated score of 14 000 MSAppb/bEUR for static impacts whereas the Wholesale and Retail sector has one of **72 MSAppb/bEUR**. Regarding the vertically integrated static impacts, Raw material extraction reaches 20 000 MSAppb/bEUR whereas Wholesale and Retail only accounts for **350 MSAppb/bEUR**.

This relatively low impact intensity of Wholesale and Retail can be explained by **low Scope 1 impacts** as well as a **large diversity of upstream activities** (production of raw materials, manufacturing, transport, …) which attenuates the intensity of each one, as explained above in part C.1.1. for the absolute impacts. Consequently, the sector remains below the limits compatible with planet boundaries for every realm and accounting category.

The differences may also be due to **financial margins**: the more downstream the economic value chain an industry is located, the more a same quantity of product generates margin (compared to a more upstream industry). Thus, the Wholesale and Retail sector may generate a more important turnover than upstream sectors such as manufacture **for the same quantity of product**, and this lowers the sector's impact intensity. The differences of trends between absolute impacts and impacts intensities are explained below by Figure 10.

Realm	Accounting category	Footprint in MSA.m²/kEUR of the sector	Footprint in MSAppb/bEUR	Aggregated score in MSAppb*/bEUR
Terrestrial	Static	8.9	67	**2.6**
	Dynamic	0.14	1.0	
Aquatic	Static	0.053	5.2	
	Dynamic	0.0015	0.15	

Table 5: Scope 1 impact intensities for the Wholesale and Retail sector. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

Realm	Accounting category	Footprint in MSA.m²/kEUR of the sector	Footprint in MSAppb/bEUR	Aggregated score in MSAppb*/bEUR
Terrestrial	Static	100	190	**9.5**
	Dynamic	0.87	1.6	
Aquatic	Static	5.0	160	
	Dynamic	0.030	0.72	

Table 6: Vertically integrated impact intensities for the Wholesale and Retail sector. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

Figure 10 below illustrates the opposite tendencies of absolute impacts and impact intensities among the sector's industries, for the terrestrial static impacts. While the Wholesale trade of other goods industry has a relatively low terrestrial static impact intensity, it has the greatest terrestrial static impacts. The opposite trend can be observed for the Sale of automotive fuel industry. These results are notably driven by the differences in turnovers of the sector's industries: as the Sale of automotive fuel industry has a relative low turnover, its intensity appears comparatively higher than that of the other sectors. Regarding the Retail trade of other goods industry, it has a higher impact intensity than the Wholesale of other goods industry, but lower absolute impacts.

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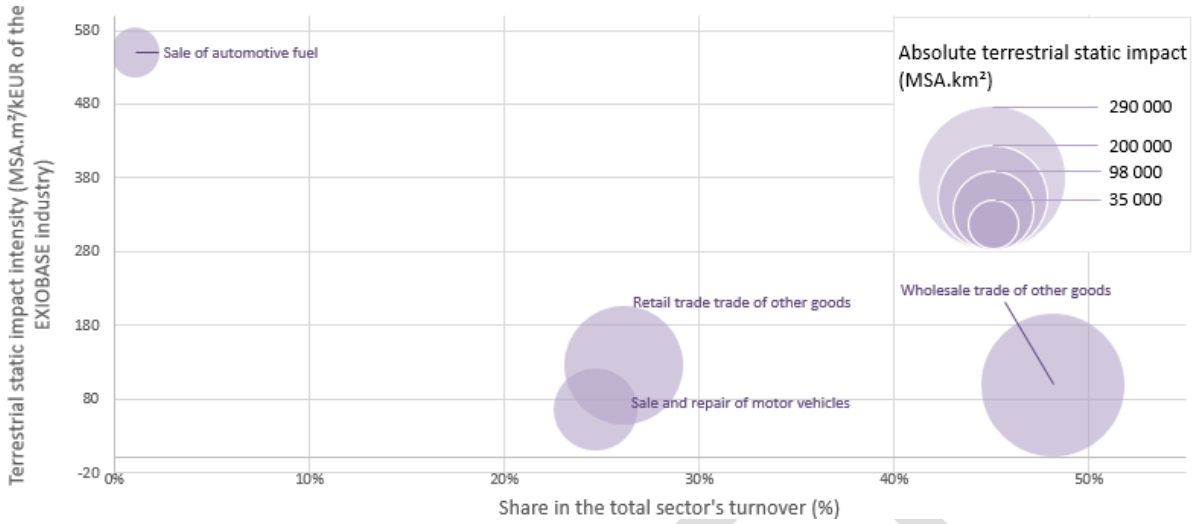

Figure 10: Comparison between the terrestrial static absolute impact and impact intensity tendencies of the Wholesale and Retail sector, breakdown by EXIOBASE industry, vertically integrated.

2. Breakdown by EXIOBASE industries and industry groups

In this section, the results are presented in MSA.m²/kEUR of the 2011 turnover of the EXIOBASE industry or industry group *i.e.*, for each industry the impacts in MSA.m² is divided by the turnover of the corresponding industry or industry group. This allows the different industries to position themselves within the benchmark sector. The terrestrial static results include the results associated with the Climate change pressure.

Please note that only the vertically integrated results are presented in this section.

2.1. Breakdown by Scope

Figure 11 and Figure 12 below display the impact intensities of each industry and industry group of the sector respectively, broken down by Scope.

They reveal that almost all terrestrial and aquatic static impacts occur in the upstream Scope 3, due to the position of Wholesale and Retail downstream the value chain. A specific focus on Scope 3 impact drivers is available in the To conclude, a dataset indicating the actual floor occupation (without elevated floors), including sales points, offices, storage and other logistical areas occupied by wholesale and retail infrastructures would be required to properly estimate the static impact intensity linked to Scope 1 spatial pressures. Regarding the dynamic impact intensity, more precise information about the land use change from one year to another when creating new wholesale and retail facilities would be necessary to assess it more rigorously.

Analysis of upstream Scope 3 impacts section. Moreover, Scope 1 only covers the trade activity, sometimes including storage and transport, even though these activities are often operated by specialized companies and thus fall under the upstream Scope 3 impacts. A focus on Scope 1 impacts is available in section C.6.

Regarding the terrestrial dynamic impacts, Scopes 1 and 2 account for a larger part as these impacts are substantially linked to GHG emissions, which occur at every step of the value chain. Refrigerants are responsible of these emissions in every Scope (Gimeno-Frontera et al. 2018). Indeed, they often have high Global Warming Potentials (GWP): Hydrofluorocarbons (HFCs)'s GWP can reach 12 000 for some substances and is generally above 500 (Greenhouse Gas Protocol 2016). Thus, leakages lead to Scope 1 GHG emissions. Moreover, the leakage of these refrigerants generate an overconsumption of electricity, as undercharged refrigerating systems

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require more energy (Gimeno-Frontera et al. 2018). This affects Scope 2 impacts related to GHG emissions. The GBS results also show that Scope 2 impacts are mainly due the production of electricity by coal for the Wholesale and retail trade of motor vehicles industry group. Regarding the Scope 2 impacts of Wholesale of other goods and Retail trade of other goods, these are mostly due to the GHG emissions of steam and hot water supply.

Another result lies in the **high impact intensity of the Sale of automotive fuel industry**, for every realm and accounting category. It can be explained by the presence of **highly impacting industries in its upstream Scope 3**, such as Extraction of natural gas (see To conclude, a dataset indicating the actual floor occupation (without elevated floors), including sales points, offices, storage and other logistical areas occupied by wholesale and retail infrastructures would be required to properly estimate the static impact intensity linked to Scope 1 spatial pressures. Regarding the dynamic impact intensity, more precise information about the land use change from one year to another when creating new wholesale and retail facilities would be necessary to assess it more rigorously.

Analysis of upstream Scope 3 impacts section). At the same time, the Sale of automotive fuel industry's turnover is very low compared to the other industries' turnovers as it accounts for 1.1 % of the sector's total turnover (Table 1). Even though the absolute impacts of this industry are also the lowest for each realm and accounting category (Table 4), they are not proportional to the turnover. For all these reasons, the Sale of automotive fuel industry has substantial impact intensities: **550 MSA.m²/kEUR** for the **terrestrial static** impacts and **5.1 MSA.m²/kEUR** for the **terrestrial dynamic** impacts, while the sector averages weighted by the industries' turnovers for the are respectively **100 MSA.m²/kEUR** and **0.87 MSA.M²/kEUR** (Figure 11). The non-proportional relation between absolute impacts and turnover also makes the Retail trade of other goods industry's impact intensity higher than the Wholesale of other goods' one.

However, when breaking down the results by **industry group**, the impact of the Sale of automotive fuel industry is largely absorbed by the one of the Sale of motor vehicles industry. Consequently, the impact intensity of the Wholesale and retail trade of motor vehicles industry group remains the lowest (Figure 12).

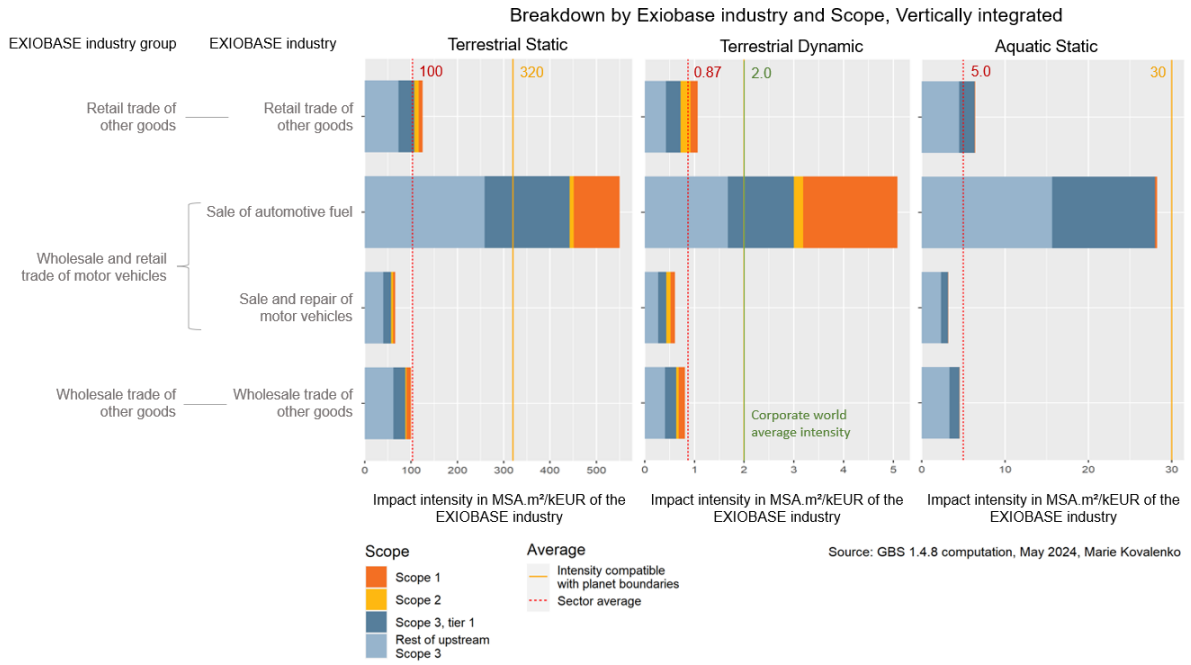

Figure 11: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry and Scope, vertically integrated. The sector average is weighted by each industry's turnover.

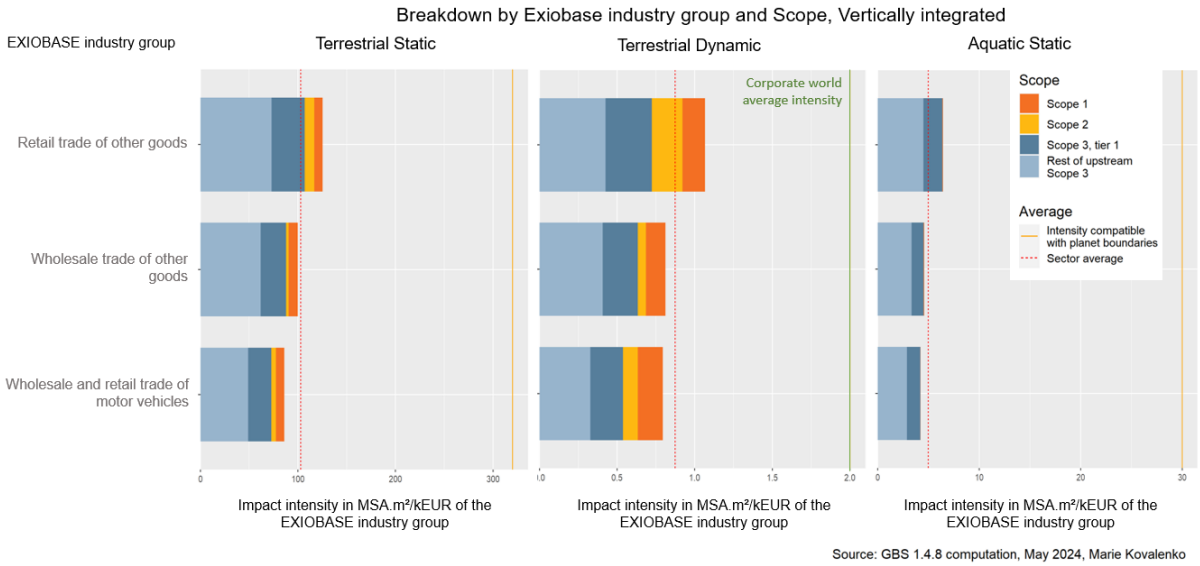

Figure 12: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry group and Scope, vertically integrated. The sector average is weighted by each industry group's turnover.

2.2. Breakdown by pressure

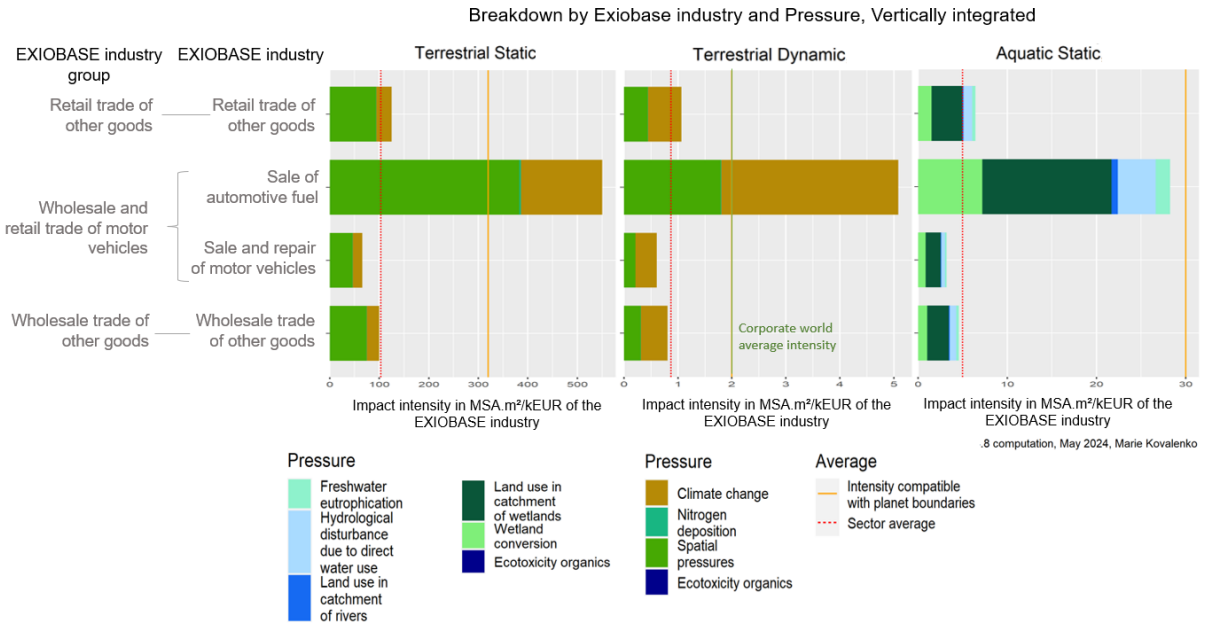

Figure 13: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry and pressure, vertically integrated. The sector average is weighted by each industry's turnover. and Figure 14 below display the impact intensities of each industry and industry group of the sector respectively, broken down by pressure, for the entire value chain. Regarding the terrestrial dynamic impacts, most of them are due to the Climate change pressure which is present all along the value chain. The terrestrial static impacts are significantly driven by spatial pressures. As the GBS assessment was only made using financial data, the results do not cover the spatial impacts

of Wholesale and Retail buildings (section Limits and uncertainties). The observed spatial pressures are therefore allocated to **upstream production and extraction activities**. Aquatic static impacts are mostly due to the pollution pressure Land use in catchment of wetlands, which can be driven by **waste and leakage** of the Wholesale and Retail upstream industries. Finally, the Hydrological disturbance due to climate change pressure is not accounted in the aquatic static results. This may underestimate the aquatic static impacts given the importance of Climate change in the terrestrial static pressures.

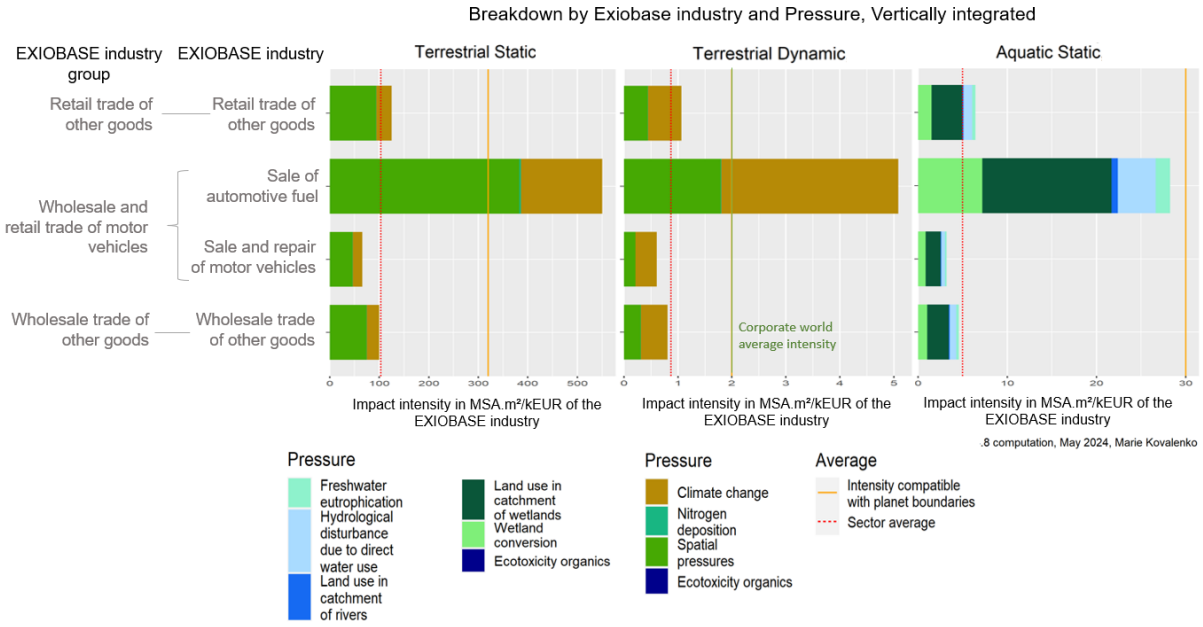

Figure 13: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry and pressure, vertically integrated. The sector average is weighted by each industry's turnover.

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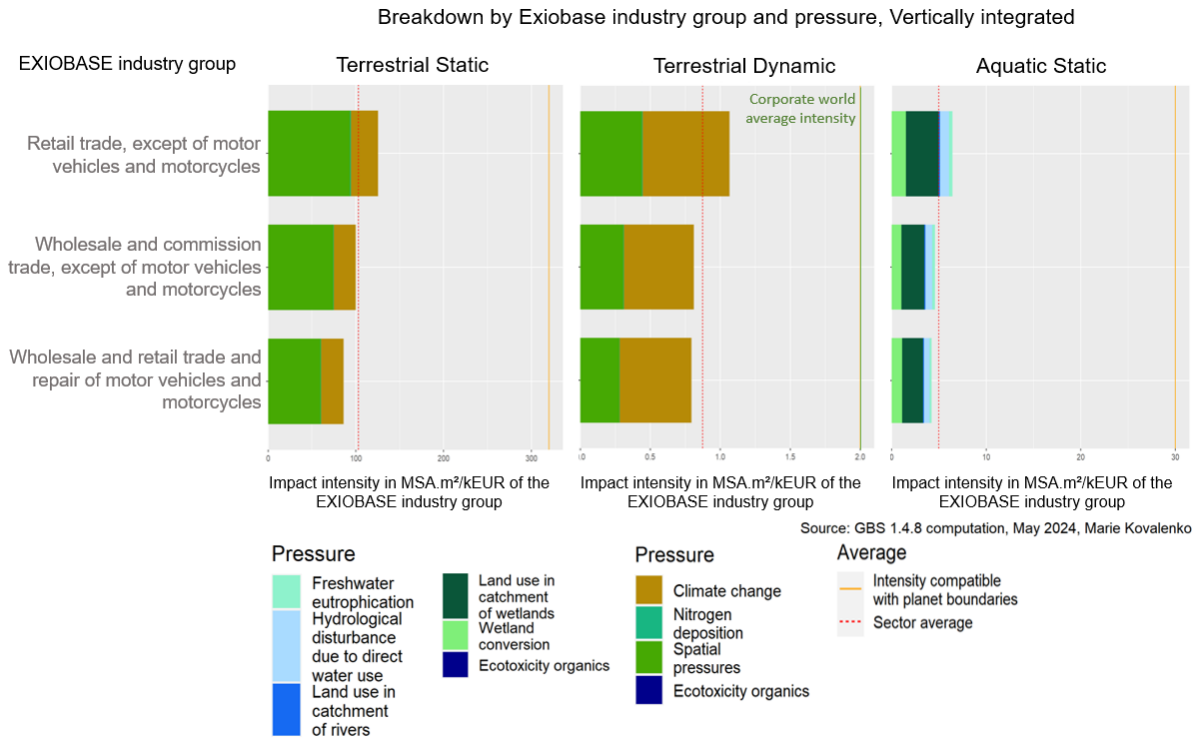

Figure 14: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry group and pressure, vertically integrated. The sector average is weighted by each industry group's turnover.

2.3. Breakdown by commodity

Figure 15 and Figure 16 below detail the sector's impact intensities breaking them down by commodity, for the entire value chain. They reveal that almost every commodity is present among the value chain, as the sector deals with the trade of any kind of goods and therefore depends on a wide range of manufacturing and raw production industries. GHG emissions, Grazing and Crops are the main commodities driving terrestrial impacts for every industry and industry group. This may be surprising for the Wholesale and retail trade of motor vehicles industry group, as its activity is not expected to be based on cultivations or grazing. A potential source of error would be possible inaccuracies in the way in which purchases are allocated in EXIOBASE for the industry group. Moreover, Grazing and Crops commodities are very impactful and may therefore appear significantly in the causes of impact even though they account for a negligible quantity of commodities. Further analysis is underway to understand this result. Regarding aquatic static impacts, the two main commodities are Crops and Grazing as Climate change is not included in the impact calculation.

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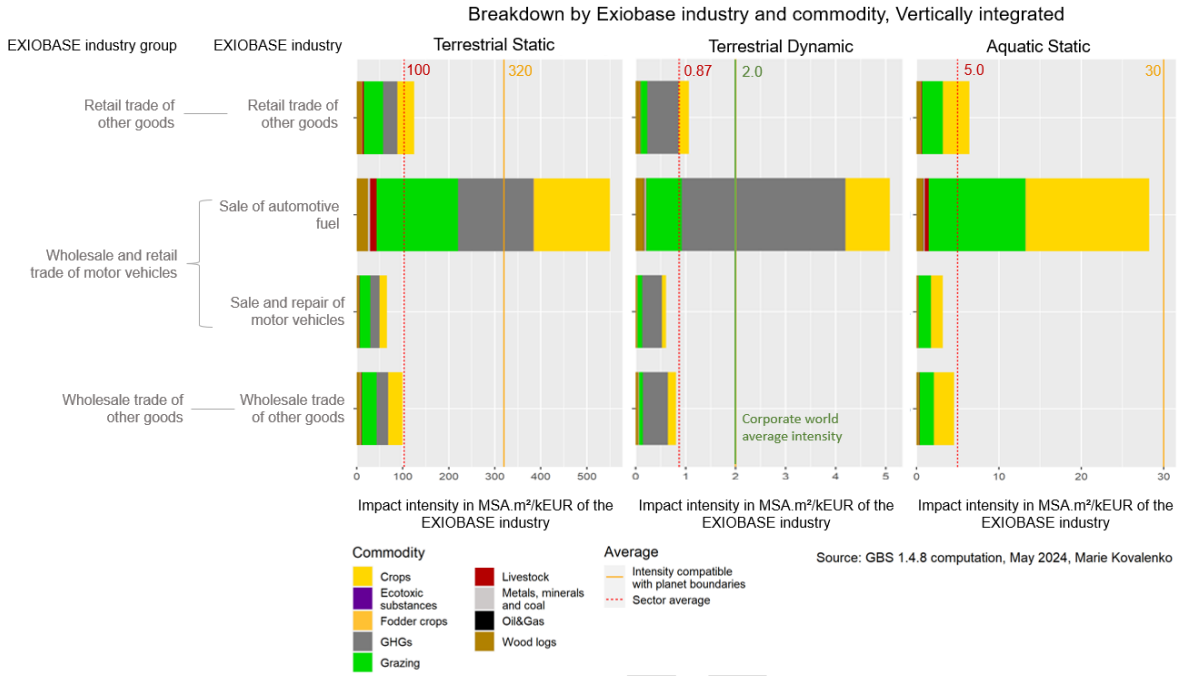

Figure 15: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry and commodity, vertically integrated. The sector average is weighted by each industry's turnover.

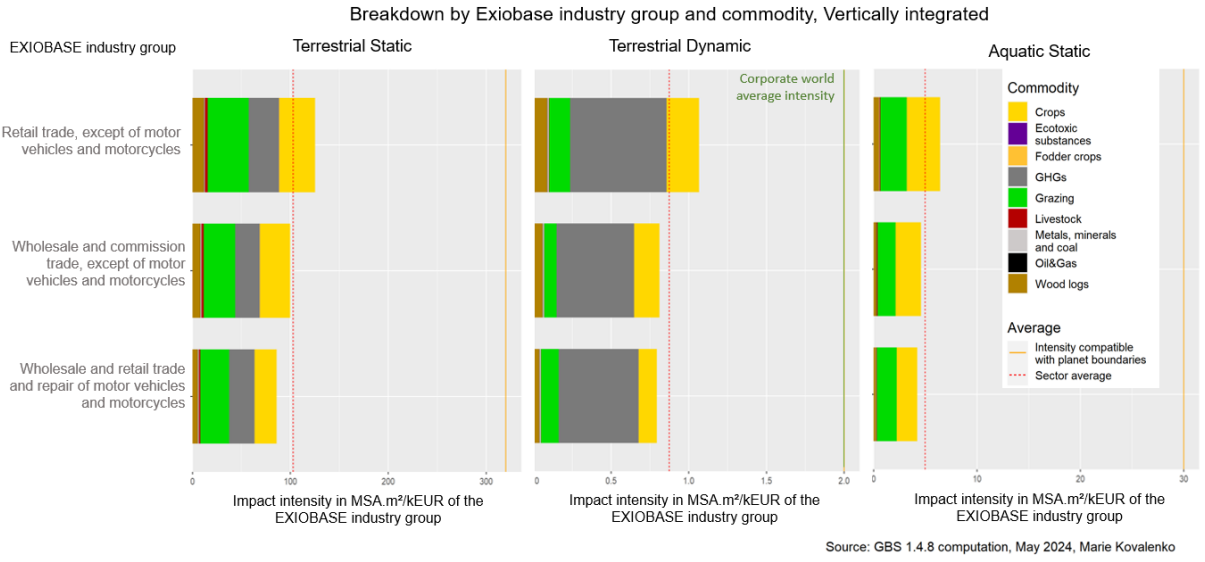

Figure 16: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry group and commodity, vertically integrated. The sector average is weighted by each industry group's turnover.

3. Limits and uncertainties

The EXIOBASE classification does not allow to differentiate the type of retailed product (*e.g.* food of household goods) except for motor vehicles, nor the type of trading place (supermarkets, discount stores, e-retail, …). Therefore, it is difficult to distinguish which activity among the Wholesale and Retail industry is the most impactful. The To conclude, a dataset indicating the actual floor occupation (without elevated floors), including sales points, offices, storage and other logistical areas occupied by wholesale and retail infrastructures would be required to properly estimate the static impact intensity linked to Scope 1 spatial pressures. Regarding the

dynamic impact intensity, more precise information about the land use change from one year to another when creating new wholesale and retail facilities would be necessary to assess it more rigorously.

Analysis of upstream Scope 3 impacts section provides further details about the upstream Scope 3 impacts of the sector.

When calculated with financial data, the GBS results do not provide impacts due to spatial pressures of offices, stores, parking lots, etc., because land occupation data is not available. Thus, Scope 1 impacts due to spatial pressures are underestimated. This limit can be overcome by adding land use data to the GBS input information, which is done in the section Analysis of Scope 1 impacts.

GBS calculations do not cover the downstream impacts of the sector, due to a lack of available data and method to track the use and end-of-life of traded goods. However, it is important to remember that those steps can also have a significant impact on biodiversity. Additionally, the Ecotoxicity pressure due to metallic substances is excluded because of high uncertainties because of intrinsic difficulties in modelling. These difficulties also affect the Ecotoxicity pressure due to organic substances but to a lesser extent. Therefore, this pressure is included in the results but can still cause uncertainties. So does the static Climate change pressure. The aquatic pressure Hydrological disturbances due to climate change is not accounted in the aquatic static impacts because of methodological limitations but may be significant as suggested by the importance of terrestrial static impacts due to the Climate change pressure.

Finally, the aquatic dynamic results also have a high uncertainty and are therefore only presented in the Overall sector's impacts section for the computation of aggregated scores in MSAppb*/bEUR.

4. Sector's dependencies

In this part are presented additional results on the sector's dependencies, including a breakdown by EXIOBASE industries. A methodological explanation is available in section 2.4 of the general technical annex (CDC Biodiversité 2021).

Table 7 below displays the average total dependency score of each EXIOBASE industry of the Wholesale and Retail sector, broken down by Scope. The results show that all the industries of the sector have a "very low" dependency score, for Scope 1 and upstream Scope 3 as well as vertically integrated scores.

As said in the Perimeter of the factsheet for the dependencies analysis section, Scope 1 dependencies are calculated thanks to the ENCORE process to which each industry belongs. As the Retail and repair of motor vehicles, Sale of automotive fuel and Retail trade of other goods industries all belong to the Infrastructure holdings process, the three of them rely on the same ecosystem services. The Wholesale trade of other goods industry which belongs to the Distribution process, has different Scope 1 dependencies. As shown on Figure 17, the four industries of the sector rely rather strongly on the "Mass stabilisation and erosion control" ecosystem service: each one has a dependency score between 40 % and 60 % for this ecosystem service. Indeed, a stable land is required to support the sector's buildings such as stores, warehouses, parking lots or offices. Regarding the Wholesale of other goods industry, the average Scope 1 dependency score is higher than the other industries' one because of its respectively "high" and "medium" dependency on the Climate regulation and Flood and storm protection ecosystem services, as part of the ENCORE Distribution process. A significant number of Scope 1 dependencies are "not known". The ecosystem services included in this category are either services for which no data was found on the subject, or services on which there the ENCORE process is effectively not dependent at all.

Please note that an updated ENCORE knowledge base is available since July 2024, updating the dependency calculation methodology. As a result, the dependencies of Wholesale and Retail seem harmonized between the different industries of the sector. As the GBS does not use the updated version of ENCORE yet, these changes are not displayed in the factsheet's results.

Average aggregated dependency score	Scope 1	Upstream Scope 3
Wholesale trade of other goods	9.5 %	12 %
Retail trade of other goods	2.9 %	13 %
Sale and repair of motor vehicles	2.9 %	13 %
Sale of automotive fuel	2.9 %	13 %

Table 7: Wholesale and Retail average dependency scores, broken down by EXIOBASE industry and Scope. The average is weighted by each industry's turnover. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

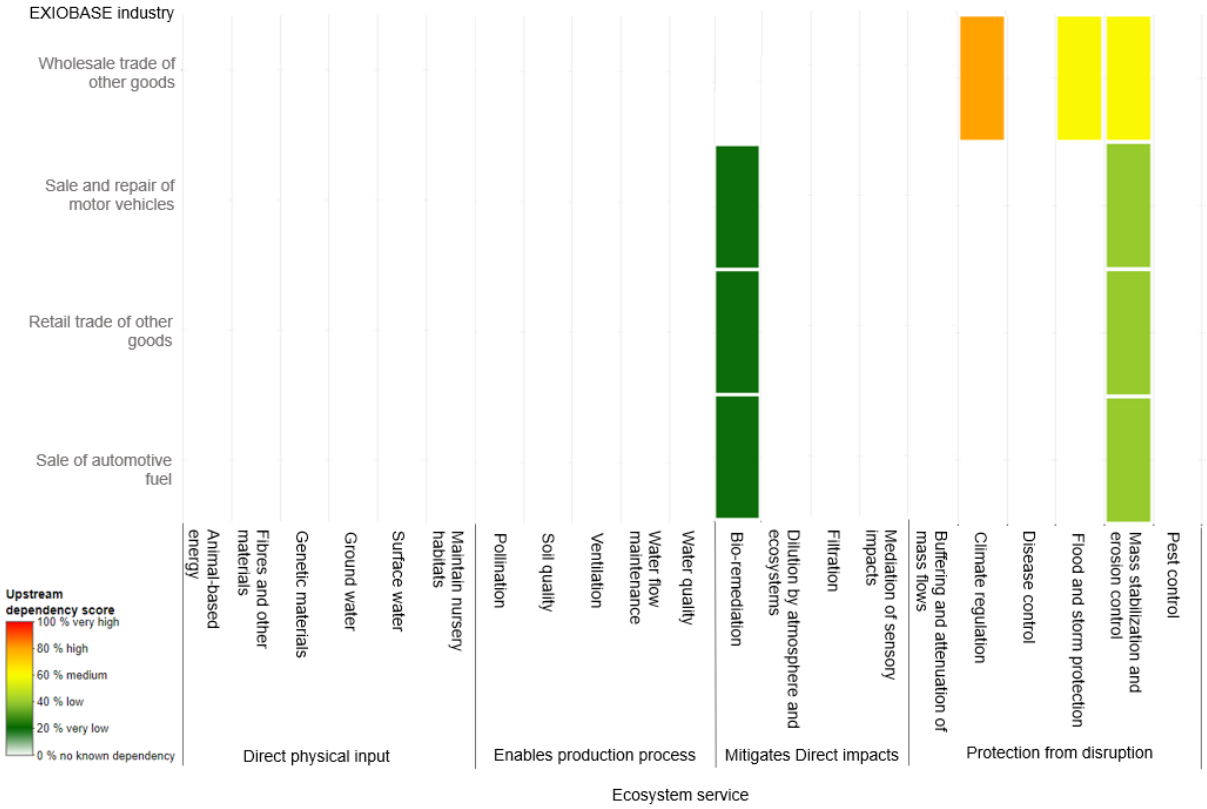

Figure 17: Scope 1 average dependency scores, broken down by EXIOBASE industry. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

The upstream dependency score is a weighted average of each supplier dependency score, meaning that a high dependency for one supplier of the supply chain might be lessened by a low dependency of another supplier on a given ecosystem service. The Wholesale and Retail sector relies on a very large number of upstream industries because of its position downstream the value chain, leading to "low" or "very low" average upstream dependency scores for the sector's industries. The results are presented on Figure 18 below.

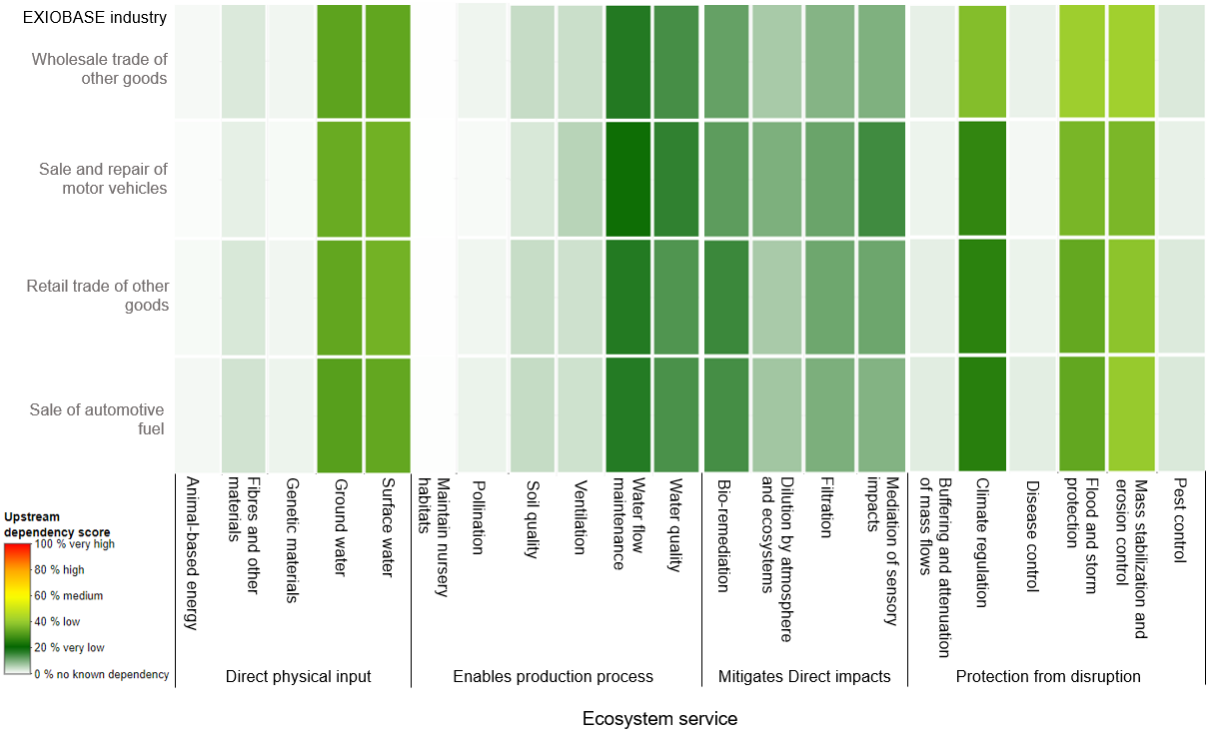

Figure 18: Upstream Scope 3 average dependency scores, broken down by EXIOBASE industry. Source: GBS 1.4.8, May 2024, Marie Kovalenko.

As explained above, the average upstream dependency scores do not highlight potential high dependencies to some ecosystem services which can be occulted by other low dependencies. Therefore, it is interesting to have a look at the critical upstream dependency scores of each industry of the sector, which are displayed in Table 8. These critical dependency scores can be read as the share of a company's value chain that is critically dependent, *i.e.* not substitutable, on at least one ecosystem service. A critical dependency is defined as a "High" or "Very high" dependency according to ENCORE. Each industry of the sector has a critical dependency score between 44 and 62 % and the total sector's dependency score reaches **55 %, meaning that this percentage of the sector's value chain is critically dependant on at least of one ecosystem service.** Indeed, each industry's value chain relies on production activities such as raw material extraction or agriculture which are highly dependent on ecosystem services. Please note that the critical dependencies scores might change with future methodology updates.

EXIOBASE industry	Wholesale trade of other goods	Retail trade of other goods	Sale and repair of motor vehicles	Sale of automotive fuel
Critical upstream dependency score	62 %	51 %	44 %	52 %

Table 8: Wholesale and Retail critical upstream dependency scores, broken down by EXIOBASE industry. The total sector critical dependency score is the average of the sector's industries' scores weighted by their turnover.

5. Trajectories for achieving international biodiversity targets

Table 10, *Sankey diagram available Figure 26.

Table 15 and Figure 19 below describe the data used in the calculation of each trajectory and the associated results. General explanation about the Science-based targets is available in the general annex.

The Wholesale and Retail sector has a very low Scope 1 dynamic impact: 0.26 % of the total global dynamic impacts in 2020. This does not only affect the sovereignty trajectory but also all the others as the efforts are calculated in comparison with the 2020 dynamic impact of the sector. Therefore, to achieve a same reduction of dynamic impacts and the same biodiversity gains as a more impactful sector (*e.g.* Raw materials extraction, with a 2020 dynamic impact reaching 55 000 MSA.km² and 19 % of the total 2020 dynamic impact), the Wholesale and Retail sector will have to reduce impacts as well as making net gains representing an extremely important part of its own 2020 dynamic impact. This is why the model demands a 2050 dynamic impact equal to -83 000 %, -32 000 % and -27 000 % of the 2020 dynamic impact of Wholesale and Retail respectively for the equality, capability and efficiency allocations (Table 10). In comparison, the Raw materials extraction sector has to reach a -130 000 MSA.km² dynamic impact in 2050 in the capability trajectory, which accounts for only -130 % of its 2020 dynamic impacts.

The four trajectory scenarios encapsulate different ethical points of view that the society could consider when asking companies to contribute to biodiversity gains. The blue area on Figure 19 covers the wideness of the possible paths companies of the Wholesale and Retail sector could have to follow to reach nature positive targets (CDC Biodiversité 2024). The sector could aim at reaching biodiversity gains between -1 800 % (sovereignty allocation) and -83 000 % (equality allocation) of its 2020 baseline in 2050. Figure 19 also points out that the Wholesale and Retail sector has a more important impact budget in 2025 than its 2020 baseline with the equality allocation. Indeed, as the sector employs a large part of the global workforce, it could be allowed more impacts.

Please note that for the efficiency allocation, only the absolute value of the restoration cost is expressed. Indeed, this measure is relevant when compared to the average restoration cost, weighted by the sector's turnovers, in absolute value. It encapsulates the sector's ease to achieve biodiversity gains by restoration.

Allocation	Approach	Parameter and unit	Data source	Sector's figures	Comparison with global total
Equality	Everyone has the same right	Number of employees in the sector (thousand people)	Eurostat (2018)	**34 000**	**14 %** of the total global workforce
Efficiency	Cost-effectiveness	Cost of restoration (EUR/[MSA.m²])	CDC Biodiversité internal estimation	**6.0**	**5.5** global average (weighted by the sector's turnovers)
Capability	Industries' ability to pay	Turnover (MEUR)	EXIOBASE 3.4 (2011)	**5 300 000**	**5.2 %** of the total global turnover
Sovereignty	Grandfathering	2020 dynamic impact (MSA.km²/year)	GBS computation	**740**	**0.26 %** of the total global 2020 dynamic impact

Table 9: Allocations and data used to draw sectoral trajectories.

Allocation	Absolute dynamic impact (MSA.km²)				%2020 dynamic impact of the sector		
year	**2020**	**2030**	**2040**	**2050**	**2030**	**2040**	**2050**
Equality	740	0	-72 000	-610 000	0.0 %	-9 600 %	-83 000 %

Efficiency	740	-11 000	-32 000	-200 000	-1 500 %	-4 400 %	-27 000 %
Capability	740	-13 000	-39 000	-240 000	-1 800 %	-5 200 %	-33 000 %
Sovereignty	740	0	-1 500	-13 000	0.0 %	-200 %	-1 800 %

Table 10: Wholesale and Retail absolute and relative to its 2020 dynamic impact biodiversity gains according to each allocation.

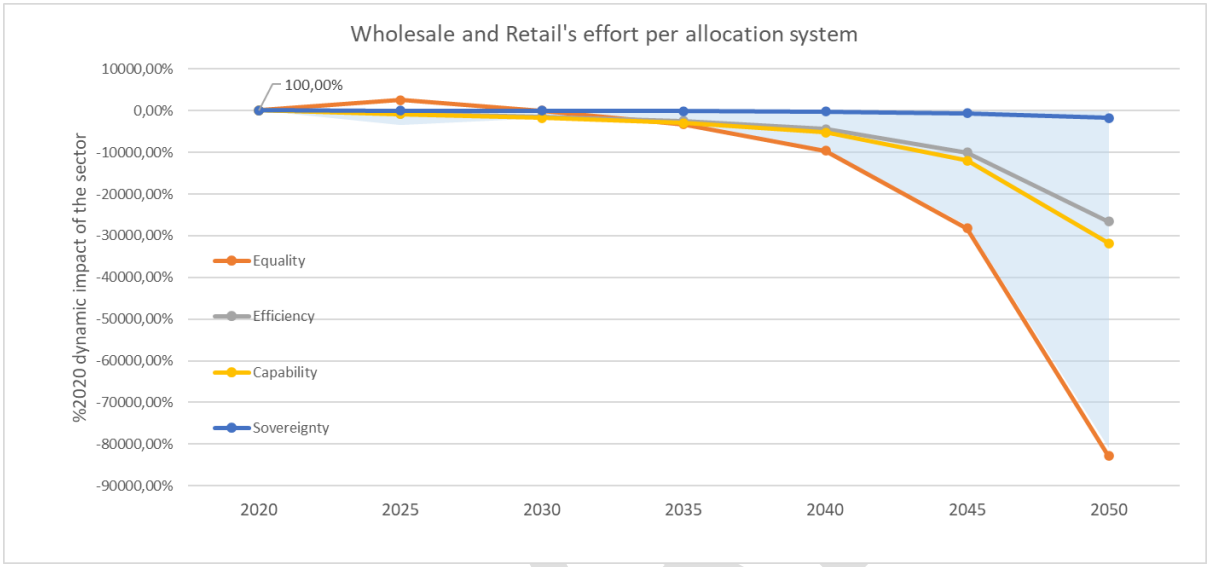

Figure 19: Wholesale and Retail sector's dynamic impact per allocation system.

6. Analysis of Scope 1 impacts

6.1. GBS default results, breakdown by pressure

Figure 20 and Figure 21 below display Scope 1 impact intensities of each industry and industry group respectively, broken down by pressure, with the GBS computation using financial data.

Scope 1 terrestrial impacts are mainly driven by the Climate change pressure. As explained above in Breakdown by Scope section, they are linked to important GHG emissions. Spatial pressures are very low as the default GBS calculation, only based on financial data, does not include the impact of infrastructures. In the same way, aquatic

static impacts are mainly due to the pollution pressure Land use in the catchment of wetlands and include very few spatial pressures. This is why the total Scope 1 impacts are underestimated.

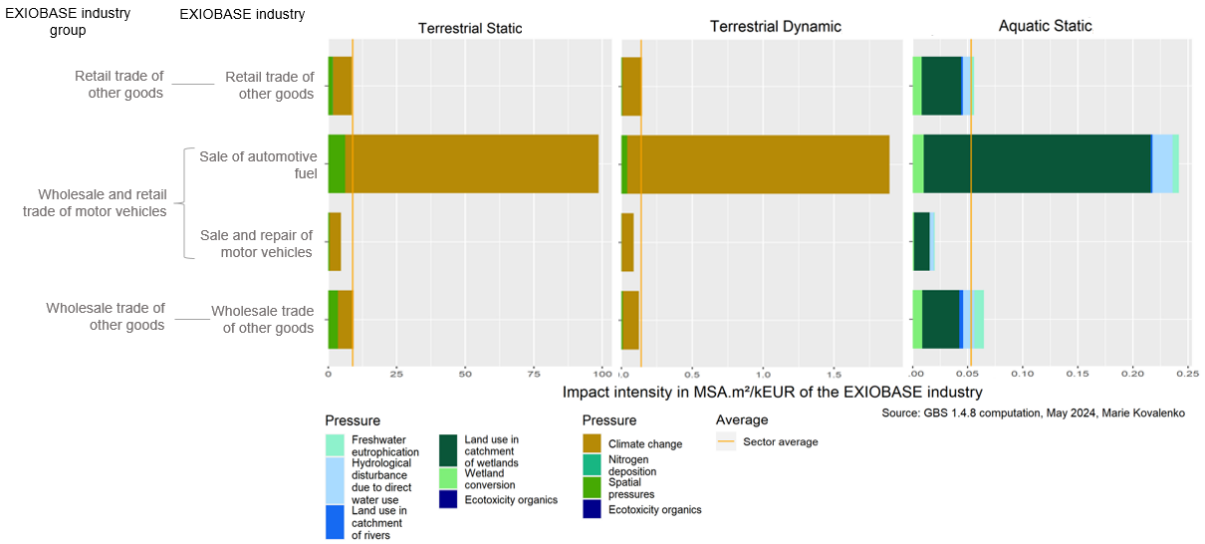

Figure 20: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry and pressure, Scope 1. The sector average is weighted by each industry's turnover.

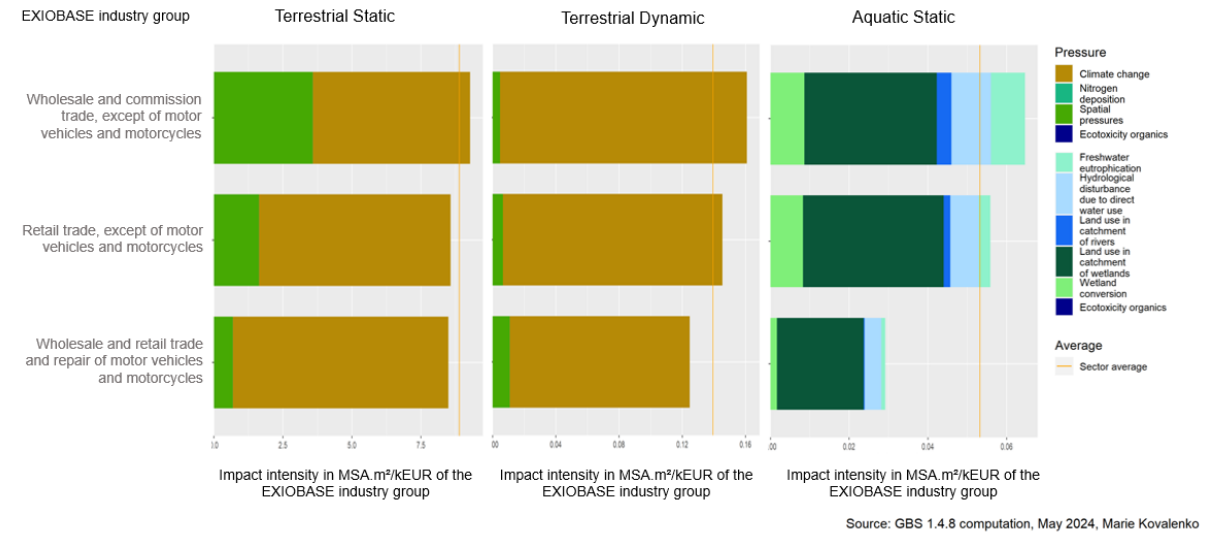

Figure 21: Wholesale and Retail impact intensities, breakdown by EXIOBASE industry group and pressure, Scope 1. The sector average is weighted by each industry group's turnover.

6.2. Scope 1 spatial pressures

To assess the real spatial pressures caused by the Wholesale and retail infrastructures, additional spatial data is necessary. The following part focuses on the GBS results (impact intensities) of the French Wholesale & Retail buildings for the spatial pressures. These pressures include Land use, Fragmentation and Encroachment for terrestrial impacts, and Wetland conversion for the aquatic impacts.

Land occupation data

Three datasets were used to estimate France's Wholesale & Retail infrastructures spatial occupation. Two of them were combined to obtain two different estimations.

Dataset	***Liste des autorisations d'urbanisme créant des locaux non résidentiels***, JSON file
Source	French government database (Service des données et études statistiques 2024)
Content	**List of all building permits in France between 2013 and 2024** (included), sorted by type of purpose (commercial, warehouse, agricultural, artisanal, accommodation, offices, industrial, advertising). For each purpose, are available the built areas: - previously present on the construction site if it exists ("before") - newly built ("created") - destroyed ("destroyed") - transformed from this purpose to another one ("transformed") - transformed from a previous one to the purpose ("from transformation")

Assumptions and exclusions	- Only the areas with **commercial, artisanal or warehousing** purposes (before or after the work) are kept.
	- The works ordered by a public administration (town, department, region) are excluded.
	- The works with an unknown orderer are excluded.
	- A certain amount of works has unknown end dates. These works have not been accounted in the calculation of the dynamic impacts.
	- It is assumed that **the total area covers the entire wholesale and retail trade activities** in France, defined as:
	  - Sale of automotive fuel
	  - Sale and repair of motor vehicles
	  - Wholesale trade of other goods
	  - Retail trade of other goods.

Data used & calculation of static impacts	All areas with a commercial, warehousing of artisanal purpose: - **built between 2013 and 2024** - when available, **previously present on the construction site** before the work. Therefore, only the buildings that were **built or refurbished after 2013** are included. The areas were grouped by exact location (same address) and only the most recent work done on each location is kept (sorting by end date). If all end dates of works at the same location are unknown, the work containing the most important built area before the work is kept. The final built area in 2024 is the sum of previously present areas, newly created and transformed from another purpose to commercial, warehousing or artisanal areas, and the substraction of the selected areas which are demolished or transformed into another purpose than commercial, warehousing or artisanal: $A_{total} = A_{before} + A_{created} + A_{from\ transformation} - A_{destroyed} - A_{transformed}$
Data used & calculation of dynamic impacts	All areas with a commercial, warehousing of artisanal purpose: - built yearly between 2013 and 2024 - entailing the **destruction of non-urban areas** (i.e., if the new retail area is built on an existing urban area, it does not affect the dynamic impact as this area is already artificialized). It is assumed that newly created (resp. destroyed) areas entail a change of land uses from non-urban to urban (resp. urban to non-urban)

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The areas were grouped by end year.

The final newly built area each year is the substraction of newly created and demolished areas:

$$A_{year\ i} = A_{created\ year\ i} - A_{destoyed\ year\ i}$$

The substraction of areas transformed from another purpose to commercial, warehousing or artisanal areas, and areas which are transformed into another purpose than commercial, warehousing or artisanal is also calculated but does not affect the dynamic impact as there is no change of land use type (urban to urban).

Table 11: Data used and assumptions for the Wholesale and Retail sector's spatial occupation with the building permits database (Service des données et études statistiques 2024).

Datasets	1. *Dispositif des points de vente, Excel file* 2. *Enquête sur l'activité des entrepôts et des établissements logistiques, Excel file*
Source	1. (INSEE 2020), INSEE 2015 2. (Service des données et études statistiques 2016) SDES
Content	1. Count of all the sales points and their average areas (all commercial buildings and retail outlets) in 2015 and 2020 in France, sorted by density of population of the location (urban, scattered rural town and rural areas). 2. Count of all the logistical buildings and warehouses and their average area in 2016 in France, sorted by type of use (commercial, industrial, transportation)

Assumptions and exclusions	- The aggregation of data from both sources covers the sales area of sales points and the total area on which warehouses are located (including parking, vehicle manoeuvre areas as well as green spaces). Therefore, auxiliary storage areas next to sales points or offices areas are not included.
	- It is assumed that **the total area covers the entire wholesale and retail trade activities** in France, as defined in Table 11.
	- However, the SDES data about warehouses does not allow to measure an evolution of the warehousing area over the years. Therefore, **this dataset is only used to estimate static impacts**.
	- Regarding the **dynamic impacts**, it is assumed that the INSEE data only covers **retail trade activities** in France, defined as:
	  - Sale of automotive fuel
	  - Sale and repair of motor vehicles
	  - Retail trade of other goods.

Data used & calculation of static impacts	1. Number of sales points and their average area in 2020 2. Number commercial purpose warehouses and their average area in 2016
Data used & calculation of dynamic impacts	Year average of sales areas built between 2015 and 2020 entailing the **destruction of non-urban areas** (i.e., if the new retail area is built on an existing urban area, it does not affect the dynamic impact as this area is already artificialized). The sales points built between 2015 and 2020 in scattered rural towns or on rural areas are considered built on natural or agricultural areas. Therefore, it is assumed that these new constructions entail a change of land uses from non-urban to urban areas.

Table 12: Data used and assumptions for the Wholesale and Retail sector's spatial occupation with the sales points (INSEE 2020) and the warehouses datasets ((Service des données et études statistiques 2016).

All the extraction and aggregation of data were made with an R script and the output is a simplified Excel file. Table 13 below contains the areas obtained with the two previous methods.

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Source	*Liste des autorisations d'urbanisme* (Service des données et études statistiques 2024)	*Dispositif des points de vente* (INSEE 2020) *Enquête sur l'activité des entrepôts et des établissements logistiques* (Service des données et études statistiques 2016)
Total area calculation		
Year	2024	2020, 2016
Area (ha)	**5 800**	**7 200 + 2 600 = 9 800**
Evolution of area built in 1 year		
Calculation method	Maximum yearly built area between 2013 and 2024: 2021	Average yearly built **sales area** between 2015 and 2020
Area (ha)	**350**	**4,0**

Table 13: Figures of the two datasets used for the calculation of Wholesale and Retail spatial occupation.

Two different sources of turnover were also available to calculate the impact intensities due to spatial pressures, presented in table below. For each source, the turnover of the total Wholesale and Retail sector as well as the turnover of only the retailing activities of the sector (i.e. all of them except the wholesale trade activity) is available.

Source	**EXIOBASE**	**INSEE, Elaboration des statistiques annuelles d'entreprises**
Location	France	France
Year	2011	2020
Economic perimeter (industries): *Total sector*	- Sale of motor vehicles - Sale of automotive fuel - Wholesale trade of other goods - Retail trade of other goods	- Commerce de détail, à l'exception des automobiles et des motocycles - Commerce de gros, à l'exception des automobiles et des motocycles - Commerce et réparation d'automobiles et de motocycles - Réparation d'ordinateurs et de biens personnels et domestiques
Turnover of the perimeter (MEUR)	**220 000***	**1 300 000**
Economic perimeter (industries): *Retail industries*	- Sale of motor vehicles - Sale of automotive fuel - Retail trade of other goods	- Commerce de détail, à l'exception des automobiles et des motocycles - Commerce et réparation d'automobiles et de motocycles - Réparation d'ordinateurs et de biens personnels et domestiques
Turnover of the perimeter (MEUR)	**91 000****	**660 000**

Table 14: Turnover values and sources for the calculation of impact intensities due to Scope 1 spatial pressures for the Wholesale and Retail sector.

*Data used to calculate the static and dynamic impact intensities of the French government (SDES) building permits built area as well as the static impact intensity of INSEE Sales points and SDES warehouses built areas.

**Data used to calculate the dynamic impact intensity of INSEE Sales points built area.

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The figures are very different from one source to another. Therefore, to be consistent with the benchmark results calculated with the GBS, all the following impacts were divided by the **turnover from EXIOBASE.**

GBS input files

The GBS Land use input file was then filled in with the previous data. The filling methodology for the two datasets is slightly different.

For both input files, the dynamic impacts related to land use are calculated thanks to a change of land use, from a non-urban area to an urban area. A mix of land use categories (from GLOBIO) which represents the average MSA of all non-urban territories in France (25 % MSA) was used. Below explains the methodology used to obtain the GLOBIO land use category repartition to best represent land occupation in France. The weights that were attributed to each GLOBIO land use category were chosen by CDC Biodiversité in order to stick to the real repartition of land use in France as much as possible.

French land use types	MSA (1)	Share in the total area of France (2)	Weighted MSA (1) x (2) = **(3)**
Agriculture	9.3 %	53 %	4.9 %
Forestry	50 %	28.1 %	14.1 %
Other natural land	100 %	0.5 %	0.51 %
Pasture	30 %	19 %	5.6 %
Total		100 %	25 %

GLOBIO land use category	Weighted MSA (1') x (2') = **(3)**	MSA (1')	Weight (2')
Intensive cropland	4.6 %	10 %	**46 %**
Irrigated cropland	0.36 %	5.0 %	**7.0 %**
Forest Clear-cut	13.9 %	50 %	**27.9 %**
Forest – reduced logging	0.64 %	85 %	**0.75 %**
Pasture – Man made	5.6 %	30 %	**19 %**
Total	25%		100 %

Figure 22: Correspondence between the land use types repartition in France (except urban areas) and the GLOBIO land use categories in the GBS. The sum of percentages may exceed 100% because of the use of rounded values.

SDES building permits data Land use input file

- 1 line was attributed to the calculation of the statics impacts: the initial and final area was the same, and equal to the total area presented in Table 13.
- For each year between 2013 and 2024, 2 lines were added:
    - 1 line representing the non-urban area transformed into artificialized area for wholesale and retail purposes (positive at the beginning, zero at the end of the year)
    - 1 complementary line representing the artificialized area created via the transformation of non-urban areas for wholesale and retail purposes (zero at the beginning, positive at the end of the year).

INSEE Sales points & SDES warehousing data Land use input file

- 1 line was attributed to the increase of urban area between 2019 and 2020, due to the construction of new sales points between 2019 and 2020 (the sales points area increases from one year to another, whereas the warehousing area remains stable due to a lack of dynamic data for the latter).
- 1 complementary line representing the non-urban area transformed into artificialized area for the building of new sales points (positive at the beginning, zero at the end of the year).

Results and limits

For both data source, the GBS results were obtained in MSA.km² and were divided by two different turnover values to obtain the impact intensities in MSA.m²/kEUR

- The INSEE Sales points data **only covers the retail activities** (i.e. sale of motor vehicles, sale of automotive fuel and retail trade of other goods) and was used alone to calculate the **terrestrial dynamic** impacts. This impact is therefore divided by **the EXIOBASE turnover of retail activities in France** (referred as ** in Table 14)
- The INSEE Sales points and SDES warehousing data **cover all the sector's activities** and were aggregated to calculate the **terrestrial static** impacts. This impact is therefore divided by **the EXIOBASE turnover of the whole sector in France** (referred as * in Table 14).
- The SDES building permits data **covers all the sector's activities**. The terrestrial static and dynamic impacts are therefore divided by the **EXIOBASE turnover of the whole sector in France** (referred as * in Table 14).

The obtained impact intensities are compared to the Scope 1 spatial impact intensities obtained by the GBS default assessment of the Wholesale and Retail sector. Figure 23, Figure 24 and Figure 261 below display the terrestrial static and dynamic impact intensities for both datasets.

Surprisingly, the impact intensities for both approximations of the wholesale and retail land occupation are extremely low compared to the GBS default assessment of Scope 1 spatial pressures.

This can be due to the underestimation of the spatial occupation of wholesale and retail infrastructures.

- For the building permits data, **only the buildings that were built or renovated since 2013** have been considered.
- For the sales points and warehousing data, **the sales and warehousing area as well as parking and manoeuvre zone next to warehouses** have been accounted, meaning that all the space allocated to offices as well as storage or parking near sales points is excluded.
- For both datasets, the dynamic impacts only include the space that has been **converted from a non-urban land use category to an urban land use category**. The calculation of that space is based on assumption that could underestimate the real non-urban area that has been destroyed in order to build wholesale and retail facilities.
- On the other hand, for both datasets, the areas are not necessarily built on the ground floor. **They can include several floors**, and thus do not really represent the spatial occupation of land. Therefore, it is difficult to evaluate if this elevated space compensates the missing areas cited above.

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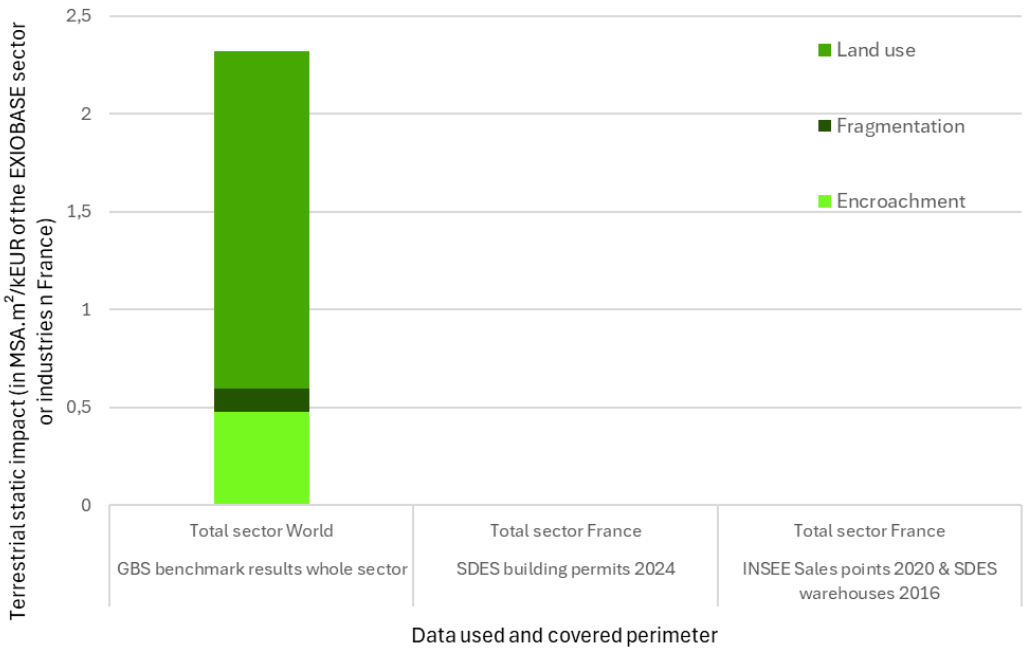

Figure 23: Comparison of the two estimations of the terrestrial static impact intensities due to land occupation pressures of the Wholesale & Retail sector in France with the Scope 1 GBS results for the global sector, broken down by pressure.

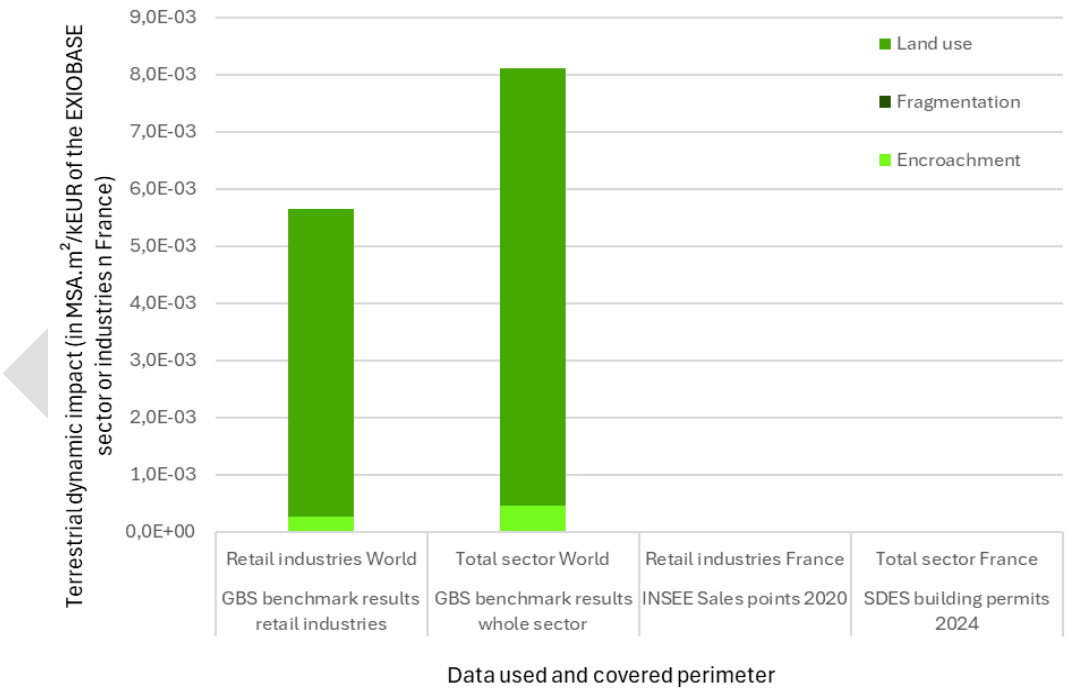

Figure 24: Comparison of the two estimations of the terrestrial dynamic impact intensities due to land occupation pressures of the Wholesale & Retail sector in France with the Scope 1 GBS results for the global sector, broken down by pressure.

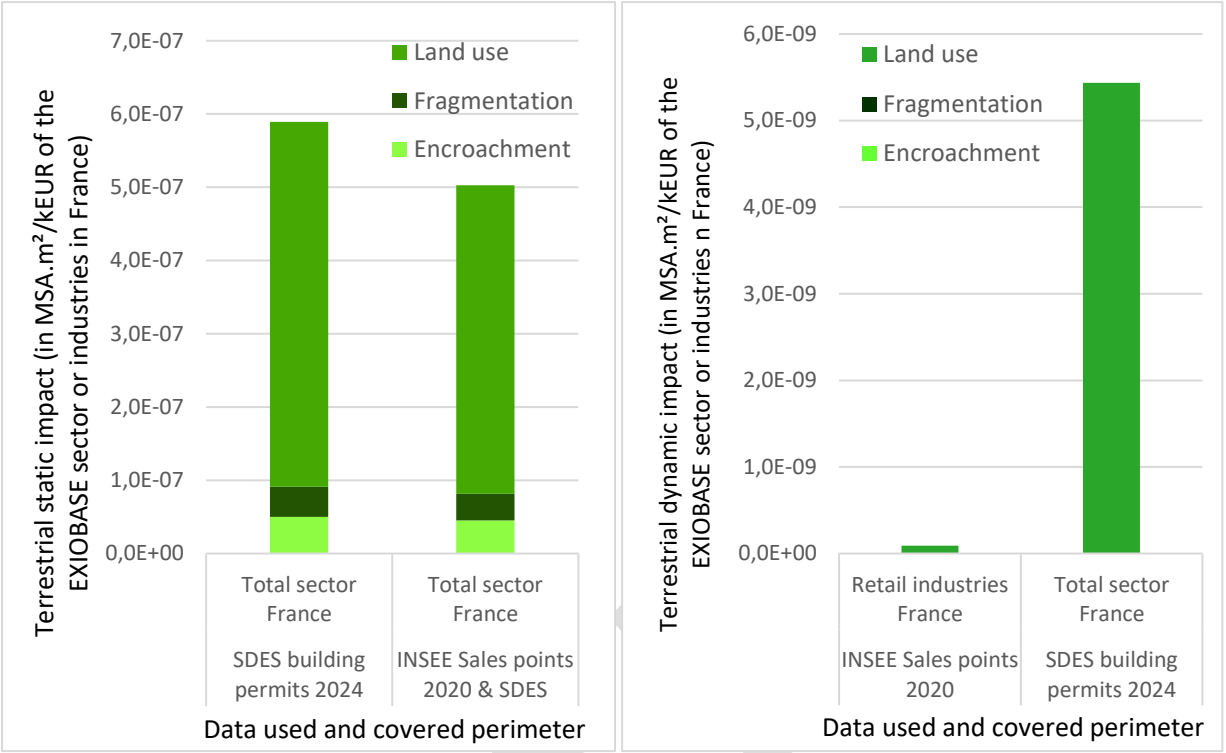

Figure 25: Comparison of two estimations of the terrestrial static and dynamic impact intensities due to land occupation pressures of the Wholesale & Retail sector in France, broken down by pressure.

To conclude, a dataset indicating the actual floor occupation (without elevated floors), including sales points, offices, storage and other logistical areas occupied by wholesale and retail infrastructures would be required to properly estimate the static impact intensity linked to Scope 1 spatial pressures. Regarding the dynamic impact intensity, more precise information about the land use change from one year to another when creating new wholesale and retail facilities would be necessary to assess it more rigorously.

7. Analysis of upstream Scope 3 impacts

As seen previously in section C.1. and C.2., the Wholesale and Retail position downstream of the economic value chain induces that a significant part of the sector's impacts fall under upstream Scope 3. This section aims at identifying which upstream industries are responsible for the main impacts to help companies of the sector targeting on which part of their value chain they have to work to reduce their impacts. As the EXIOBASE classification does not distinguish retailers and wholesalers according to the category of products they sell, this section helps also understanding which kind of products may be responsible for most upstream impacts.

Table 16, Table 17, Table 18 and Table 19 below describe the upstream purchase industries which have the most impact (in MSA.km²) for each sector's industry, realm and accounting category. Information is broken down between Tier 1 of upstream Scope 3 impacts and the rest of upstream Scope 3 impacts. Industries (respectively commodities) written in bold correspond to the industry (respectively commodity) with the greatest impact (in MSA.km²) for the considered realm and accounting category. The impacts due to the Ecotoxic substances – metals commodity are excluded as they are subject to high uncertainties. Are also excluded the static impacts due to the Climate change pressure. The latter limitation of the tool used implies that the following results will focus on spatial pressures which are the second most impactful behind climate change, but far behind. (see section C.2.2), as well as pollution and direct exploitation pressures which are a minority. Consequently,

upstream industries with high land occupation intensities are highlighted, whereas upstream industries causing static Climate change-related impacts will be occulted. Other information about limitations is available in section C.3.

To understand better the links between impacting upstream industries and commodities on the one hand, these same industries and the ones to which the sector makes the most purchases on the other hand, some Sankey diagrams have been designed on Figure 26, Figure 27, Figure 28 and Figure 29. Indeed, it often occurs that some upstream industries are responsible for a large part of the impacts, but in reality account for a negligible proportion of the sector's purchases. In the same way, the industries to which the sector makes the most purchases may be responsible of a few impacts. An indication is added in Table 15 to Table 18 when a Sankey diagram is available for a specific realm and accounting category of a Wholesale and Retail industry upstream impacts.

Results were obtained using an annex tool of the GBS named EXIOBASE-explorer. This tool provides the list of all industries, commodities and items (i.e. specific products linked to a commodity) which are present in the upstream value chain of a specific industry when the impacts are calculated thanks to financial data. It displays the biodiversity impact of each upstream industry, commodity and item (in MSA.km²) for each realm and accounting category, the amount (in MEUR) that the targeted industry purchased to upstream industries for a specific item as well as the quantity (in tonne) of purchased items. In the results, the explorer tool considers greenhouse gases emissions as a commodity, as it causes pressures on biodiversity (the Climate change pressure). To be more accurate, the column describing the main upstream "commodities" from EXIOBASE-explorer is named "Main impact drivers".

Please note that some results regarding the rest of upstream terrestrial dynamic impacts of the Sale of automotive fuel and the Retail trade of other goods industries are currently being revised because of higher uncertainty about the calculation.

7.1. Retail trade of other goods

The Retail trade of other goods industry Tier 1 of upstream Scope 3 as well as the rest of the upstream value chain **static impacts** are mainly driven by **agricultural industries** as well as **forestry and logging**. Regarding **dynamic impacts**, they are mainly due to purchases to the **Landfill of waste** industry. It means the Retail of other goods industry has transactions in its value chain with the Landfill of waste industry to ensure waste is taken in charge. As landfills have a significant impact on the environment (Gunarathne et al. 2024), upstream impacts of the Retail of other goods industry can be highly driven by those even though they are not important suppliers. The other dynamic impacts are linked to **real estate activities**, through the use of retail buildings. Regarding the Rest of upstream static impacts, **Forestry and logging** remain the most impactful activities. This can be due to the **packaging** industry, which requires wood for carboard and paper, as well as **furniture manufacturing**.

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Scope	Realm	Accounting category	Most impactful upstream industries	Main impact drivers
Scope 3 Tier 1	Terrestrial	Static	**Cultivation of vegetables, fruit, nuts**	**Crops**
			Forestry, logging	Wood logs
			Cultivation of paddy rice	**Crops**
			Mining of precious metal ores	Metals, minerals and coals
	Terrestrial*	Dynamic*	**Landfill of waste: food**	**GHGs**
			Real estate activities	
			Transport via pipelines	
	Aquatic	Static	**Cultivation of vegetables, fruit, nuts**	**Crops**
			Forestry, logging	Wood logs
			Cultivation of paddy rice	**Crops**
			Mining of precious metal ores	Metals, minerals and coals
Rest of upstream Scope 3	Terrestrial	Static	**Forestry, logging**	**Wood logs**
			Cattle farming	Grazing
			Cultivation of crops	Crops
			Cultivation of cereal grains	
	Terrestrial	Dynamic	Landfill of waste: food	**GHGs**
			Extraction of crude petroleum	
			Landfill of waste: Paper	
			Forestry, logging	Wood logs
	Aquatic	Static	**Forestry, logging**	**Wood logs**
			Cattle farming	Grazing
			Cultivation of crops	Crops
			Cultivation of cereal grains	

*Sankey diagram available Figure 26.

Table 15: Retail trade of other goods most impactful upstream purchase industries and commodities, breakdown by Scope, realm and accounting category. Source: GBS annex tool EXIOBASE-explorer.

As introduced above, Figure 26 below reveals the **10 industries responsible for an important part of the Tier 1 of Scope 3 terrestrial dynamic impacts** and the **5 main items** causing these upstream impacts (in MSA.km², on the right part of the graph) as well as the related commodities. On the left side is presented the share of upstream purchases, between the **5 upstream industries to which the Retail trade of other goods made the most important purchases** (in MEUR) as well as the most impactful industries (listed in the "Main tier 1 of upstream Scope 3 impactful industries" column). For readability reasons, all the industries which are present in the upstream value chain but not mentioned on the graph are grouped under the name "Other industries". So are the items which are not in the 5 most impactful.

Generally speaking, **primary industries** such as agriculture, forestry or mining may often account for a large part of the static impacts but only a small portion of purchases. Indeed, these industries **rely directly on resources exploitation and land occupation and have a very high static impact intensity** which highlights them in the results whereas they are negligible in the upstream purchases portfolio. Regarding dynamic impacts, they are more related to **landfilling and transport** activities which generate GHG emissions. However, **service-related industries** account for the **majority of purchases but have rather low impact intensities** compared to the primary sector.

Please note that the observed trend regarding the difference between upstream purchase industries and upstream impactful industries may explain why the overall upstream impact intensity of the sector is relatively low compared to other sectors: **the main purchases are made to low-impact industries, and only a few purchases are made to high-impact industries.** Therefore, the contribution of the latter to the overall upstream impacts is relatively low.

Figure 26 therefore reveals that the **Landfill of waste: food** industry is the most impactful in terms of terrestrial dynamic impacts (MSA.km²), but not the one to which the Retail trade of other goods made the most significant amount of purchases, even though it remains the fifth industry to which the Retail trade of other goods makes the most purchases. However, **real estate activities** take the most important part of upstream purchases and are also the second industry responsible for Scope 3 Tier 1 terrestrial dynamic impacts.

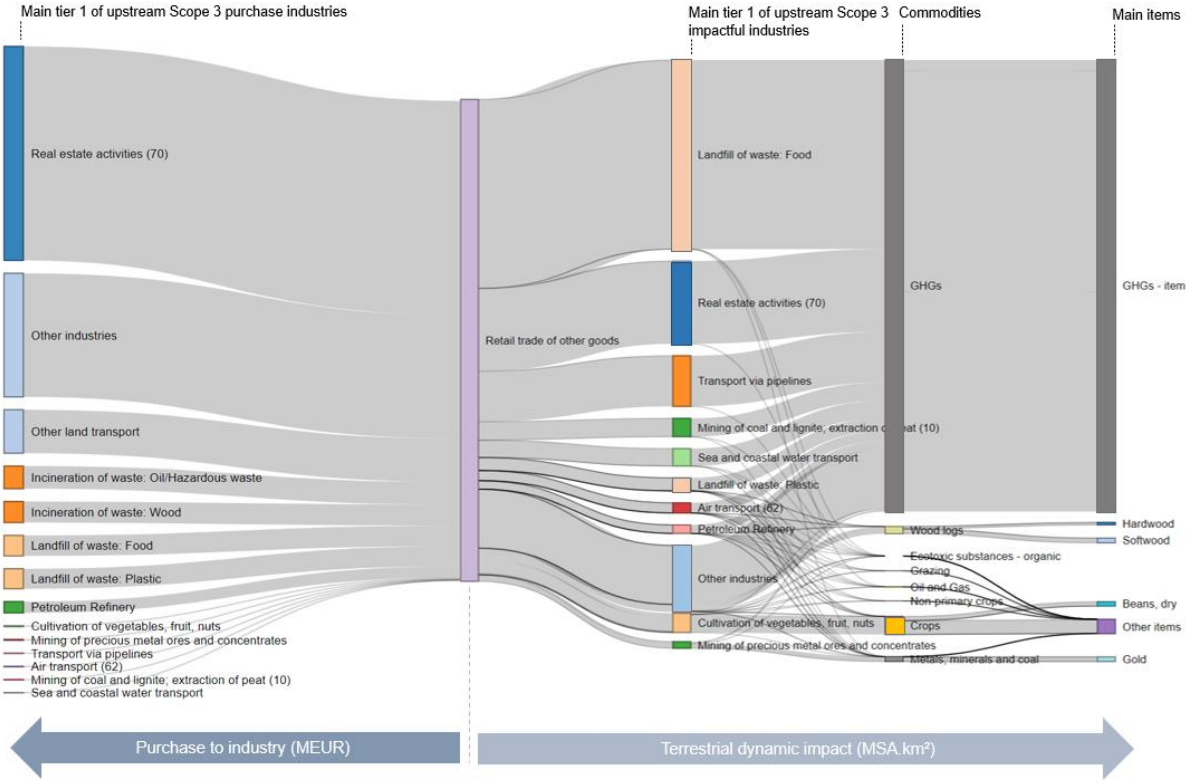

Figure 26: Scope 3 Tier 1 main purchase and impactful industries, terrestrial dynamic impacts of the Retail of other goods industry.

7.2. Wholesale trade of other goods

The Wholesale trade of other goods industry's **static impacts** are also mainly driven by **agricultural industries: Cultivation** is in majority for Tier 1 static impacts**;** cattle farming as well as **forestry and logging** are the main industries in the rest of the upstream value chain. This leads to pressures related to **Crops** (for the tier 1 as for the rest of upstream Scope 3), **Grazing and Wood logs** (for the rest of upstream Scope 3) commodities. However, it is important to note that some of the rest of upstream impacts may be **uncompressible impacts** remaining in the value chain calculation of the GBS, and not real impacts linked to the purchases of the Wholesale of other goods industry.

Regarding **dynamic impacts**, they are mainly driven by the **Air transport** industry, for the Scope Tier 1 as well as the rest of upstream impacts. Indeed, wholesale products may travel a lot before reaching their final consumer. Another interesting result lies in the presence of the Wholesale trade of other goods industry in its own upstream Scope 3 purchase industries. This may be linked to the complexity of exchanges between wholesalers: some of them can be suppliers for others. Moreover, as mentioned in section A.1.2, each EXIOBASE industry of the Wholesale and Retail sector covers a large range of products. This can also explain the fact that some actors of an EXIOBASE industry trade with other ones from the same industry.

Scope	Realm	Accounting category	Most impactful industries	Main impact drivers
Scope 3 Tier 1	Terrestrial	Static	**Cultivation of vegetables, fruits, nuts**	**Crops**
			Wholesale trade	Grazing
	Terrestrial	Dynamic	**Air transport**	**GHGs**
			Other business activities	
			Wholesale trade	
			N - fertilizer	
	Aquatic	Static	**Cultivation of vegetables, fruits, nuts**	**Crops**
			Wholesale trade	Grazing
			Extraction of natural gas	Oil and gas
			Extraction of crude petroleum	
Rest of upstream Scope 3	Terrestrial	Static	**Cattle farming**	**Grazing**
			Forestry, logging	Wood logs
			Cultivation of oil seeds	Crops
			Cultivation of cereal grains	
	Terrestrial	Dynamic	**Forestry, logging**	**GHGs**, Wood logs
			Extraction of crude petroleum	**GHGs**
			Air transport	
			Cattle Farming	
			Cultivation of oil seeds	Crops
	Aquatic	Static	**Cattle farming**	Grazing
			Forestry logging	Wood logs
			Cultivation of oil seeds	**Crops**
			Cultivation of cereal grains	

Table 16: Wholesale trade of other goods most impactful upstream purchase industries and commodities, breakdown by Scope, realm and accounting category. Source: GBS annex tool EXIOBASE-explorer.

7.3. Sale and repair of motor vehicles

Regarding the Sale and repair of motor vehicles industry, the main Tier 1 of upstream Scope 3 impactful industries for static impacts are related to the Metals, minerals and coals commodity: **Mining of copper, lead, zinc and tin**. The **manufacture of plastic products** is also present among the most impactful industries. Indeed, these industries are necessary for motor vehicles manufacture but are highly impactful as they rely on raw materials extraction. Figure 27 below describes this share of the upstream terrestrial static impacts (tier 1) between the most impactful industries. Unlike other Sankey charts of this section, Figure 27 does not describe the share of purchases between upstream industries.

Scope	Realm	Accounting category	Most impactful upstream industries	Main commodities
Scope 3 Tier 1	Terrestrial*	Static*	**Mining of copper ores and concentrates**	**Metals, minerals and coals**
			Mining of lead, zinc and tin ores	
			Manufacture of rubber and plastic products	Grazing, Wood logs
	Terrestrial	Dynamic	**Landfill of waste: food**	**GHGs**
			Air transport	
			Landfill of waste: wood	
	Aquatic	Static	**Mining of copper ores and concentrates**	**Metals, minerals and coals**
			Mining of lead, zinc and tin ores	
			Manufacture of wood	Wood logs
			Manufacture of rubber and plastic products	Grazing
Rest of upstream Scope 3	Terrestrial*	Static*	**Forestry, logging**	**Wood logs**
			Cattle farming	Grazing
			Cultivation of oil seeds	Crops
	Terrestrial	Dynamic	**Extraction of crude petroleum**	**GHGs**
			Petroleum refinery	
			Mining of coal and lignite	
	Aquatic	Static	**Forestry, logging**	**Wood logs**
			Cultivation of oil seeds	Crops
			Cattle farming	Grazing

*Sankey diagrams available Figure 27 and Figure 28.

Table 17: Sale and repair of motor vehicles most impactful upstream purchase industries and commodities, breakdown by Scope, realm and accounting category. Source: GBS annex tool EXIOBASE-explorer.

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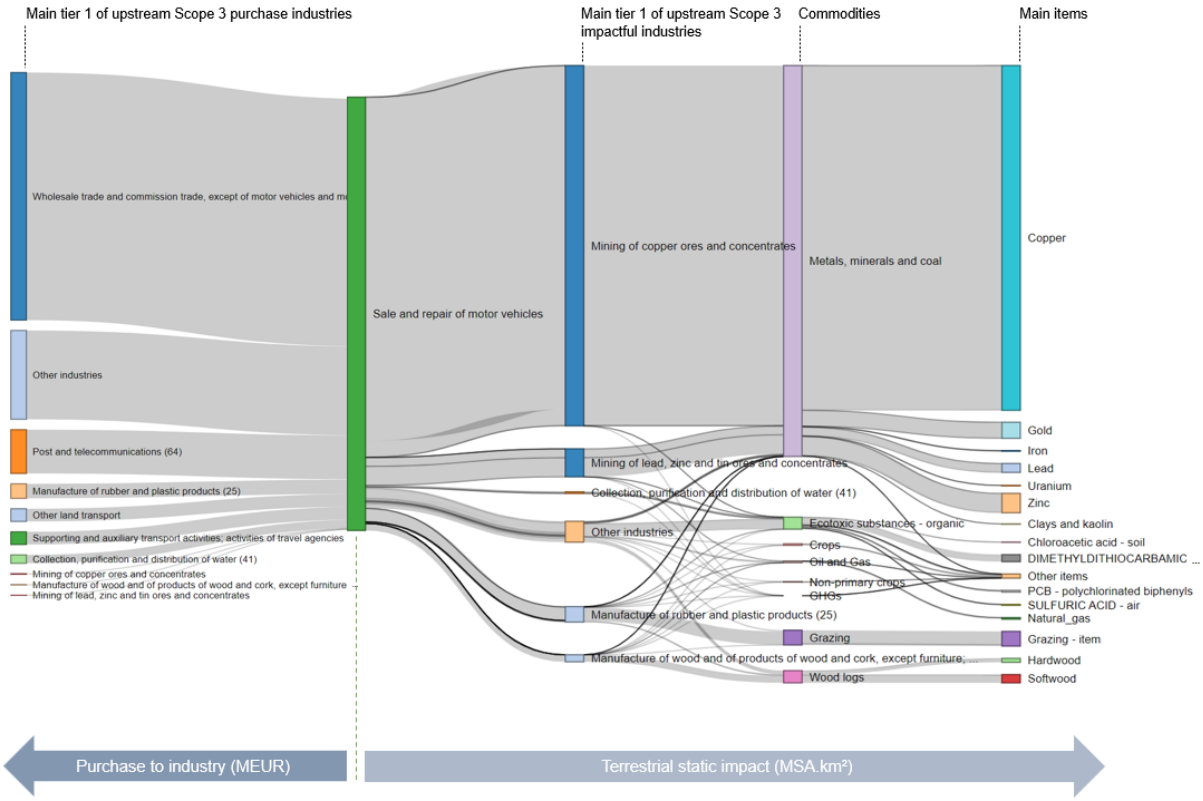

Figure 27: Scope 3 Tier 1 main impactful industries, terrestrial static impacts of the Sale and repair of motor vehicles industry.

Figure 28 below reveals the **5 industries responsible for an important part of the rest of upstream Scope 3 terrestrial static impacts** and the **15 main items** causing these upstream impacts (in MSA.km², on the right part of the graph) as well as the related commodities. On the left side is presented the share of upstream purchases, between the **8 upstream industries to which the Retail trade of other goods made the most important purchases** (in MEUR) as well as the most impactful industries (listed in the "Main rest of upstream Scope 3 impactful industries" column). For readability reasons, all the industries which are present in the upstream value chain but not mentioned on the graph are grouped under the name "Other industries". So are the items which are not in the 8 most impactful.

The rest of upstream industries responsible for static impacts may seem surprising as they belong to the agricultural sector. This is due to **uncompressible impacts** that remain in the value chain impacts calculation of the GBS. However, while looking at the upstream purchases, the results show that **agricultural industries account only for a very low part of the purchases**. At the same time, the industries to which the Sale of motor vehicles industry makes the most important purchases are not the most impactful ones: Chemicals, Wholesale trade, Post and telecommunication and Petroleum refinery. This observation supports the fact that that even though an industry may account for a significant part of the upstream purchases, its activity does not necessarily cause an equivalent part of the upstream impacts on biodiversity.

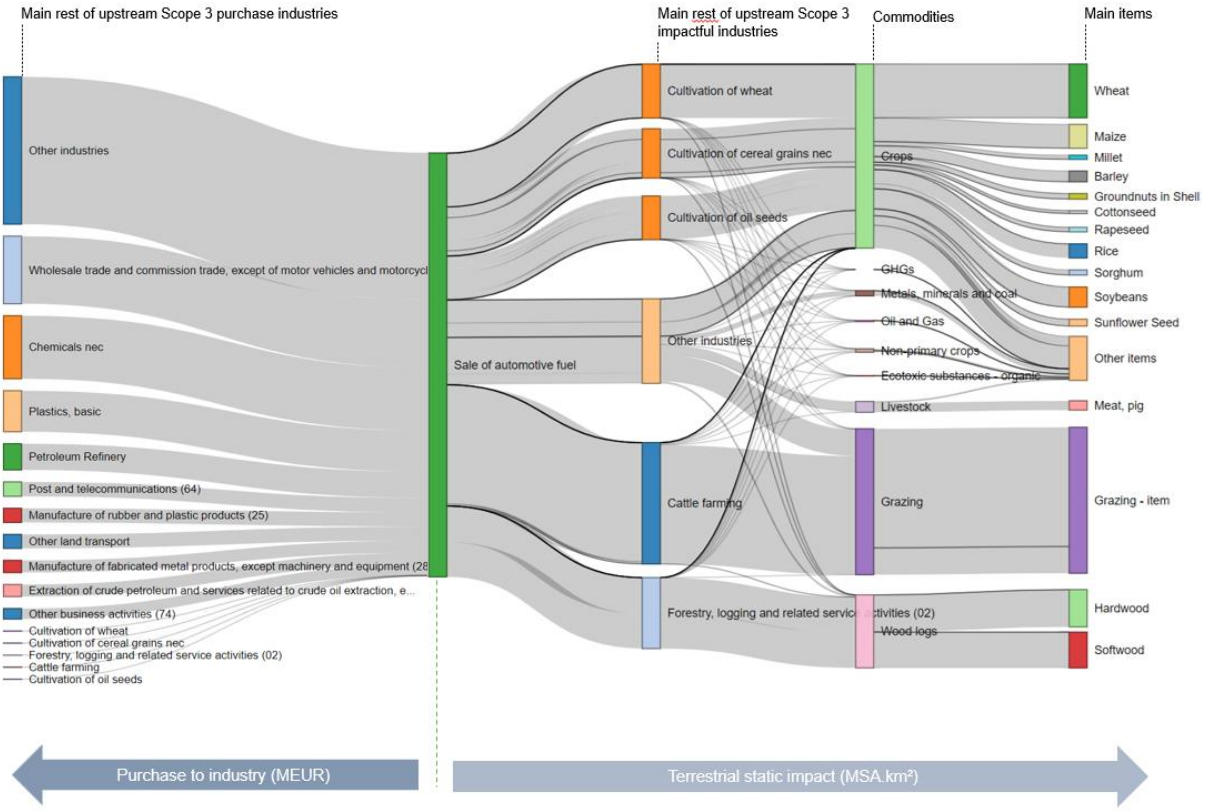

Figure 28: Rest of upstream Scope 3 main purchase industries, terrestrial static impacts of the Sale and repair of motor vehicles industry.

7.4. Sale of automotive fuel

As for the Sale of motor vehicles industry, the Sale of automotive fuel industry static impacts are surprisingly due to **agricultural activities**, both for the tier 1 of Scope 3 and the rest of upstream Scope 3. However, in the same way as for the Sale of motor vehicles industry, these activities account for a **negligible part of the upstream purchases**.

Scope	Realm	Accounting category	Most impactful upstream industries	Main commodities
Scope 3 Tier 1	Terrestrial	Static	**Cultivation of crops nec.**	**Crops**
			Forestry, logging	Wood logs
			Cattle farming	Grazing
	Terrestrial*	Dynamic*	**Extraction of natural gas**	**GHGs**
			Transport via pipelines	
			Wool, silk-worms cocoons	
			Other business activities	
	Aquatic	Static	**Cultivation of crops nec.**	**Crops**
			Cultivation of cereal grains	
			Cultivation of paddy rice	
			Cattle farming	Grazing
Rest of upstream Scope 3	Terrestrial	Static	**Cattle farming**	**Grazing**
			Forestry, logging	Wood logs
			Cultivation of wheat	**Crops**
			Cultivation of cereal grains	
	Terrestrial	Dynamic	**Transport via pipelines**	**GHGs**
			Extraction of crude petroleum	
			Extraction of natural gas	
	Aquatic	Static	**Cattle farming**	Grazing
			Cultivation of oil seeds	**Crops**
			Cultivation of cereal grains	
			Cultivation of wheat	
			Forestry, logging	Wood logs

*Sankey diagram available Figure 29.

Table 18: Sale of automotive fuel most impactful upstream purchase industries and commodities, breakdown by Scope, realm and accounting category. Source: GBS annex tool EXIOBASE-explorer.

Figure 29 below reveals the **10 industries responsible for an important part of the tier 1 of upstream Scope 3 terrestrial dynamic impacts** and the **5 main items** causing these upstream impacts (in MSA.km², on the right part of the graph) as well as the related commodities. On the left side is presented the share of upstream purchases, between the **8 upstream industries to which the Retail trade of other goods made the most important purchases** (in MEUR) as well as the most impactful industries (listed in the "Main rest of upstream Scope 3 impactful industries" column). For readability reasons, all the industries which are present in the upstream value chain but not mentioned on the graph are grouped under the name "Other industries". So are the items which are not listed as the 8 most impactful. Dynamic impacts are mainly driven by **fossil fuel related activities: Extraction of natural gas, Transport via pipelines, Extraction of crude petroleum**. Another surprising result lies in the presence of the Wool, silk-worms cocoons as the third most impactful industry in terms of dynamic impacts of the tier 1 of upstream Scope 3. This anomaly may be due to EXIOBASE uncertainties.

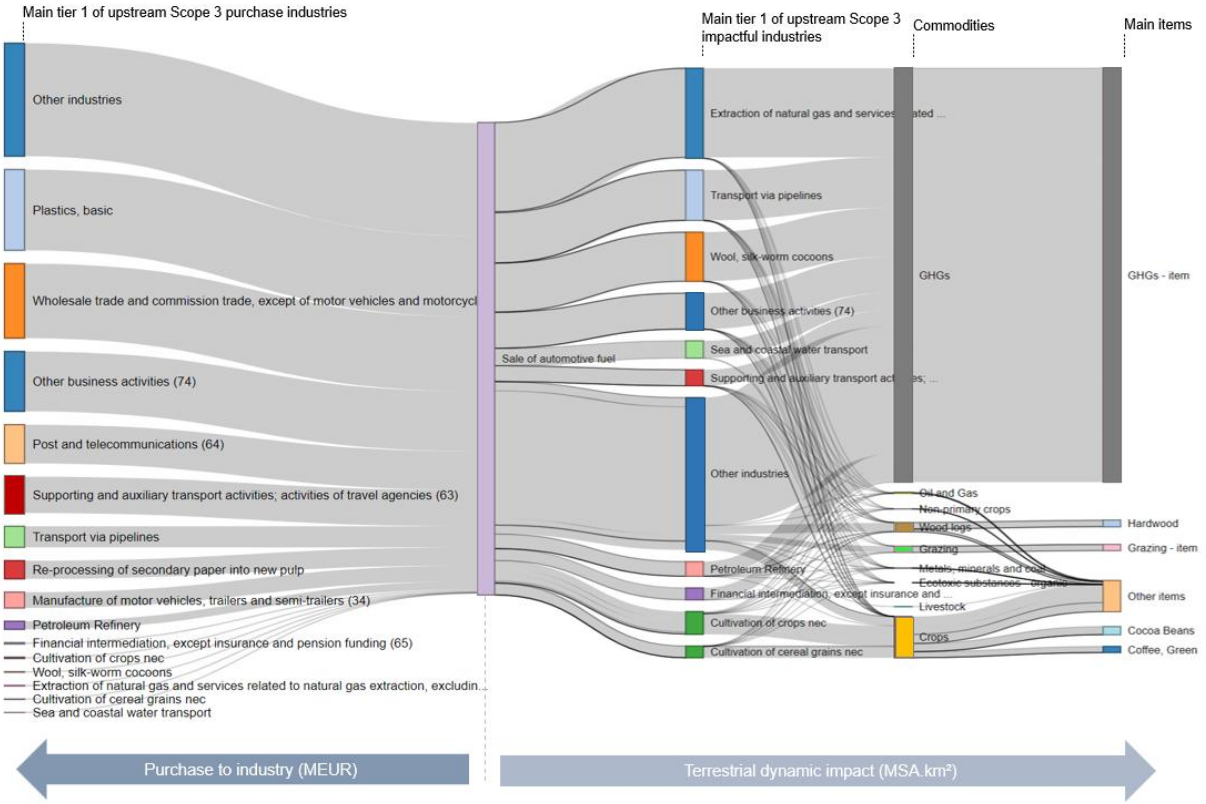

Figure 29: Scope 3 Tier 1 main purchase and impactful industries, terrestrial dynamic impacts of the Sale of automotive fuel industry.

7.5. Guidelines for accounting the impacts of both retailing and manufacturing companies

Some retailing companies also produce a part of the goods they sell to consumers. Therefore, it may be difficult to distinguish what activities are part of Scope 1 and which ones are part of upstream Scope 3. This part of the annex aims at providing indications to allocate the impacts to the right scopes and industries and reflect the real footprint of these companies as precisely as possible.

First of all, the GBS annex tool EXIOBASE-explorer was used to screen the default purchases made by the EXIOBASE industry “Retail trade of other goods”. Figure 30 and Figure 31 below list respectively the upstream Scope 3 Tier 1 and rest of upstream Scope 3 industries to which the Retail trade of other goods industry makes purchases according to EXIOBASE. These charts outline that the manufacturing industries, presented in the red frames, account for a rather low part of the upstream purchases of the retail industry. Thus, it can be assumed that in case of double activity manufacturing-retailing in the same company, the two activities do not intersect much and the upstream Scope 3 of retailing activities may double-count a relatively negligible part of Scope 1 manufacturing activities.

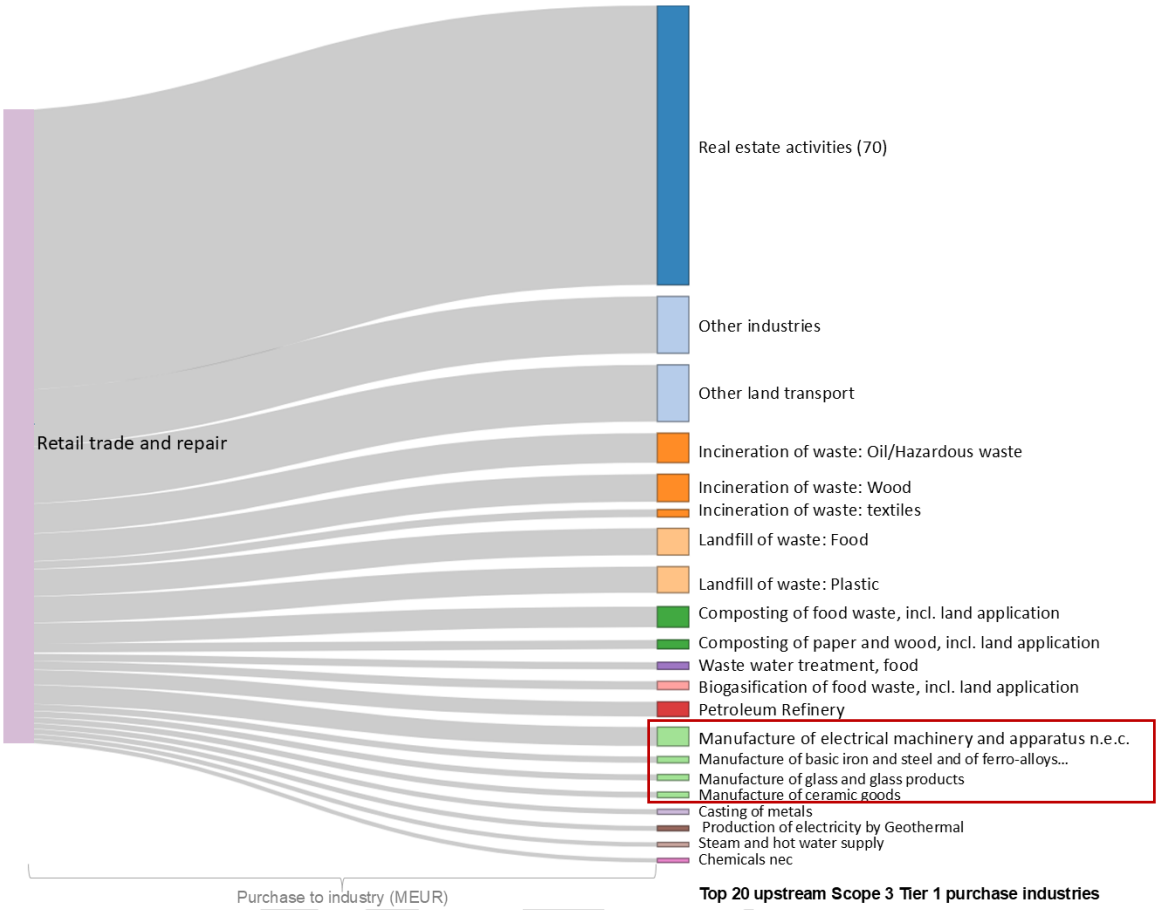

Figure 30: Top 20 main purchase industries in the Scope 3 Tier 1 of the Retail trade of other goods industry. The red frame outlines the manufacturing industries among upstream activities.

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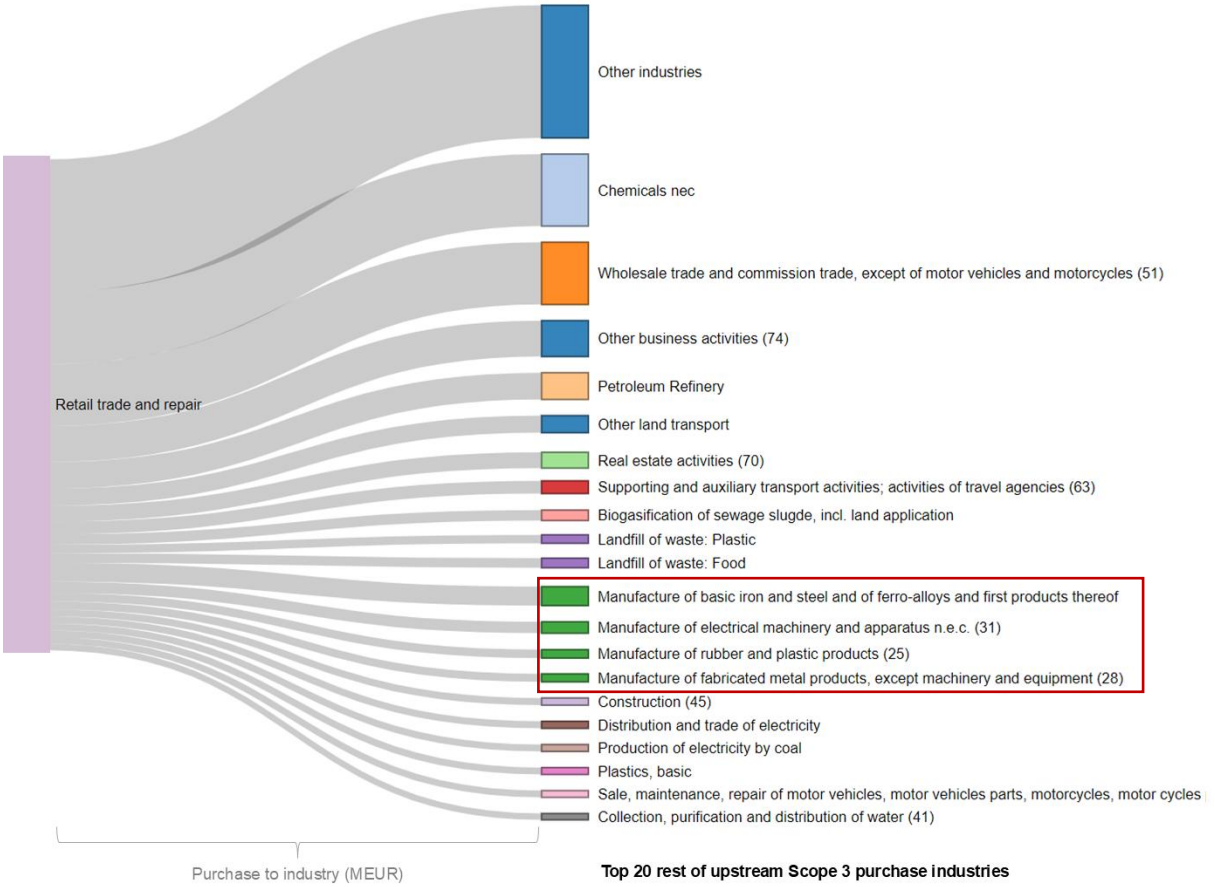

Figure 31: Top 20 main purchase industries in the rest of upstream Scope 3 of the Retail trade of other goods industry. The red frame outlines the manufacturing industries among upstream activities.

Secondly, to proper assess the impacts due to both manufacturing and retailing activities when conducted by the same company, the following methodology could be followed:

Activity unit	Scope	Contribution to the company's impact	Financial data used
Manufacture	1	Impacts associated to the production	Value of external and internal (i) sales of the manufacturing unit
Retail	1	Impacts associated to retail	Difference between the total company's turnover and the internal sales (i)
Manufacture	3 Upstream	Impacts associated to the raw material used in the production	Purchases of the manufacturing unit
Retail	3 Upstream	Impacts associated to the transport, etc. paid by the retailing activity	Purchases of the retailing activity distinct from internal purchases to the manufacturing unit

Table 19: Allocation of financial data in the GBS financial input file for companies having both retailing and manufacturing activities.

In that way, the sum of financial data used for the calculation of Scope 1 impacts equals to the total turnover of the company, and the company's manufacturing activity is not accounted in the upstream Scope 3 of the retailing activity.

8. Possible actions to reduce impacts on biodiversity

The following section focuses on guidelines to reduce the impacts of the Wholesale and Retail sector, as well as regulations from the European Union to decrease the environmental impact of the sector. The presented actions are split into the main levers of action wholesalers and retailers have to reduce their impacts on biodiversity within each Scope. They have been collected through a literature review and supplemented by CDC Biodiversité's own suggestions. Please not that some actions target the downstream impacts of the sector which are not assessed by the GBS.

While parts 8.1. Circular economy models to 8.7. Sensibilization list a series of actions from several sources, part 8.8. EU Eco-management and Audit Scheme (EMAS) and Best Environmental Management Practices (BEMPs)focuses on operational recommendations of the European Commission to implement, measure and track environmental actions for the Wholesale and Retail sector.

8.1. Circular economy models

Circular economy models, such as selling second-hand products, spare parts, leasing or repairing products, allow retailers to tackle impacts of all their value chain. In their Scope 1, they can avoid wasting products by repairing them or giving them back to their suppliers. This can for instance be facilitated by the development of customer services dedicated to guiding the client to repair services. Leasing or reselling products also leads to lower needs of newly manufactured products, which decreases upstream Scope 3 impacts as it lowers production demand. Finally, the same actions prevent consumers from throwing away their end-of-life products and lower downstream impacts. However, attention must be given to the treatment of second-hand goods before they are sold again. For instance, some second-hand clothes in France are massively sent to India where they are sorted before coming back to Europe (France TV 2024). Repair and reuse should therefore be integrated in a regional approach and actors of the sector should be watchful on the circular loops.

When tackling Scope 1 and downstream impacts, circularity allows to reduce Climate change and Pollution pressures as they avoid waste. Regarding upstream activities, these new models allow to reduce production and manufacture activities, which also leads to less Direct exploitation of resources and Land use.

A list of actions is presented in Table 20 below. These measures can be applied by retailers of all kinds of goods (motor vehicles, food, apparel, electronic devices, etc.) as well as wholesalers when the measures do not involve final consumers. However, they are not applicable to the Sale of automotive fuel industry.

Impact reduction actions	**Scopes**	**Reduced pressures**	**Sources**
Sale of **spare parts** for repairing	Downstream Scope 3	Climate change Pollution	(European Commission 2023a)
Inclusion of **repair shops** and **customer services** dedicated to **repairing**			(Ferreira et al. 2022) CDC Biodiversité
Reducing packaging by **selling bulk or refill products**			

New model: consumers sell their end-of-life products (or give them in the case of leased products) back to the retailer and earn some credits. The retailer refurbishes the products and resells it.	Scope 1	Climate change Land use Pollution Direct exploitation	(Naidoo et al. 2018; Deloitte 2023)
Leasing products instead of selling them: motor vehicles, household appliances, gardening items, sporting equipment	Upstream Scope 3		(Naidoo et al. 2018)
Resale market: furniture, electronic devices, apparel, motor vehicles, household appliances, etc	Downstream Scope 3		(Ferreira et al. 2022; Deloitte 2023)
Participating in the **development of the repair and reuse industry**: lobbying of administrative and regulatory institutions, engaging actors, financing production means, etc			CDC Biodiversité
Coordination with suppliers to **reuse products not fit for selling** as resource to produce new ones	Scope 1 Upstream Scope 3		(Istudor et al. 2020)

Table 20: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by the implementation of circular economy models.

8.2. Waste management

Waste generation occurs a lot at the end of the value chain, at the retail and consumption level. Regarding the Wholesale and Retail sector, main concerns are perishable goods waste such as food, and packaging waste. In this way, packaging waste in the United States accounted for 28 % of the total waste generated in 2018, with more than 82 million tonnes thrown away, in majority plastic packaging (Jestratijevic, Maystorovich, and Vrabič-Brodnjak 2022). According to the same authors, only 18% of global plastic waste is recycled. The rest is incinerated, landfilled or directly discarded into the environment.

Regarding food waste, the UNEP food waste Index reveals that more than 930 million tonnes of food waste was generated in 2019 in the world, among which 13 % from food retail (the majority comes from households first, food services second). This global waste corresponds to 17 % of the global food production (United Nations Environment Programme 2021).

As explained in Table 21, reducing waste generation would lower Climate change and Pollution pressures due to landfilling and incineration in both Scope 1 (direct wholesale and retail waste generation) and downstream (consumers' waste generation). Recycling and reuse of packaging would also lower primary material use for new packaging and therefore lower the Land use and Direct exploitation pressures in the upstream Scope 3 of the sector. Regarding the Sale of motor vehicles industry, the recycling and reuse of metallic and plastic materials from end-of-use cars can really reduce upstream and downstream environmental pressures.

Attention must be given to the packaging use guidelines. Replacing plastic with cardboard does not necessarily reduce packaging biodiversity footprint. Indeed, producing virgin cardboard highly impacts biodiversity, through the need for logging activities to provide wood. Therefore, recycled cardboard should be preferred. If 100% recycled cardboard is not available, preference should be given to material from sustainably managed forests or

wood that does not come from newly converted natural forests into logging. Otherwise, it is likely that a fully virgin cardboard packaging has a more negative impact than plastic packaging, and that such actions reducing the carbon footprint do not necessarily reduce (or even increase) the biodiversity footprint.

Impact reduction actions	Scopes	Reduced pressures	Sources
Implementation of a **surplus marketplace** to sell or donate excess perishable products to other suppliant that can make use of it	Scope 1 Upstream Scope 3		
Selling imperfect grocery items even though they would not fit the cosmetic requirements.			(Deloitte 2023)
Use of **AI to better manage stocks** (better forecasting) and avoid waste	Scope 1	Climate change	
Food donation to social services		Pollution	(Naidoo et al. 2018)
Composting food waste and give or sell it as a **soil-enriching agent for urban farms**			
Recycle food waste into **biogas thanks to methanization** reactors, and use it as a green energy source	Scope 1 Scope 2		(Istudor et al. 2020)
Use of packaging made of **biodegradable materials**			
Implementation of **efficient sorting systems** for waste to better recycle and reuse materials or end-of-use products, especially for products containing **critical raw materials or plastics**			(Ferreira et al. 2022; European Commission 2023a)
Avoid plastic packaging unless it is recycled plastic; avoid coatings with plastics or metals; use packaging designed to be reusable within a reuse system.			(Istudor et al. 2020; European Commission 2023a)
Recycling collected and sorted plastic from the wholesale and retail activities **into packaging** Reuse of packaging materials, e.g. **pallets and plastic boxes** for suppliers, distribution centres, showcases in stores and home delivery Participating in the **development of the recycling industry,** especially for plastic: lobbying of administrative and regulatory institutions, engaging actors, financing new recycling means and solutions, etc	Scope 1 Upstream Scope 3 Downstream Scope 3	Climate change Land use Pollution Direct exploitation	(Istudor et al. 2020; European Commission 2015)
Use packaging made of **at least 65 % recycled material**. Where the packaging is made from virgin paper or cardboard, the production of the remaining primary raw material is still very impactful. Therefore, effort must be			(European Commission 2023a) CDC Biodiversité

focused on avoiding primary wood-based packaging and favoring recycled sourcing.			
Take-back mechanism for PET plastic bottles Development of returnable packaging			(European Commission 2015) CDC Biodiversité

Table 21: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by better waste management.

8.3. Energy performance of retail buildings

Many energy savings can be done to lower Scope 2 impacts and greenhouse gases emissions. Improving the energy efficiency of Heating, Ventilation and Air Conditioning (HVAC) systems, lighting devices as well as insulation, while switching towards green electricity sources could substantially reduce Scope 2 Climate change pressure. Indeed, energy consumption of retail stores, especially those selling food, is much higher than the average consumption of offices, hotels and other residential buildings. The latter may reach 300 kWh/m²/year whereas a food retail store consumes between 700 and 2000 kWh/m²/year (of sales area). It is interesting to note that small stores have a greater energy consumption in relation to their sales areas than large stores (department stores, hypermarkets, etc.) (Galvez-Martos, Styles, and Schoenberger 2013).

A list of related measures is available in Table 22 below. They are applicable for any kind of retail store, as well as wholesale warehouses. A specific attention can be given to food conservation, as refrigeration systems are responsible for 30 % to 60 % of the electricity use in food stores (Tassou et al. 2011). Indeed, in addition to be energy consuming, these systems often use non-natural refrigerant which Global Warming Potential (GWP) can be more than 1 000 (Greenhouse Gas Protocol 2016). Leakages are therefore problematic. To tackle this issue, natural refrigerant such as CO_2 or NH_3 (the latter does not contribute to global warming) can be used. These refrigerants can also be used for air conditioning.

Impact reduction actions	**Scopes**	**Reduced pressures**	**Sources**
Solar panels installation on the roofs of stores, parking lots and warehouses (when these are hold by the wholesalers and retailers themselves)	Scope 2	Climate change	(Naidoo et al. 2018; Ferreira et al. 2022)
Heat pumps or other heat recovery systems installation (especially **heat from the refrigeration cycle**): a well-insulated supermarket with an efficient Heating, Ventilation and Air Conditioning (HVAC) system can recover twice its heat demand with the waste heat of the refrigeration cycle. The excess of heat can be sold to the neighborhood. This can be applied to warehouses			(Galvez-Martos et al. 2013; Gimeno-Frontera et al. 2018; Ferreira et al. 2022)
Insulation of buildings (refurbishing)			(Ferreira et al. 2022)
Use of **biogas** and other **renewable energy sources**			(Deloitte 2023)
Automation and control of lighting and HVAC equipment			(Naidoo et al. 2018)

Setting **energy-efficient lighting times, LED lighting, use of daylight** and avoid lighting stores and warehouses when they are closed.			(Galvez-Martos et al. 2013; Naidoo et al. 2018)
Installation of **energy monitoring systems** in stores and warehouses			
Efficient **refrigeration cabinet doors**			
Switching to **natural refrigerants** (CO2 and NH3) to mitigate leakage impacts: currently used refrigerants have a global warming potential that can reach 1000 times the one of CO2	Scope 1 Scope 2	Climate change Pollution	(Galvez-Martos et al. 2013; Gimeno-Frontera et al. 2018)

Table 22: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by energy performance.

8.4. Supply-chain – production

Wholesalers and retailers can influence changes in production processes and resources exploitation by choosing their suppliers and promoting those who have sustainable practices. Retailers can indeed ensure that their suppliers are certified as having sustainable raw materials and agricultural products sourcing or use recycled materials. As most of the sector's impacts fall under upstream Scope 3, the following actions can substantially reduce its overall biodiversity footprint and can be applied to the wholesale and retail trade of any kind of goods.

Impact reduction actions	**Scopes**	**Reduced pressures**	**Sources**
Increase demand of sustainable products to suppliers: adopting **sustainable sourcing for materials (recycled materials, less plastics, low-impact materials**)	Upstream Scope 3	Climate change Land use Pollution Direct exploitation	(Naidoo et al. 2018; Deloitte 2023)
Define **priority products** for which environmental criteria are respected by suppliers (e.g. coffee, cocoa, cotton, palm oil, …), as deforestation-free production.			(European Commission 2015)
Buying from **third-party certified** suppliers, labeled products: e.g. Organic (Food and natural fibre products), Rainforest Alliance (Agricultural products from tropics), EU Eco-label			(European Commission 2015; Naidoo et al. 2018)
Defining the retailer's own **rating systems to exclude unsustainable products (e.g. endangered fish species)** and eventually not selling them at all or avoiding presenting them on premium shelves.			

Table 23: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by ensuring a sustainable upstream production supply chain.

8.5. Supply-chain – logistics

The following actions cited in Table 24 below mainly target the transportation of sol products. Final delivery to customers is often made by retailers themselves. Regarding intermediate transport (between production sites to storage infrastructures or between wholesalers and retailers for instance), it can be either carried out by wholesalers and retailers or by private transportation companies. Therefore, actions to reduce the impacts of logistics can target Scope 2 as well as upstream Scope 3 and focus on the Climate change pressure.

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Impact reduction actions	Scopes	Reduced pressures	Sources
Building multiple-storey warehouses rather than single-storey and spread-out ones	Scope 1	Land use	CDC Biodiversité
Switch to **green transportation fleet**: electric vehicles, hydrogen or biogas fueled vehicles, cargo bicycles	Scope 2	Climate change	(Naidoo et al. 2018; Ferreira et al. 2022; Alejandra Maldonado Bonilla et al. 2024)
Optimize **delivery schedules** to avoid congestion (e.g. night deliveries)			(European Commission 2015; Naidoo et al. 2018)
Back-loading store delivery vehicles with waste and with supplier deliveries to distribution centres			(European Commission 2015)
Crowdshipping delivery: a collaborative delivery mode in which the transportation (or part of it) is made by citizens thanks to an application linking them to e-commerce businesses			(Alejandra Maldonado Bonilla et al. 2024)
Use of **lockers and click-and-collect points** instead of home delivery			
Avoid air-transport, favor **road and rail** transport	Scope 2 Upstream Scope 3		(Naidoo et al. 2018)

Table 24: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by ensuring a sustainable logistics supply chain.

8.6. Water conservation

Water consumption is not a main pressure in the sector's Scope 1, but good practices in the offices as well as rainwater harvesting to lower municipal water demand are still good to implement. The measures presented in Table 25 below target the Scope 1 water consumption of Wholesale & Retail facilities for employees and maintenance. Please note that one measure targets suppliers, which water demand can be much higher for industries such as manufacturing of agriculture.

Impact reduction actions	Scopes	Reduced pressures	Sources
Rainwater harvesting	Scope 1	Direct exploitation	(European Commission 2015; Naidoo et al. 2018)
Water use monitoring systems			(Naidoo et al. 2018)
Water saving appliances (dry-sanitation equipment, automatic taps)			
Agreeing on water conservation targets with suppliers	Upstream Scope 3		

Table 25: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by reducing water consumption.

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8.7. Sensibilization

A final lever of action for wholesalers and retailers relies in sensibilization of both employees and consumers to reduce their biodiversity footprint at work, within their Scope 1, as well as downstream impacts. Training employees can help reduce both the footprint onsite and the upstream impacts, in the case of sensibilization of the purchase teams. Regarding consumers, once they are sensitive to the biodiversity footprint of their habits, they can themselves drive the demand and entice retailers and their suppliers to switch towards more sustainable practices. This lever can be used by retailers of any kind of goods. The remaining actions can be implemented by any actor of the sector.

Impact reduction actions	Scopes	Reduced pressures	Sources
Training employees to biodiversity footprint and the possible reduction actions for waste and energy, and **setting reduction targets** for them	Scope 1 Scope 2	Climate change Pollution	(Naidoo et al. 2018; Deloitte 2023)
Launch **innovative challenges** to finance sustainable projects **designed by employees**	Scope 1		
Training purchase teams to sustainable sourcing **Engage with suppliers** through agreements including the reduction of biodiversity impacts and protection of ecocsystems	Upstream Scope 3	Climate change Land use Pollution Direct exploitation	(Naidoo et al. 2018) CDC Biodiversité
Sensibilize **customers** to more sustainable consumption practices	Downstream Scope 3	Climate change Pollution	
Communication to consumers of responsible management of waste at households			(European Commission 2015)

Table 26: Actions to reduce the biodiversity footprint of the Wholesale & Retail sector by sensibilization.

8.8. EU Eco-management and Audit Scheme (EMAS) and Best Environmental Management Practices (BEMPs)

In complement to the actions listed above, this part focuses on a European Union voluntary framework providing companies some reporting guidelines in terms of sustainability. Most of the previously cited actions are also targeted by the following framework.

EMAS and BEMP framework general information

The **EU Eco-Management and Audit Scheme** (EMAS) is a voluntary framework for all kinds of organisations to evaluate, report and improve their environmental performance. Created in 1995 for industrial companies, it progressively opened to other sectors for both public and private actors. A revision of the framework was published in the Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) on 22 December 2009. This revision sets **Best environmental management practices** (BEMPs) for the EMAS registered actors (European Parliament 2009).

These BEMPs were defined by the Joint Research Center (JRC) of the European Commission to help all economic actors reduce their environmental impacts. The JRC targeted eleven economic sectors and developed specific

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recommendations for each one. Researchers also analyzed actions which are already implemented by the most performant actors of each sector in terms of environmental impacts reduction, through energy or resource efficiency as well as supply chain management for instance (Joint Research Center, European Commission, n.d.).

The BEMPs have been defined for the following sectors:

- Retail trade
- Tourism
- Construction
- Public Administration
- Agriculture - Crop production and Animal production
- Food and beverage manufacturing
- Car manufacturing
- Manufacture of electronic and electrical equipment
- Waste management
- Manufacture of fabricated metal products, except machinery and equipment
- Telecommunications

Sectoral Reference Documents (SRDs) provide BEMPs, specific sectoral environmental indicators and benchmark of excellence (exemplary environmental performance, i.e. "the top 10 to 20 % best performing installations within the overall sector") (JRC Science for Policy Report 2013). They are validated by EU member countries at the EMAS committee and adopted by the European Commission. EMAS registered organisations must follow the SRD guidelines when assessing their environmental performances. The SRDs are based on more detailed technical reports published by the JRC.

In 2022, more than 4 000 organisations were EMAS-registered. They mostly belong to the waste management sector. The wholesale trade sector is also a leading sector in terms of EMAS-registered organisations, with nearly 640 registered organisations in 2022 (European Commission 2022).

BEMPs for the retail trade sector

The Commission Decision (EU) 2015/801 of 20 May 2015 on reference document on best environmental management practice, sector environmental performance indicators and benchmarks of excellence for the retail trade sector under Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) provides the SRD regarding the **retail trade sector** (European Commission 2015). The technical report on which the SRD is based was published in 2013 by the JRC (JRC Science for Policy Report 2013).

Table 27 below summarizes the main BEMP for the retail trade sector in different practices (JRC Science for Policy Report 2013).

Category	Aspects covered in the Retail Trade SRD
Energy performance	Building, Heating, Ventilation and Air Conditioning system (HVAC), refrigeration, lighting, appliances, renewable energy, energy monitoring
Air Emissions	Refrigerant
Supply Chain	Business strategies, product prioritisation, improvement mechanisms, choice editing, environmental criteria, information and dissemination, environmental-labelling (including own-brand products)
Transport and Logistics	Monitoring, procurement, decision-making, transport modes, distribution network, planning, packaging design

Waste	Food waste, packaging, return systems
Materials and resources	Paper consumption
Water	Rainwater collection and treatment
Influence on consumers	Environmental aspects associated with consumption, e.g. plastic bags

Table 27: Main environmental aspects covered by the Retail trade sector SRD (European Commission 2015).

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BEMP in energy performance

Table 28 below lists the different environmental management practices recommended by the European Commission to enhance the energy performance of the retail trade sector. The objective is to reduce energy consumption by reducing primary energy demand and increasing energy efficiency. Measures include refrigerant management

BEMP	Examples of measures	Environmental performance indicators	Benchmarks of excellence
Design the **building envelope** for optimal energy performance	Performant insulation materials, efficient glazing, think of the building orientation.	Specific energy use of the store per m² (sales area) and year	- Specific energy use for heating, cooling and air conditioning lower or equal to 0 kWh/m2yr if waste heat from refrigeration can be recovered - Otherwise, lower or equal to 40 kWh/m2yr for new buildings and 55 kWh/m2yr for existing buildings.
Design premises for existing and new **Heating, Ventilation and Air Conditioning** systems (HVAC)	Co-generation plants, heat recovery systems		
Use of **integrated design concepts**	Improved insulation, design without thermal bridges, mechanical ventilation with heating recovery from exhaust, installation of solar thermal systems or heat pumps		
Recovering of waste heat from the refrigeration cycle	On-demand control of ventilation with CO2 sensors, share of the heat surplus with the neighborhood	- Specific energy use of the store per m² (sales area) and year - recovered heat from the refrigeration system per m² and year.	Energy use for space heating of 0 kWh/m2yr (absence of heating system), if waste heat from refrigeration can be recovered
Monitoring the energy performance of stores	Monitoring system for energy use	- Implementation of a monitoring system (y/n) - % of stores controlled - number of controlled processes	100 % of stores and processes are monitored and energy use figures are reported on an annual basis

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Efficient **refrigeration**, including refrigerant use	Natural refrigerant to avoid leakages and save energy	- Specific energy use of refrigeration per meter of display case - % of stores using natural refrigerants - Leakage control (% of refrigerant).	- 100 % covered low temperature cabinets - 100 % use of walk-in chilled areas or 100 % covering of medium temperature refrigeration where this can lead to energy savings of more than 10 % - Specific energy use of refrigeration of 3 000 kWh/m/year - General use of natural refrigerants
Efficient **lighting**	Use of daylight and intelligent controls	Installed lighting power per m².	Installed lighting power lower than 12 W/m² for supermarkets and 30 W/m² for specialist shops
Alternative energy sources	Heat pumps, combined heat and power systems (e.g. on roofs)	- Specific on-site or nearby alternative energy generation per m² - % of renewable energy produced on-site or nearby, as a ratio of the energy use of the store	To have nearly zero energy buildings (stores or distribution centres) where local conditions allow the production of renewable energy on site or nearby.

Table 28: BEMPs, environmental indicators and benchmark of excellence for the energy performance of the retail trade sector (European Commission 2015).

BEMP in retail supply chain

Prerequisite for sustainability in the retail supply chain is to assess the environmental impacts of products sold and identify **priority products** which production highly impacts the environment. Then, two strategies are available: Driving widespread improvement at the supplier level and encourage eco-consumption.

Table 29 below describes the best environmental management practices applicable to the supply chain management. The main improvement relies in setting environmental standards for priority products and purchase from certified suppliers.

BEMP	Examples of measures	Environmental performance indicators	Benchmarks of excellence
Integration of supply chain environmental sustainability into **business strategy and operations**		- **Public reporting** of quantitative **corporate targets** and quantitative **internal performance targets** specifically related to improving the environmental sustainability of priority product supply chains - Presence of a high-level business unit with responsibility for **driving and coordinating**	Systematic implementation of supply chain improvement programmes across priority product groups

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		environmental sustainability actions in the supply chain	
Core product supply chains assessment to identify **priority products,** suppliers and improvement options	Ensure that suppliers and producers fit **certified standards**, for instance**:** - EU Ecolabel (non-food products) - Organic (Food and natural fibre products) - Rainforest Alliance (Agricultural products from tropics)	- % of sales represented by products from supply chains that use certification, or retailer standards - Number of priority product supply chains that have been environmentally improved (improved products represent at least 50 % of sales value within the group)	Implementation of **systematic assessment** (independently or through consortia) of core product supply chains.
Green procurement of priority product groups based on **third party certification**	**Exclude the most unsustainable products** (*e.g.* endangered species), and require widespread (*i.e*. target of 100 % sales share) certification according to third party environmental standards for priority products	- **% of products** sold within a particular product group or that are **certified** according to a third-party environmental standard - **Number of product groups** where **more than half of sales are certified** according to a third-party environmental standard	On-track progress within the context of a detailed plan to achieve 100 % certification with: - an 'improved' environmental standard of own-brand products within priority product groups - certain 'exemplary' environmental standard product groups (*e.g.* seafood, wood products)
Environmental requirements for suppliers of priority product groups	Establish environmental criteria for priority products and their suppliers and enforce compliance of these criteria through **product and supplier auditing**.	- % of own-brand product sales within a product group compliant with specified environmental requirements. - % compliance targets, for product groups where a programme for widespread compliance is being implemented - Number of product groups where **more than half of sales** are compliant with specific environmental requirements.	100 % own-brand product sales within a product group comply with particular retailer-defined environmental requirements.
Supplier performance improvement	- Establishing information exchange that can be	- % of own-brand product sales and number of product groups where more than half of sales originate from suppliers participating in retail	100 % own-brand product sales within a product group are sourced from suppliers participating in retail programmes to improve environmental performance.

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through benchmarking and best practice dissemination	- used to benchmark suppliers - disseminating better management practices	- programmes to improve environmental performance - % participating suppliers targets, for product groups where a supplier improvement programme is being implemented	
Research and development to drive widespread supply chain improvement and innovation	Strategically collaborate with other stakeholders to develop innovative supply chain improvement options	- Expenditure on sustainable supply chain research - Qualitative assessment of whether the research is targeted at innovative, scalable and high-potential improvement options - Specific environmental improvements attributable to implementation of research outputs.	No available benchmark of excellence
Promotion of **front-runner ecological products**	Awareness campaigns, sourcing, pricing, in-store positioning and advertising, development of own-brand ecological ranges	- % sales within a product group certified according to front-runner exemplary standards - Number of product groups for which front-runner ecological products are offered - Existence of an extensive own-brand ecological product range	- 10 % sales within food product groups certified as organic - 50 % cotton sales certified as organic - 10 % sales within non-food product groups certified according to official third party verified environmental labels (Type-I ISO definition)

Table 29: BEMPs, environmental indicators and benchmark of excellence for the supply chain of the retail trade sector (European Commission 2015).

Transport and logistics

Table 30 below lists best practices to reduce the environmental impacts of transport and logistics, including favoring railway or sea transport better than airfreight, using low-consuming road vehicles, or favoring night transport to avoid congestion.

BEMP	Examples of measures	Environmental performance indicators	Benchmark of excellence
Environmental requirements for transport providers	Integrate environmental performance and reporting criteria into the procurement of transport and logistics services provided by third parties	- **% of transport providers certified** to environment-related standards - % of transport providers complying with specific environmental requirements or BEMPs.	100 % of transport and logistics (T&L) providers comply with either: - third party-verified environment related standards - specific environmental requirements - best environmental management practices described in this document.

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Efficiency monitoring and reporting for all transport and logistics operations	Report on the efficiency and environmental performance of all transport and logistics operations between **first-tier suppliers, distribution centres, retailers and waste management facilities**, based on monitoring of in-house operations and data provided by third party operations.	- **tCO2eq. per year emitted by transport** and logistics operations. - **kg CO2 eq. per m3, or pallet** delivered. - For relevant transport and logistics operations: **number and % of km/tonne-kilometre (tkm)** by different modes - For in-house transport and logistics operations: **truck load factor** (% weight or volume capacity)	For 100 % T&L operations reporting of: - percentage transport by different modes - kg CO 2 eq. per m3 or per pallet delivered. For all in-house T&L operations, reporting of: - truck load factor (% weight or volume capacity) - kg CO 2 eq. per tkm
Integration of **transport efficiency into sourcing decisions** and packaging design	Life cycle assessment of products sourced from different regions, design of product packaging to maximise the density of transport units.	- kg CO2 eq./m3 (or pallet) delivered. - Modal split of transport - Number of product groups where sourcing or packaging has been modified specifically to reduce T&L - Systematic implementation of packaging improvements to maximise density and improve T&L efficiency	Systematic implementation of packaging improvements to maximise density and improve T&L efficiency.
More **efficient transport modes**	Favor rail, water-based transport and larger trucks, and minimise air-freight	- % of total product transport (tkm), from first-tier suppliers to stores, accounted for by specified more-efficient modes - % of international product transport (tkm) accounted for by specified more-efficient modes	- Over 50 % of overland transport between first tier suppliers and retail distribution centres, according to sales value, is by water /rail - Over 99 % of overseas transport, according to sales value, is by ship
Optimisation of the **distribution network**	Systematic implementation of strategic centralised hubs to accommodate rail and water-based transport, consolidated platforms, or direct routing.	- **kg CO2 eq. per m3** (or pallet) delivered - Number of consolidation platforms in use, of strategic central hubs in use, or of direct transport routes in use - Percentage reduction in T&L GHG emissions through implementation of specified distribution network improvement options - Outsourcing of T&L operations to a third-party provider with an optimised distribution network	Systematic optimisation of distribution networks through the implementation of strategic hub lo cations, consolidated platforms, and direct routing

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Route planning optimisation, use of **telematics** and **driver training**	Back-loading store delivery vehicles with waste and with supplier deliveries to distribution centres, night deliveries to avoid traffic congestion	- kg CO2 eq. per m 3 (or pallet) delivered. - Fleet average % load efficiency (volume or mass capacity), or fleet average % empty running (truck km), or fleet average gCO2 eq./tkm. - % of drivers continuously trained in efficient driving. - Implementation of an efficient driving incentive scheme for drivers - Reduction in T&L GHG emissions through the implementation of specified options	- 100 % of drivers continuously trained in efficient driving, or implementation of an efficient driving incentive scheme for drivers. - Systematic optimisation of routing through back-hauling waste and supplier deliveries on store-delivery return journeys, use of telematics, and extended delivery windows.
Minimising the environmental impact of **road vehicles** through purchasing decisions and retrofit modifications	Purchase of alternatively powered vehicles, efficient, low-pollution vehicles and low-noise vehicles, aerodynamic modifications, and the application of low rolling resistance tyres.	- L/100 km (fuel consumption) or kg CO2 eq. per tkm. - % vehicles within transport fleet compliant with different EURO classes. - % of vehicles, trailers and loading equipment compliant with standards that enable night deliveries (*e.g.* PIEK noise standards) - % of vehicles in transport fleet powered by alternative fuel sources, *e.g* natural gas, biogas or electricity. - % of vehicles within transport fleet fitted with low rolling resistance tyres - % of vehicles and trailers within transport fleet designed or modified to improve aerodynamic performance.	- 100 % trucks EURO V compliant and with HGV fuel consumption of less than 30 l/100 km. - 100 % trucks, trailers and loading equipment compliant with standards that enable night deliveries (*e.g*. PIEK noise standards) - Operation of alternatively fuelled vehicles (natural gas, biogas, electric). - 100 % vehicles fitted with low rolling resistant tyres. - 100 % vehicles and trailers designed to improve aerodynamic performance

Table 30: BEMPs, environmental indicators and benchmark of excellence for transport and logistics of the retail trade sector (European Commission 2015).

Waste management

Table 31 below describes the main BEMPs regarding waste management. A focus is made on food waste as well as packaging reuse and recycling (especially plastic bottles).

BEMP	Examples of measures	Environmental *performance* indicators	Benchmark of excellence

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Food waste minimization	Monitoring, auditing, avoiding logistic issues, better **preservation mechanisms**, in-store **temperature and humidity control**, staff training, donation, advice to consumers, avoid landfilling or incineration of food waste thanks to fermentation processes.	- kg of food waste per m² or per MEUR of turnover % of food waste generation referring to total food purchases. - kg of food exceeding the sell-by date but not the use-by date, donated to charitable institutions - kg of food waste sent to recovery operations, such as fermentation - kg of food waste sent to landfill or incineration plants	Zero food waste sent to landfills or incineration plants.
Integration of **waste management** in retailers activities	**- Segregated collection and specific treatment** for reuse: compacting, briquetting for paper and plastic wastes, refrigeration of food wastes, etc. **- preparation for reuse** of packaging materials, as pallets and plastic boxes for suppliers, distribution centres, showcases in stores and home delivery - establishment of local and/or regional **partnerships** for the management of waste **- communication to consumers** of responsible management of waste at households	Recycling and reuse rates.	Objective of recycling or reusing 100 % of secondary packaging materials.
Return systems for PET and PE bottles and for used products	Implement take-back systems	% recycling rate from consumers defined per sales of returnable bottle.	Consumer return of 80 % without deposit or 95 % with deposit.

Table 31: BEMPs, environmental indicators and benchmark of excellence for waste management of the retail trade sector (European Commission 2015).

Other environmental aspects

BEMP	Examples of measures	Environmental performance indicators	Benchmark of excellence

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Use of less and certified/recycled paper for publications	Paper optimisation for commercial publications, use of more environmentally friendly paper	- % of paper used that is certified - Grammage of paper used - % of coated paper - % of printing shops certified EMAS or ISO 14001	- 100 % certified/recycled paper - Grammage less than 49 gr/m² - Less than 10 % coated paper - 100 % print shops EMAS/ISO 14001 certified.
Rainwater collection and reuse	Collect and reuse and/or infiltrate on site rainwater **from roofs and parking areas**	Rainwater collection and/or infiltration on site are integrated in the water management system	Rainwater collection and/or infiltration on site are integrated in the water management system
Prevention of single-use plastic bags / influence consumer behavior	**Campaigns**, such as the removal of plastic bags, responsible advertising and providing best guidance information to consumers.	**Number of available single-use bags** at checkouts	Zero single-use bags available at checkouts

Table 32: BEMPs, environmental indicators and benchmark of excellence for publication paper, rainwater management and use of plastic bags of the retail trade sector (European Commission 2015)

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D. EUROPEAN REGLEMENTATION

1. The EU Taxonomy

Since November 2023, the EU Taxonomy includes new technical screening criteria related to more environmental objectives, in addition to Climate change adaptation and Climate change mitigation: Sustainable use and protection of water, Transition to a circular economy, Pollution prevention and control, Protection and restauration of biodiversity and ecosystems. These new technical screening criteria have been published in the Environmental Delegated Act of the Taxonomy in November 2023 and are applicable since January 2024 (European Commission 2023a).

The following four activities, are covered by the EU Taxonomy as making a **substantial contribution to the circular economy** objective and belong to the Wholesale and Retail sector (European Commission 2023):

- **Sale of second-hand goods**
- **Repair, refurbishment and remanufacturing**
- **Product-as-a-service and other circular use- and result-oriented service models**
- **Sale of spare parts.**

The main technical screening criteria for a substantial contribution to circular economy include:

- Making sure that the materials that cannot be directly repaired are **reused elsewhere or recycled**.
- Providing a **reused or reusable packaging** for the sold products: at least 65% of the packaging is made from reused materials, metallic or plastic coatings are banned, or the packaging is suitable for reuse.

The description of the screening criteria specifically refers to the Wholesale trade, except of motor vehicles (G.46) and Retail trade, except of motor vehicles (G.47) NACE divisions, except for the Repair, refurbishing and remanufacturing activity. Regarding the latter, the EU Taxonomy does not specify any associated NACE code, but it could include some activities of the Repair of computers and personal and household goods (S.95) NACE division, which falls under the Wholesale and Retail factsheet perimeter.

In addition to the substantial contribution to one of the environmental objectives, the cited activities must respect **Do Not Significant Harm (DNSH)** criteria for several other objectives. Most of them are general objectives and explained in annexes of the EU Taxonomy. However, the DNSH criteria for **climate mitigation** is more detailed and activity-specific. Further explanations about the DNSH criteria for climate mitigation is provided in the section Technical screening criteria of the EU taxonomy for a substantial contribution to the transition to a circular economy. **No DNSH criteria has been set yet regarding the protection of biodiversity objective**. (European Commission, 2023).

2. Technical screening criteria of the EU taxonomy for a substantial contribution to the transition to a circular economy.

Here are some extracts from the Environmental Delegated Act, published in the Official Journal of the European Commission (European Commission 2023b).

Sale of second-hand goods

Sale of second-hand goods that have been used for their intended purpose before by a customer (physical person or legal person), possibly after repair, refurbishment or remanufacturing. […]

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The economic activities in this category could be associated with several NACE codes, in particular G46 and G47 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

Technical screening criteria

Contribution to circular economy

3. The economic activity consists of selling a second-hand product that had been used for its intended purpose by a customer (physical person or legal person), potentially after its prior cleaning, repair, refurbishment or remanufacturing.
4. The sold product is covered by a sales contract where relevant and in accordance with provisions as regards conformity of the product, liability of the seller (including the option of a shorter liability or limitation period for second hand products), burden of proof, remedies for lack of conformity, the modalities for the exercise of those remedies, repair or replacement of the goods, and commercial guarantees.
5. Where the product has been repaired, refurbished or remanufactured before reselling, the activity implements a waste management plan that ensures that the product's materials and components that have not been reused in the same product, are reused elsewhere, or where reuse is not possible (for example due to damage, degradation or hazardous substances), are recycled, or, only where reuse and recycling are not viable, are disposed of. For remanufacturing, the waste management plan is accessible to the public.
6. Where the economic activity involves delivery of packaged products to customers (physical person or legal person) including when the activity is operated as an e-commerce, the primary and secondary packaging of the product complies with one of the following criteria:

    a. the packaging is made of at least 65 % recycled material. Where the packaging is made from paper or cardboard, the remaining primary raw material are certified by the Forest Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification Schemes (PEFC International), or equivalent recognised schemes. Coatings with plastics or metals are not used. For plastic packaging only mono-materials without coatings are used, halogen-containing polymers are not used. A declaration of compliance is provided specifying the material composition of the packaging and the shares of recycled and primary raw material;
    b. the packaging has been designed to be reusable within a reuse system. The system for reuse is established in a way that ensures the possibility of reuse in a closed-loop or open-loop system.

Do Not Significant Harm

Climate mitigation

Where the activity involves on-site generation of heat/cool or co-generation including power, the direct GHG emissions of the activity are lower than 270 gCO2e/kWh.
The activity develops a strategy to account for and reduce the GHG emissions arising from transport along the value chain, including shipping and returns, to the extent these are traceable.

Where the sold product is initially produced by the activities classified under NACE codes C29, and is a vehicle, mobility component, system, separate technical unit, part or a spare part as defined in Regulation (EU) 2018/858, when sold in the secondary market after 2025 and before 2030 the following criteria apply:

- vehicles of category M1 and N1 classified as light-duty vehicles comply with specific emissions limits of CO2, as defined in Article 3(1), point (h), of Regulation (EU) 2019/631 of the European Parliament and of the Council, lower than 50gCO2/km (low- and zero-emission light-duty vehicles);

- vehicles of category L with tailpipe CO2 emissions equal to 0g CO2e/km calculated in accordance with the emission test laid down in Regulation (EU) 168/2013 of the European Parliament and of the Council;
- vehicles of categories N2 and N3, and N1 classified as heavy-duty vehicles, not dedicated to transporting fossil fuels with a technically permissible maximum laden mass not exceeding 7,5 tonnes that are 'zero-emission heavy-duty vehicles' as defined in Article 3, point(11), of Regulation (EU) 2019/1242;
- vehicles of categories N2 and N3 not dedicated to transporting fossil fuels with a technically permissible maximum laden mass exceeding 7,5 tonnes that are zero-emission heavy-duty vehicles', as defined in Article 3, point (11), of Regulation (EU) 2019/1242 or 'low-emission heavy-duty vehicles' as defined in Article 3, point (12) of that Regulation.

Where the product, initially produced by the activities classified under NACE codes C29, and being a vehicle, mobility component, system, separate technical unit, part or a spare part as defined in Regulation (EU) 2018/858, is sold in the secondary market after 2030 specific emissions of CO2, as defined in Article 3(1), point (h), of Regulation (EU) 2019/631 are zero.

Where product sold is initially produced by the activities classified under NACE codes C26 or C27, the product complies with Directive 2009/125/EC and the implementing regulations adopted under that Directive.

Repair, refurbishment and remanufacturing

Repair, refurbishment and remanufacturing of goods that have been used for their intended purpose before by a customer (physical person or legal person).
The economic activity does not include replacement of consumables, such as printer ink, toner cartridges, lubricants for moving parts or batteries.
The economic activities in this category have no dedicated NACE codes as referred to in the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

Technical screening criteria

Contribution to circular economy

1. The economic activity consists of extending the lifetime of products by repairing, refurbishing or remanufacturing products that have already been used for their intended purpose by a customer (physical person or legal person).
2. The economic activity complies with the following criteria:
   a. the replaced parts, the refurbished products or the remanufactured products are covered by a sales contract where relevant and in accordance with provisions as regards conformity of the product, liability of the seller (including the option of a shorter liability or limitation period for second hand products), burden of proof, remedies for lack of conformity, the modalities for the exercise of those remedies, repair or replacement of the goods, and commercial guarantees;
   b. the economic activity implements a waste management plan that ensures that the product's materials, particularly critical raw materials, and components that have not been reused in the same product are reused elsewhere, or, where reuse is not possible (due to damage, degradation or hazardous substances), are recycled, or, only where reuse and recycling is not viable, are disposed of in accordance with applicable Union and national legislation. For remanufacturing, the waste management plan is accessible to the public.

Do Not Significant Harm

Climate mitigation

Where the activity involves on-site generation of heat/cool or co-generation including power, the direct GHG emissions of the activity are lower than 270 gCO2e/kWh.

Product-as-a-service and other circular use and result-oriented service models

Providing customers (physical person or legal person) with access to products through service models, which are either use-oriented services, where the product is still central, but its ownership remains with the provider and the product is leased, shared, rented or pooled; or result-oriented, where the payment is pre-defined and the agreed result (i.e. pay per service unit) is delivered.
The economic activities in this category could be associated with several NACE codes, in particular G46, G47, and N.77 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

Technical screening criteria

Contribution to circular economy

1. The activity provides the customer (physical or legal persons) with access to, and use of product(s), while ensuring that the ownership remains with the company providing this service, such as a manufacturer, specialist or retailer. The contractual terms and conditions ensure that all the following sub-criteria are met:
   a. there is an obligation for the provider of the service to take back the used product at the end of the contractual agreement;
   b. there is an obligation for the customer to give back the used product at the end of the contractual agreement;
   c. the provider of the service remains owner of the product;
   d. the customer pays for access to and use of the product, or the result of access to and use of this product.
2. The activity leads to an extended lifespan or increased use intensity of the product in practice.
3. Where the economic activity involves delivery of packaged products to customers (physical person or legal person) including when the activity is operated as an e-commerce, the primary and secondary packaging of the product complies with one of the following criteria:
   a. the packaging is made of at least 65% recycled material. Where the packaging is made from paper or cardboard, the remaining primary raw material are certified by the Forest Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification Schemes (PEFC International), or equivalent recognised schemes. Coatings with plastics or metals are not used. For plastic packaging only monomaterials without coatings are used, halogen-containing polymers are not used. A declaration of compliance is provided specifying the material composition of the packaging and the shares of recycled and primary raw material;
   b. the packaging has been designed to be reusable within a reuse system. The system for reuse is established in a way that ensures the possibility of reuse in a closed-loop or open-loop system.
4. For wearing apparel, where the economic activity involves laundry and dry-cleaning of used wearing apparel, the activity complies with an ISO type 1 ecolabel or equivalent.

Do Not Significant Harm

Climate mitigation

Where the activity involves on-site generation of heat/cool or co-generation including power, the direct GHG emissions of the activity are lower than 270 gCO2e/kWh.

The activity develops a strategy to account for and reduce the GHG emissions arising from the services upstream and downstream of the value chain, including:

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- intermediate products and raw materials;
- transport along the value chain, including shipping and returns;
- maintenance and operations, including laundry and cleaning;
- end of life, including waste management.

Sale of spare parts

The economic activity does not include replacement of consumables, such as printer ink, toner cartridges, lubricants for moving parts or batteries and maintenance.

The economic activity relates to spare parts that are used in products manufactured by economic activities classified under the NACE codes C26 Manufacture of computer, electronic and optical products, C27 Manufacture of electrical equipment, C28.22 Manufacture of lifting and handling equipment, C28.23 Manufacture of office machinery and equipment (except computers and peripheral equipment), C28.24 Manufacture of power-driven hand tools and C31 Manufacture of furniture.

The economic activities in this category could be associated with several NACE codes, in particular G46 and G47 in accordance with the statistical classification of economic activities established by Regulation (EC) No 1893/2006.

Technical screening criteria

Contribution to circular economy

1. The economic activity consists of the sale of spare parts beyond legal obligations.
2. The economic activity complies with the following criteria:
   a. each sold spare part is covered by a sales contract where relevant and in accordance with provisions as regards conformity of the product, liability of the seller (including the option of a shorter liability or limitation period for second hand products), burden of proof, remedies for lack of conformity, the modalities for the exercise of those remedies, repair or replacement of the goods, and commercial guarantees;
   b. each sold spare part for a product replaces, or intends to replace in the future, an existing part in order to restore or upgrade the product's functionality, in particular in case where the existing part is broken.
3. Where the economic activity involves delivery of packaged products to customers (physical person or legal person) including when the activity is operated as an e-commerce, the primary and secondary packaging of the product complies with one of the following criteria:
   a. the packaging is made of at least 65% recycled material. Where the packaging is made from paper or cardboard, the remaining primary raw material are certified by the Forest Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification Schemes (PEFC International), or equivalent recognised schemes. Coatings with plastics or metals are not used. For plastic packaging only mono-materials without coatings are used, halogen-containing polymers are not used. A declaration of compliance is provided specifying the material composition of the packaging and the shares of recycled and primary raw material;
   b. the packaging has been designed to be reusable within a reuse system. The system for reuse is established in a way that ensures the possibility of reuse in a closed-loop or open-loop system.

Do Not Significant Harm

Climate mitigation

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Where the activity involves on-site generation of heat/cool or co-generation including power, the direct GHG emissions of the activity are lower than 270 gCO2e/kWh.
The activity develops a strategy to account for and reduce the GHG emissions arising from transport along the value chain, including shipping and returns, to the extent these are traceable.

3. EU Circular Economy Action Plan

In March 2020, The European Commission published A new Circular Economy Action Plan For a cleaner and more competitive Europe to announce a European policy framework to transition towards sustainable value chains. It is part of the European Green Deal and aims at setting norms and sustainable business models to avoid waste generation, reduce resource consumption and greenhouse gases emissions. The initiatives are not yet part of a mandatory regulation, but the plan already lists examples of actions that will be part of a policy framework, at different steps of products life cycle and for different kinds of products. The actions not only target economic actors, but also consumers and citizens organizations. Key products have been identified as a priority in terms of waste generation reduction. Further actions should be put in place to set a robust second-hand raw materials market within the EU. The plan is part of the EU's drive to promote the circular economy at a global level, as in the 2030 Sustainable Goals. (European Commission 2020).

The actions tackle the entire value chain of products. Therefore, retailers are specifically targeted as they can drive their consumers habits as well as put pressure on their suppliers to switch to circular economy practices. They are also directly concerned as waste generation and energy consumption is an important source of environmental impact for retailers, as explained above in section C.8 of the annex.

The following parts of the EU Circular Economy Action Plan describe:

- **general circularity measures** that will be set in the policy framework and should be part of a regulation
- specific actions that can be set for the identified **key products**

Only the measures that can interest Wholesale and Retail actors are reported in the annex. The boxes in the following parts contain the text directly extracted from the EU Circular Economy Action Plan.

2.1. Sustainable products policy framework

Designing sustainable products

In order to make products fit for a climate-neutral, resource-efficient and circular economy, reduce waste and ensure that the performance of front-runners in sustainability progressively becomes the norm, the Commission will propose a sustainable product policy legislative initiative. […]

As part of this legislative initiative, and, where appropriate, through complementary legislative proposals, the Commission will consider establishing sustainability principles and other appropriate ways to regulate the following aspects:

- improving product **durability, reusability, upgradability and reparability**, addressing the presence of **hazardous chemicals** in products, and increasing their **energy and resource efficiency**;
- increasing **recycled content in products**, while ensuring their performance and safety;
- enabling **remanufacturing and high-quality recycling**;
- reducing **carbon and environmental footprints**;
- restricting **single-use** and countering **premature obsolescence**;
- introducing a **ban on the destruction of unsold durable goods**;
- incentivising **product-as-a-service** or other models where producers keep the ownership of the product or the responsibility for its performance throughout its lifecycle;

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- mobilising the potential of digitalisation of product information, including solutions such as digital passports, tagging and watermarks;
- rewarding products based on their different sustainability performance, including by linking high performance levels to incentives.

Priority will be given to addressing product groups identified in the context of the value chains featuring in this Action Plan, such as electronics, ICT and textiles but also furniture and high impact intermediary products such as steel, cement and chemicals.

In this framework, a legislative initiative has already entered into force on the 18th of 2024: the **Ecodesign for Sustainable Products Regulation.** It aims at defining ecodesign standards that should be respected for specific products in order to make "sustainable products the norm" in the European market (European Parliament 2024).

Empowering consumers and public buyers

Initiatives to responsibilize public buyers are listed in the Action plan, following actions to entice consumer into acting. The following paragraphs will only focus on the consumer responsibility as wholesalers and retailers are less concerned about public buyers.

Empowering consumers and providing them with cost-saving opportunities is a key building block of the sustainable product policy framework. To enhance the participation of consumers in the circular economy, the Commission will propose:

- a revision of EU consumer law to ensure that consumers receive trustworthy and relevant information on products **at the point of sale,** including on their lifespan and on the **availability of repair services**, **spare parts** and repair manuals.
- further strengthening **consumer protection against green washing and premature obsolescence**, setting minimum requirements for sustainability labels/logos and for information tools.
- a new **'right to repair'** and consider new horizontal material rights for consumers for instance as regards availability of spare parts or access to repair and, in the case of ICT and electronics, to upgrading services.
- possible changes also in the context of the review of Directive 2019/77115, about the the role that guarantees can play in providing more circular products
- a substantiation of companies' environmental claims using Product and Organisation Environmental Footprint methods. The Commission will test the integration of these methods in the EU Ecolabel and include more systematically **durability**, **recyclability and recycled content in the EU Ecolabel criteria**.

Circularity in production processes

A last part on circularity in production processes is described in the Action Plan. The listed measures are more destinated to industrials than retailers and wholesalers as they tackle:

- the use of technology to better track resources
- the development a reporting and certification system for industries implementing circular production processes
- other measures promoting the transformation of industry and the development of green technologies.

2.2. Key product value chains

Beyond setting general measures to enhance circularity for the EU market products, the goal of the Commission is to "cooperate closely with stakeholders in key value chains to identify barriers to the expansion of markets for circular products and ways to address those barriers".

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Electronics and ICT

Electrical and electronic equipment continues to be one of the fastest growing waste streams in the EU, with current annual growth rates of 2%. It is estimated that less than 40% of electronic waste is recycled in the EU20. Value is lost when fully or partially functional products are discarded because they are not reparable, the battery cannot be replaced, the software is no longer supported, or materials incorporated in devices are not recovered. […]

The measures proposed in the Action Plan that could target retailers tackle the issues of repairing and managing waste:

- regulatory measures for electronics and ICT including mobile phones, tablets and laptops under the Ecodesign Directive so that devices are designed for energy efficiency and durability, **reparability, upgradability, maintenance, reuse and recycling**. […]
- focus on electronics and ICT as a priority sector for implementing the '**right to repair'**, including a **right to update obsolete software**;
- improving the **collection and treatment of waste electrical and electronic equipment** including by exploring options for an EU-wide **take back scheme to return or sell back** old mobile phones, tablets and chargers;

Batteries and vehicles

The measures proposed by the Commission to set more sustainable battery and vehicle production processes (recycled materials, recovery of materials) principally target battery producers.

However, the Circular Economy Action Plan mentions the implementation of the **European Strategy on Sustainable and Smart Mobility** in 2020, which includes the application of "**product-as-service** solutions to reduce virgin material consumption" (European Commission 2020) and could therefore be included in car retailers' activity.

Packaging

The Commission's objective is to allow only reusable or recyclable packaging in the EU market by 2030. A directive to set packaging requirement is to come, tackling the following issues:

- **reducing (over)packaging and packaging waste**, including by setting targets;
- driving design for re-use and recyclability of packaging, including considering **restrictions on the use of some packaging materials for certain applications**, in particular where **alternative reusable products** or systems are possible or **consumer goods can be handled safely without packaging;**
- considering **reducing the complexity** of packaging materials, including the number of materials and **polymers** used.

Plastics

The Action Plan's measures regarding plastics mainly regard microplastic pollution reduction.

However, the Circular Economy Action Plan mentions future policies regarding compostable versus single-use plastics, that target retailers as these are widely used in stores:

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- use of **biodegradable or compostable plastics**, based on an assessment of the applications where such use can be beneficial to the environment […]. It will aim to ensure that labelling a product as 'biodegradable' or 'compostable' does not mislead consumers to dispose of it in a way that causes plastic littering or pollution due to unsuitable environmental conditions or insufficient time for degradation. […]
- developing for the first time rules on **measuring recycled content** in plastic products.

Textiles

Textiles are the fourth highest-pressure category for the use of primary raw materials and water, after food, housing and transport, and fifth for GHG emissions. It is estimated that less than 1% of all textiles worldwide are recycled into new textiles. […] To respond to these challenges the Commission will propose a […] strategy [aiming] at strengthening industrial competitiveness and innovation in the sector, boosting the EU market for sustainable and circular textiles, including the **market for textile reuse, addressing fast fashion** and driving new business models.

This will be achieved by a comprehensive set of measures, including:

- applying the new sustainable product framework […] to textiles, including developing **ecodesign** measures […], ensuring the **uptake of secondary raw materials**, tackling the presence of **hazardous chemicals**, and empowering business and private consumers to choose sustainable textiles and have easy access to **re-use and repair** services;
- improving the business and regulatory environment for sustainable and circular textiles in the EU, in particular by providing incentives and support to **product-as-service models, circular materials** and production processes […];
- providing guidance to achieve high levels of **separate collection of textile waste**, which Member States have to ensure by 2025;
- boosting the **sorting, re-use and recycling** of textiles, including through innovation, encouraging industrial applications and regulatory measures such as extended producer responsibility.

The strategy mentioned above has been published in 2022 as the **EU Strategy for Sustainable and Circular Textile** by the EU and defines more precisely the previous objectives and action to set a sustainable EU market for textiles and fashion by 2030.

Food, water and nutrients

Only the measures related to water, food and nutrients that could apply to the Wholesale and Retail sector are presented below.

While the food value chain is responsible for significant resource and environmental pressures, an estimated 20% of the total food produced is lost or wasted in the EU. Therefore, in line with the Sustainable Development Goals and as part of the review of Directive 2008/98/EC38 referred to in section 4.1, the Commission will propose a **target on food waste reduction**, as a key action under the forthcoming EU Farm-to-Fork Strategy, which will address comprehensively the food value chain.

The Commission will also consider specific measures to increase the **sustainability of food distribution and consumption**. Under the sustainable products initiative, the Commission will launch the analytical work to determine the scope of a legislative initiative on **reuse to substitute single-use packaging, tableware and cutlery by reusable products** in food services. […]

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4. EU deforestation regulation

The European Parliament adopted in May 2023 a text regulating the sale of eight products that can entice deforestation. These products are **cattle, cocoa, coffee, oil palm, rubber, soya and wood**. It states that these eight primary agricultural commodities as well as all derived goods from them that are sold on the European market or produced on the European land **should not have induced the deforestation of natural areas since the 31st, December 2020**. Every business trading the targeted products should report and demonstrate that they are deforestation-free by a due-diligence statement (European Parliament 2023). This law will therefore encourage wholesalers and retailers to make sure their sourcing for the targeted range of products does not damage natural forests. It had to enter into force in December 2024 for large companies and later in 2025 for SMEs, but an amendment of the Council of the European Union, written in October 2024, proposes to postpone it by twelve months in order to ensure that producers of the targeted products have enough time to prepare to the new regulation. This amendment should be voted by the Parliament and the Council by December 2024 (Council of the European Union 2024).

E. NACE REV. 2 (EUROSTAT 2008)

This section contains extracts from the NACE rev. 2 classification (EUROSTAT 2008) and details the sectors covered by the Wholesale and Retail benchmark factsheet.

Section G – Wholesale and retail trade; repair of motor vehicles and motorcycles

This section includes wholesale and retail sale (i.e. sale without transformation) of any type of goods, and rendering services incidental to the sale of merchandise. Wholesaling and retailing are the final steps in the distribution of merchandise.
Also included in this section are the repair of motor vehicles and motorcycles.

Sale without transformation is considered to include the usual operations (or manipulations) associated with trade, for example sorting, grading and assembling of goods, mixing (blending) of goods (for example sand), bottling (with or without preceding bottle cleaning), packing, breaking bulk and repacking for distribution in smaller lots, storage (whether or not frozen or chilled).

Division 45 includes all activities related to the sale and repair of motor vehicles and motorcycles, while divisions 46 and 47 include all other sale activities. The distinction between division 46 (wholesale) and division 47 (retail sale) is based on the predominant type of customer.

Wholesale is the resale (sale without transformation) of new and used goods to retailers, business-to-business trade, such as to industrial, commercial, institutional or professional users, or resale to other wholesalers, or involves acting as an agent or broker in buying merchandise for, or selling merchandise to, such persons or companies. The principal types of businesses included are merchant wholesalers, i.e. wholesalers who take title to the goods they sell, such as wholesale merchants or jobbers, industrial distributors, exporters, importers, and cooperative buying associations, sales branches and sales offices (but not retail stores) that are maintained by manufacturing or mining units apart from their plants or mines for the purpose of marketing their products and that do not merely take orders to be filled by direct shipments from the plants or mines. Also included are merchandise and commodity brokers, commission merchants and agents and assemblers, buyers and cooperative associations engaged in the marketing of farm products.

Wholesalers frequently physically assemble, sort and grade goods in large lots, break bulk, repack and redistribute in smaller lots, for example pharmaceuticals; store, refrigerate, deliver and install goods, engage in sales promotion for their customers and label design.

Retailing is the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilisation, in shops, department stores, stalls, mail-order houses, door-to-door sales persons,

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hawkers, consumer cooperatives, auction houses etc. Most retailers take title to the goods they sell, but some act as agents for a principal and sell either on consignment or on a commission basis.

45 Wholesale and retail trade and repair of motor vehicles and motorcycles

This division includes all activities (except manufacture and renting) related to motor vehicles and motorcycles, includinglorries and trucks, such as the wholesale and retail sale of new and second-hand vehicles, the repair and maintenance of vehicles and the wholesale and retail sale of parts and accessories for motor vehicles and motorcycles. Also included are activities of commission agents involved in wholesale or retail sale of vehicles.
This division also includes activities such as washing, polishing of vehicles etc.
This division does not include the retail sale of automotive fuel and lubricating or cooling products or the renting of motor vehicles or motorcycles.

45.1 Sale of motor vehicles

45.11 Sale of cars and light motor vehicles

This class includes:

- wholesale and retail sale of new and used vehicles:
  - passenger motor vehicles, including specialised passenger motor vehicles such as ambulances and minibuses, etc.(with a weight not exceeding 3,5 tons)

This class also includes:

- wholesale and retail sale of off-road motor vehicles (with a weight not exceeding 3,5 tons)

This class excludes:

- wholesale and retail sale of parts and accessories for motor vehicles, see 45.3
- renting of motor vehicles with driver, see 49.3
- renting of motor vehicles without driver, see 77.1

45.19 Sale of other motor vehicles

This class includes:

- wholesale and retail sale of new and used vehicles:
- lorries, trailers and semi-trailers
- camping vehicles such as caravans and motor homes

This class also includes:

- wholesale and retail sale of off-road motor vehicles (with a weight exceeding 3,5 tons)

This class excludes:

- wholesale and retail sale of parts and accessories for motor vehicles, see 45.3
- renting of trucks with driver, see 49.41
- renting of trucks without driver, see 77.12

45.2 Maintenance and repair of motor vehicles

45.20 Maintenance and repair of motor vehicles

This class includes:

- maintenance and repair of motor vehicles:
  - mechanical repairs
  - electrical repairs
  - electronic injection systems repair
  - ordinary servicing
  - bodywork repair
  - repair of motor vehicle parts
  - washing, polishing, etc.
  - spraying and painting
  - repair of screens and windows
  - repair of motor vehicle seats
- tyre and tube repair, fitting or replacement
- anti-rust treatment
- installation of parts and accessories not as part of the manufacturing process

This class excludes:

- retreading and rebuilding of tyres, see 22.11

45.3 Sale of motor vehicle parts and accessories

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This group includes wholesale and retail trade of all kinds of parts, components, supplies, tools and accessories for motor vehicles, such as:

- rubber tyres and inner tubes for tyres
- spark plugs, batteries, lighting equipment and electrical parts

45.31 Wholesale trade of motor vehicle parts and accessories

45.32 Retail trade of motor vehicle parts and accessories

This class excludes:

- retail sale of automotive fuel, see 47.30

45.4 Sale, maintenance and repair of motorcycles and related parts and accessories

45.40 Sale, maintenance and repair of motorcycles and related parts and accessories

This class includes:

- wholesale and retail sale of motorcycles, including mopeds
- wholesale and retail sale of parts and accessories for motorcycles (including by commission agents and mail order houses)
- maintenance and repair of motorcycles

This class excludes:

- wholesale of bicycles and related parts and accessories, see 46.49
- retail sale of bicycles and related parts and accessories, see 47.64
- renting of motorcycles, see 77.39
- repair and maintenance of bicycles, see 95.29

46 Wholesale trade, except of motor vehicles and motorcycles

This division includes wholesale trade on own account or on a fee or contract basis (commission trade) related to domestic wholesale trade as well as international wholesale trade (import/export).

This division excludes:

- wholesale of motor vehicles, caravans and motorcycles, see 45.1, 45.4
- wholesale of motor vehicle accessories, see 45.31, 45.40
- renting and leasing of goods, see division 77
- packing of solid goods and bottling of liquid or gaseous goods, including blending and filtering for third par-ties, see 82.92

46.1 Wholesale on a fee or contract basis

This group includes:

- activities of commission agents, commodity brokers and all other wholesalers who trade on behalf and on the account of others
- activities of those involved in bringing sellers and buyers together or undertaking commercial transactions on behalf of a principal, including on the Internet.

This group also includes:

- activities of wholesale auctioneering houses, including Internet wholesale auctions

46.11 Agents involved in the sale of agricultural raw materials, live animals, textile raw materials and semi-finished goods

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.12 Agents involved in the sale of fuels, ores, metals and industrial chemicals

This class includes agents involved in the sale of:

- fuels, ores, metals and industrial chemicals, including fertilisers

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.13 Agents involved in the sale of timber and building materials

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9

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- retail sale by non-store commission agents, see 47.99

46.14 Agents involved in the sale of machinery, industrial equipment, ships and aircraft

This class includes agents involved in the sale of:

- machinery, including office machinery and computers, industrial equipment, ships and aircraft

This class excludes:

- activities of commission agents for motor vehicles, see 45.1
- auctions of motor vehicles, see 45.1
- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.15 Agents involved in the sale of furniture, household goods, hardware and ironmongery

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.16 Agents involved in the sale of textiles, clothing, fur, footwear and leather goods

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.17 Agents involved in the sale of food, beverages and tobacco

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.18 Agents specialised in the sale of other particular products

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99
- activities of insurance agents, see 66.22
- activities of real estate agents, see 68.31

46.19 Agents involved in the sale of a variety of goods

This class excludes:

- wholesale trade in own name, see 46.2 to 46.9
- retail sale by non-store commission agents, see 47.99

46.2 Wholesale of agricultural raw materials and live animals

46.21 Wholesale of grain, unmanufactured tobacco, seeds and animal feeds

This class includes:

- wholesale of grains and seeds
- wholesale of oleaginous fruits
- wholesale of unmanufactured tobacco
- wholesale of animal feeds and agricultural raw material n.e.c.

This class excludes:

- wholesale of textile fibres, see 46.76

46.22 Wholesale of flowers and plants

This class includes:

- wholesale of flowers, plants and bulbs

46.23 Wholesale of live animals

46.24 Wholesale of hides, skins and leather

46.3 Wholesale of food, beverages and tobacco

46.31 Wholesale of fruit and vegetables

This class includes:

- wholesale of fresh fruits and vegetables
- wholesale of preserved fruits and vegetables

46.32 Wholesale of meat and meat products

46.33 Wholesale of dairy products, eggs and edible oils and fats

This class includes:

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- wholesale of dairy products
- wholesale of eggs and egg products
- wholesale of edible oils and fats of animal or vegetable origin

46.34 Wholesale of beverages

This class includes:

- wholesale of alcoholic beverages
- wholesale of non-alcoholic beverages

This class also includes:

- buying of wine in bulk and bottling without transformation

This class excludes:

- blending of wine or distilled spirits, see 11.01, 11.02

46.35 Wholesale of tobacco products

46.36 Wholesale of sugar and chocolate and sugar confectionery

This class includes:

- wholesale of sugar, chocolate and sugar confectionery
- wholesale of bakery products

46.37 Wholesale of coffee, tea, cocoa and spices

46.38 Wholesale of other food, including fish, crustaceans and molluscs

This class also includes:

- wholesale of feed for pet animals

46.39 Non-specialised wholesale of food, beverages and tobacco

46.4 Wholesale of household goods

This group includes the wholesale of household goods, including textiles.

46.41 Wholesale of textiles

This class includes:

- wholesale of yarn
- wholesale of fabrics
- wholesale of household linen etc.
- wholesale of haberdashery: needles, sewing thread etc.

This class excludes:

- wholesale of textile fibres, see 46.76

46.42 Wholesale of clothing and footwear

This class includes:

- wholesale of clothing, including sports clothes
- wholesale of clothing accessories such as gloves, ties and braces
- wholesale of footwear
- wholesale of fur articles
- wholesale of umbrellas

This class excludes:

- wholesale of jewellery, see 46.48
- wholesale of leather goods, see 46.49
- wholesale of special sports equipment footwear such as ski boots, see 46.49

46.43 Wholesale of electrical household appliances

This class includes:

- wholesale of electrical household appliances
- wholesale of radio and television equipment
- wholesale of photographic and optical goods
- wholesale of electrical heating appliances
- wholesale of recorded audio and video tapes, CDs, DVDs

This class excludes:

- wholesale of blank audio and video tapes, CDs, DVDs, see 46.52
- wholesale of sewing machines, see 46.64

46.44 Wholesale of china and glassware and cleaning materials

This class includes:

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- wholesale of china and glassware
- wholesale of cleaning materials

46.45 Wholesale of perfume and cosmetics

This class includes:

- wholesale of perfumeries, cosmetics and soaps

46.46 Wholesale of pharmaceutical goods

This class includes:

- wholesale of pharmaceutical and medical goods

46.47 Wholesale of furniture, carpets and lighting equipment

This class includes:

- wholesale of household furniture
- wholesale of carpets
- wholesale of lighting equipment

This class excludes:

- wholesale of office furniture, see 46.65

46.48 Wholesale of watches and jewellery

46.49 Wholesale of other household goods

This class includes:

- wholesale of woodenware, wickerwork and corkware etc.
- wholesale of bicycles and their parts and accessories
- wholesale of stationery, books, magazines and newspapers
- wholesale of leather goods and travel accessories
- wholesale of musical instruments
- wholesale of games and toys
- wholesale of sports goods, including special sports footwear such as ski boots

46.5 Wholesale of information and communication equipment

This group includes the wholesale of information and communications technology (ICT) equipment, i.e. computers, tel- ecommunications equipment and parts.

46.51 Wholesale of computers, computer peripheral equipment and software

This class includes:

- wholesale of computers and computer peripheral equipment
- wholesale of software

This class excludes:

- wholesale of electronic parts, see 46.52
- wholesale of office machinery and equipment, (except computers and peripheral equipment), see 46.66

46.52 Wholesale of electronic and telecommunications equipment and parts

This class includes:

- wholesale of electronic valves and tubes
- wholesale of semi-conductor devices
- wholesale of microchips and integrated circuits
- wholesale of printed circuits
- wholesale of blank audio and video tapes and diskettes, magnetic and optical disks (CDs, DVDs)
- wholesale of telephone and

communications equipmentThis class excludes:

- wholesale of recorded audio and video tapes, CDs, DVDs, see 46.43
- wholesale of computers and computer peripheral equipment, see 46.51

46.6 Wholesale of other machinery, equipment and supplies

This group includes the wholesale of specialised machinery, equipment and supplies for all kinds of industries and general purpose machinery.

46.61 Wholesale of agricultural machinery, equipment and supplies

This class includes:

- wholesale of agricultural machinery and equipment:
  - ploughs, manure spreaders, seeders

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- harvesters
- threshers
- milking machines
- poultry-keeping machines, bee-keeping machines
- tractors used in agriculture and forestry

This class also includes:

- lawn mowers however operated

46.62 Wholesale of machine tools

This class includes:

- wholesale of machine tools of any type and for any material

This class also includes:

- wholesale of computer-controlled machine tools

46.63 Wholesale of mining, construction and civil engineering machinery

46.64 Wholesale of machinery for the textile industry and of sewing and knitting machines

This class also includes:

- wholesale of computer-controlled machinery for the textile industry and of computer-controlled sewing and knitting machines

46.65 Wholesale of office furniture

This class includes:

- wholesale trade services related to:
  - goods classified in 31.01 (Manufacture of office and shop furniture)

46.66 Wholesale of other office machinery and equipment

This class includes:

- wholesale of office machinery and equipment, except computers and computer peripheral equipment

This class excludes:

- wholesale of computers and peripheral equipment, see 46.51
- wholesale of electronic parts and telephone and communications equipment, see 46.52

46.69 Wholesale of other machinery and equipment

This class includes:

- wholesale of transport equipment except motor vehicles, motorcycles and bicycles
- wholesale of production-line robots
- wholesale of wires and switches and other installation equipment for industrial use
- wholesale of other electrical material such as electrical motors, transformers
- wholesale of other machinery n.e.c. for use in industry (except mining, construction, civil engineering and textile industry), trade and navigation and other services

This class also includes:

- wholesale of measuring instruments and equipment

This class excludes:

- wholesale of motor vehicles, trailers and caravans, see 45.1
- wholesale of motor vehicle parts, see 45.31
- wholesale of motorcycles, see 45.40
- wholesale of bicycles, see 46.49

46.7 Other specialised wholesale

This group includes other specialised wholesale activities not classified in other groups of this division. This includes the wholesale of intermediate products, except agricultural, typically not for household use.

46.71 Wholesale of solid, liquid and gaseous fuels and related products

This class includes:

- wholesale of fuels, greases, lubricants, oils such as:
  - charcoal, coal, coke, fuel wood, naphtha
  - crude petroleum, crude oil, diesel fuel, gasoline, fuel oil, heating oil, kerosene
  - liquefied petroleum gases, butane and propane gas
  - lubricating oils and greases, refined petroleum products

46.72 Wholesale of metals and metal ores

This class includes:

- wholesale of ferrous and non-ferrous metal ores

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- wholesale of ferrous and non-ferrous metals in primary forms
- wholesale of ferrous and non-ferrous semi-finished metal products n.e.c.
- wholesale of gold and other precious metals

This class excludes:

- wholesale of metal scrap, see 46.77

46.73 Wholesale of wood, construction materials and sanitary equipment

This class includes:

- wholesale of wood in the rough
- wholesale of products of primary processing of wood
- wholesale of paint and varnish
- wholesale of construction materials:
  - sand, gravel
- wholesale of wallpaper and floor coverings
- wholesale of flat glass
- wholesale of sanitary equipment:
  - baths, washbasins, toilets and other sanitary porcelain
- wholesale of prefabricated buildings

46.74 Wholesale of hardware, plumbing and heating equipment and supplies

This class includes:

- wholesale of hardware and locks
- wholesale of fittings and fixtures
- wholesale of hot water heaters
- wholesale of sanitary installation equipment:
  - tubes, pipes, fittings, taps, T-pieces, connections, rubber pipes etc.
- wholesale of tools such as hammers, saws, screwdrivers and other hand tools

46.75 Wholesale of chemical products

This class includes:

- wholesale of industrial chemicals:
  - aniline, printing ink, essential oils, industrial gases, chemical glues, colouring matter, synthetic resin, methanol, paraffin, scents and flavourings, soda, industrial salt, acids and sulphurs, starch derivates etc.
- wholesale of fertilisers and agrochemical products

46.76 Wholesale of other intermediate products

This class includes:

- wholesale of plastic materials in primary forms
- wholesale of rubber
- wholesale of textile fibres etc.
- wholesale of paper in bulk
- wholesale of precious stones

46.77 Wholesale of waste and scrap

This class includes:

- wholesale of metal and non-metal waste and scrap and materials for recycling, including collecting, sorting, separating, stripping of used goods such as cars in order to obtain reusable parts, packing and repacking, storage and delivery, but without a real transformation process. Additionally, the purchased and sold waste hasa remaining value.

This class also includes:

- dismantling of automobiles, computers, televisions and other equipment to obtain and re-sell usable parts

This class excludes:

- collection of household and industrial waste, see 38.1
- treatment of waste, not for a further use in an industrial manufacturing process, but with the aim of disposal, see 38.2
- processing of waste and scrap and other articles into secondary raw material when a real transformation proc- ess is required (the resulting secondary raw material is fit for direct use in an industrial manufacturing process, but is not a final product), see 38.3
- dismantling of automobiles, computers, televisions and other equipment for materials recovery, see 38.31

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- ship-breaking, see 38.31
- shredding of cars by means of a mechanical process, see 38.32
- retail sale of second-hand goods, see 47.79

46.9 Non-specialised wholesale trade

46.90 Non-specialised wholesale trade

This class includes:

- wholesale of a variety of goods without any particular specialisation

46 Retail trade, except of motor vehicles and motorcycles

This division includes the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilisation, by shops, department stores, stalls, mail-order houses, door-to-door sales persons, hawkers, consumer cooperatives etc.

Retail trade is classified first by type of sale outlet (retail trade in stores: groups 47.1 to 47.7; retail trade not in stores: groups 47.8 and 47.9). Retail trade in stores includes the retail sale of used goods (class 47.79). For retail sale in stores, there exists a further distinction between specialised retail sale (groups 47.2 to 47.7) and non-specialised retail sale (group 47.1). The above groups are further subdivided by the range of products sold. Sale not via stores is subdivided according to the formsof trade, such as retail sale via stalls and markets (group 47.8) and other non-store retail sale, e.g. mail order, door-to-door, by vending machines etc. (group 47.9).

The goods sold in this division are limited to goods usually referred to as consumer goods or retail goods. Therefore goods not normally entering the retail trade, such as cereal grains, ores, industrial machinery etc. are excluded.

This division also includes units engaged primarily in selling to the general public, from displayed merchandise, products such as personal computers, stationery, paint or timber, although these products may not be for personal or household use. Handling that is customary in trade does not affect the basic character of the merchandise and may include, for example, sorting, separating, mixing and packaging.

This division also includes the retail sale by commission agents and activities of retail auctioning houses.

This division excludes:

- sale of farmers' products by farmers, see division 01
- manufacture and sale of goods, which is generally classified as manufacturing in divisions 10-32
- sale of motor vehicles, motorcycles and their parts, see division 45
- trade in cereal grains, ores, crude petroleum, industrial chemicals, iron and steel and industrial machinery and equipment, see division 46
- sale of food and drinks for consumption on the premises and sale of takeaway food, see division 56
- renting of personal and household goods to the general public, see group 77.2

47.1 Retail sale in non-specialised stores

This group includes the retail sale of a variety of product lines in the same unit (non-specialised stores), such as supermarkets or department stores.

47.11 Retail sale in non-specialised stores with food, beverages or tobacco predominating

This class includes:

- retail sale of a large variety of goods of which, however, food products, beverages or tobacco should bepredominant:
  - activities of general stores that have, apart from their main sales of food products, beverages or tobacco, severalother lines of merchandise such as wearing apparel, furniture, appliances, hardware, cosmetics etc.

47.19 Other retail sale in non-specialised stores

This class includes:

- retail sale of a large variety of goods of which food products, beverages or tobacco are not predominant
- activities of department stores carrying a general line of merchandise, including wearing apparel, furniture, appliances, hardware, cosmetics, jewellery, toys, sports goods etc.

47.2 Retail sale of food, beverages and tobacco in specialised stores

47.21 Retail sale of fruit and vegetables in specialised stores

This class includes:

- retail sale of fresh fruit and vegetables
- retail sale of prepared and preserved fruits and vegetables

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47.22 Retail sale of meat and meat products in specialised stores

This class includes:

- retail sale of meat and meat products (including poultry)

47.23 Retail sale of fish, crustaceans and molluscs in specialised stores

This class includes:

- retail sale of fish, other seafood and products thereof

47.24 Retail sale of bread, cakes, flour confectionery and sugar confectionery in specialisedstores

47.25 Retail sale of beverages in specialised stores

This class includes:

- retail sale of beverages (not for consumption on the premises):
  - alcoholic beverages
  - non-alcoholic beverages

47.26 Retail sale of tobacco products in specialised stores

This class includes:

- retail sale of tobacco
- retail sale of tobacco products

47.29 Other retail sale of food in specialised stores

This class includes:

- retail sale of dairy products and eggs
- retail sale of other food products n.e.c.

47.3 Retail sale of automotive fuel in specialised stores

47.30 Retail sale of automotive fuel in specialised stores

This class includes:

- retail sale of fuel for motor vehicles and motorcycles

This class also includes:

- retail sale of lubricating products and cooling products for motor vehicles

This class excludes:

- wholesale of fuels, see 46.71
- retail sale of liquefied petroleum gas for cooking or heating, see 47.78

47.4 Retail sale of information and communication equipment in specialised stores

This group includes the retail sale of information and communications technology (ICT) equipment, such as computers and peripheral equipment, telecommunications equipment and consumer electronics, by specialised stores.

47.41 Retail sale of computers, peripheral units and software in specialised stores

This class includes:

- retail sale of computers
- retail sale of computer peripheral equipment
- retail sale of video game consoles
- retail sale of non-customised software, including video games

This class excludes:

- retail sale of blank tapes and disks, see 47.63

47.42 Retail sale of telecommunications equipment in specialised stores

47.43 Retail sale of audio and video equipment in specialised stores

This class includes:

- retail sale of radio and television equipment
- retail sale of audio and video equipment
- retail sale of CD, DVD etc. players and recorders

47.5 Retail sale of other household equipment in specialised stores

This group includes the retail sale of household equipment, such as textiles, hardware, carpets, electrical appliances orfurniture, in specialised stores.

47.51 Retail sale of textiles in specialised stores

This class includes:

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- retail sale of fabrics
- retail sale of knitting yarn
- retail sale of basic materials for rug, tapestry or embroidery making
- retail sale of textiles
- retail sale of haberdashery: needles, sewing thread etc.

This class excludes:

- retail sale of clothing, see 47.71

47.52 Retail sale of hardware, paints and glass in specialised stores

This class includes:

- retail sale of hardware
- retail sale of paints, varnishes and lacquers
- retail sale of flat glass
- retail sale of other building material such as bricks, wood, sanitary equipment
- retail sale of do-it-yourself material and equipment

This class also includes:

- retail sale of lawnmowers, however operated
- retail sale of saunas

47.53 Retail sale of carpets, rugs, wall and floor coverings in specialised stores

This class includes:

- retail sale of carpets and rugs
- retail sale of curtains and net curtains
- retail sale of wallpaper and floor coverings

This class excludes:

- retail sale of cork floor tiles, see 47.52

47.54 Retail sale of electrical household appliances in specialised stores

This class excludes:

- retail sale of audio and video equipment, see 47.43

47.59 Retail sale of furniture, lighting equipment and other household articles in specialisedstores

This class includes:

- retail sale of household furniture
- retail sale of articles for lighting
- retail sale of household utensils and cutlery, crockery, glassware, china and pottery
- retail sale of wooden, cork and wickerwork goods
- retail sale of non-electrical household appliances
- retail sale of musical instruments and scores
- retail sale of electrical security alarm systems, such as locking devices, safes, and vaults, without installation or maintenance services
- retail sale of household articles and equipment n.e.c.

This class excludes:

- retail sale of antiques, see 47.79

47.6 Retail sale of cultural and recreation goods in specialised stores

This group includes the retail sale in specialised stores of cultural and recreation goods, such as books, newspapers, music and video recordings, sporting equipment, games and toys.

47.61 Retail sale of books in specialised stores

This class includes:

- retail sale of books of all kinds

This class excludes:

- retail sale of second-hand or antique books, see 47.79

47.62 Retail sale of newspapers and stationery in specialised stores

This class also includes:

- retail sale of office supplies such as pens, pencils, paper etc.

47.63 Retail sale of music and video recordings in specialised stores

This class includes:

- retail sale of musical records, audio tapes, compact discs and cassettes
- retail sale of video tapes and DVDs

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This class also includes:
- retail sale of blank tapes and discs

47.64 Retail sale of sporting equipment in specialised stores

This class includes:
- retail sale of sports goods, fishing gear, camping goods, boats and bicycles

47.65 Retail sale of games and toys in specialised stores

This class includes:
- retail sale of games and toys, made of all materials

This class excludes:
- retail sale of video game consoles, see 47.41
- retail sale of non-customised software, including video games, see 47.41

47.7 Retail sale of other goods in specialised stores

This group includes the sale in specialised stores carrying a particular line of products not included in other parts of the classification, such as clothing, footwear and leather articles, pharmaceutical and medical goods, watches, souvenirs, cleaning materials, weapons, flowers and pets and others. Also included is the retail sale of used goods in specialised stores.

47.71 Retail sale of clothing in specialised stores

This class includes:
- retail sale of articles of clothing
- retail sale of articles of fur
- retail sale of clothing accessories such as gloves, ties, braces etc.

This class excludes:
- retail sale of textiles, see 47.51

47.72 Retail sale of footwear and leather goods in specialised stores

This class includes:
- retail sale of footwear
- retail sale of leather goods
- retail sale of travel accessories of leather and leather substitutes

This class excludes:
- retail sale of special sports equipment footwear such as ski boots, see 47.64

47.73 Dispensing chemist in specialised stores

This class includes:
- retail sale of pharmaceuticals

47.74 Retail sale of medical and orthopaedic goods in specialised stores

47.75 Retail sale of cosmetic and toilet articles in specialised stores

This class includes:
- retail sale of perfumery, cosmetic and toilet articles

47.76 Retail sale of flowers, plants, seeds, fertilisers, pet animals and pet food in specialisedstores

47.77 Retail sale of watches and jewellery in specialised stores

47.78 Other retail sale of new goods in specialised stores

This class includes:
- retail sale of photographic, optical and precision equipment
- activities of opticians
- retail sale of souvenirs, craftwork and religious articles
- activities of commercial art galleries
- retail sale of household fuel oil, bottled gas, coal and fuel wood
- retail sale of weapons and ammunition
- retail sale of stamps and coins
- retail trade services of commercial art galleries
- retail sale of non-food products n.e.c.

47.79 Retail sale of second-hand goods in stores

This class includes:
- retail sale of second-hand books

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- retail sale of other second-hand goods
- retail sale of antiques
- activities of auctioning houses (retail)

This class excludes:

- retail sale of second-hand motor vehicles, see 45.1
- activities of Internet auctions and other non-store auctions (retail), see 47.91, 47.99
- activities of pawn shops, see 64.92

47.8 Retail sale via stalls and markets

This group includes the retail sale of any kind of new or second-hand product in a usually movable stall either along apublic road or at a fixed marketplace.

47.81 Retail sale via stalls and markets of food, beverages and tobacco products

This class excludes:

- retail sale of prepared food for immediate consumption (mobile food vendors), see 56.10

47.82 Retail sale via stalls and markets of textiles, clothing and footwear

47.89 Retail sale via stalls and markets of other goods

This class includes:

- retail sale of other goods via stalls or markets, such as:
  - carpets and rugs
  - books
  - games and toys
  - household appliances and consumer electronics
  - music and video recordings

47.9 Retail trade not in stores, stalls or markets

This group includes retail sale activities by mail order houses, over the Internet, through door-to-door sales, vending machines etc.

47.91 Retail sale via mail order houses or via Internet

This class includes retail sale activities via mail order houses or via Internet, i.e. retail sale activities where the buyer makes his choice on the basis of advertisements, catalogues, information provided on a website, models or any other means of advertising and places his order by mail, phone or over the Internet (usually through special means provided by a website). The products purchased can be either directly downloaded from the Internet or physically delivered to the customer.

This class includes:

- retail sale of any kind of product by mail order
- retail sale of any kind of product over the Internet

This class also includes:

- direct sale via television, radio and telephone
- Internet retail auctions

This class excludes:

- retail sale of motor vehicles and motor vehicles parts and accessories over the Internet, see groups 45.1, 45.3
- retail sale of motorcycles and motorcycles parts and accessories over the Internet, see 45.40

47.99 Other retail sale not in stores, stalls or markets

This class includes:

- retail sale of any kind of product in any way that is not included in previous classes:
  - by direct sales or door-to-door sales persons
  - through vending machines etc.
- direct selling of fuel (heating oil, firewood, etc.), delivered to the customers premises
- activities of non-store auctions (retail, except Internet)
- retail sale by (non-store) commission agents.

Section S – Other Service Activities

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95 Repair of computers and personal and household goods

This division includes the repair and maintenance of computers peripheral equipment such as desktops, laptops, computer terminals, storage devices and printers.
It also includes the repair of communications equipment such as fax machines, two-way radios and consumer electronics such as radios and TVs, home and garden equipment such as lawn-mowers and blowers, footwear and leather goods, furniture and home furnishings, clothing and clothing accessories, sporting goods, musical instruments, hobby articles and other personal and household goods.
Excluded from this division is the repair of medical and diagnostic imaging equipment, measuring and surveying instruments, laboratory instruments, radar and sonar equipment, see 33.13.

95.1 Repair of computers and communication equipment

This group includes the repair and maintenance of computers and peripheral equipment and communications equipment.

95.11 Repair of computers and peripheral equipment

This class includes the repair of electronic equipment, such as computers and computing machinery and peripheral equipment.
This class includes the repair and maintenance of:

- desktop computers
- laptop computers
- magnetic disk drives, flash drives and other storage devices
- optical disk drives (CD-RW, CD-ROM, DVD-ROM, DVD-RW)
- printers
- monitors
- keyboards
- mice, joysticks and trackball accessories
- internal and external computer modems
- dedicated computer terminals
- computer servers
- scanners, including bar code scanners
- smart card readers
- virtual reality helmets
- computer projectors

This class also includes the repair and maintenance of:

- computer terminals like automatic teller machines (ATM's); point-of-sale (POS) terminals, not mechanically operated
- hand-held computers (PDA's) This class excludes:
- the repair and maintenance of carrier equipment modems, see 95.12

95.12 Repair of communication equipment

This class includes repair and maintenance of communications equipment such as:

- cordless telephones
- cellular phones
- carrier equipment modems
- fax machines
- communications transmission equipment (e.g. routers, bridges, modems)
- two-way radios
- commercial TV and video cameras

95.2 Repair of personal and household goods

This group includes the repair and servicing of personal and household goods.

95.21 Repair of consumer electronics

This class includes repair and maintenance of consumer electronics:

- repair of consumer electronics:
  - television, radio receivers
  - video cassette recorders (VCR)
  - CD players

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- household-type video cameras

95.22 Repair of household appliances and home and garden equipment

This class includes the repair and servicing household appliances and home and garden equipment:

- repair and servicing of household appliances
  - refrigerators, stoves, washing machines, clothes dryers, room air conditioners, etc.
- repair and servicing of home and garden equipment
  - lawnmowers, edgers, snow- and leaf- blowers, trimmers, etc.

This class excludes:

- repair of hand held power tools, see 33.12
- repair of central air conditioning systems, see 43.22

95.23 Repair of footwear and leather goods

This class includes repair and maintenance of footwear and leather goods:

- repair of boots, shoes, luggage and the like
- fitting of heels

95.24 Repair of furniture and home furnishings

This class includes:

- reupholstering, refinishing, repairing and restoring of furniture and home furnishings including office furniture

95.25 Repair of watches, clocks and jewellery

This class includes:

- repair of watches, clocks and their parts such as watch cases and housings of all materials; movements, chro- nometers, etc.
- repair of jewellery This class excludes:
- repair of time clocks, time/date stamps, time locks and similar time recording devices, see 33.13

95.29 Repair of other personal and household goods

This class includes repair of personal and household goods:

- repair of bicycles
- repair and alteration of clothing
- repair of sporting goods (except sporting guns) and camping equipment
- repair of books
- repair of musical instruments (except organs and historical musical instruments)
- repair of toys and similar articles
- repair of other personal and household goods
- piano-tuning

This class excludes:

- industrial engraving of metals, see 25.61
- repair of sporting and recreational guns, 33.11
- repair of hand held power tools, see 33.12

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