Public Consultation - October 2025

European long-distance passenger transport - VAT gap analysis

T&E Contribution to the European Commission's Public Consultation on VAT Rules for Travel and Tourism Sectors

Summary

Despite being some of the most carbon-intensive modes of transport, aviation and shipping continue to benefit from some of the most generous tax exemptions in Europe. One of the most significant of these is the exemption from the Value Added Tax (VAT).

Aviation:

Most traffic untaxed – Three-quarters of EU air passenger journeys pay no VAT at all. Intra-EU and most prominently, international flights, which cause the bulk of emissions, are entirely exempt.

Massive revenue loss – In 2024, EU governments collected just €1.4 billion in VAT from aviation, according to T&E's estimates. If a standard 20% VAT rate had been applied to all tickets for journeys inside and departing from the EU, over €30 billion would have been collected. This equates to a VAT gap of €29 billion in one year.

Shipping:

Most traffic untaxed – International maritime passenger transport is exempt from VAT across all EU Member States, meaning passengers pay no VAT while operators can still deduct input VAT. Even at the domestic level, many ferry and cruise services benefit from exemptions or reduced rates, leaving most passenger shipping effectively untaxed.

Outdated VAT classification – Cruises are currently treated as passenger transport even though they function mainly as accommodation and leisure services. Reclassifying them for VAT purposes as tourism activities would align taxation with land-based hospitality and reflect true economic and environmental costs.

Rail:

5 countries are still applying VAT for international rail – About 16.3 million passengers are departing from countries that apply VAT to international rail tickets. This represents less than a quarter of EU international rail passengers.

Minimal revenue loss with a pan-European VAT exemption for international rail – removing VAT on international rail could cost between €106 million and €117 million/year according to our modelling.

Conclusion:

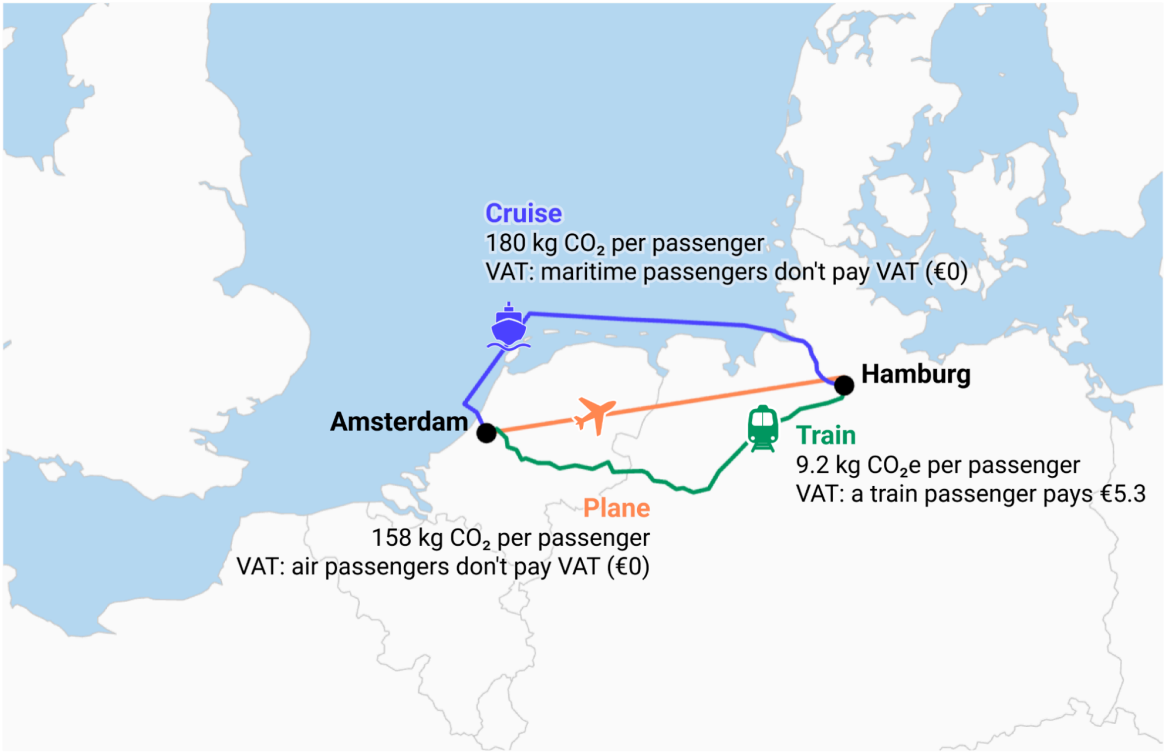
The current VAT regime is unfair and distortive – While essential goods and services are taxed, air travel and cruises avoid VAT. Other modes of passenger transport, such as rail and bus, do pay VAT, which puts them at a competitive disadvantage.

Why it matters – The VAT exemption keeps flying artificially cheap, driving up demand and emissions. At the same time, it deprives governments of billions in revenues that could support public services or investment in cleaner transport. Broadening the VAT base would create a fairer, more consistent market environment across transport modes.

Recommendations:

- End the VAT exemptions on international aviation and passenger transport ships.
- Set a European exemption of VAT for international passenger rail

Train from AMS to HAM emits 17 times less than a flight and 20 times less than a cruise but is the only to be VAT taxed



Source: T&E (2025) • Rail emissions (in CO_2e) estimated using CO_2Kompass from DB • Aviation emissions based on T&E modelling based on total number of origin passenger in 2024 (excl.transfer passenger) and total annual emissions (OAG data; Eurocontrol method) • Shipping emission data from the 2023 MRV. Ship characteristics from Clarksons World Fleet Register. Distance calculated based on the shortest sea distance between the two ports and the CO_2 emissions per transport work

Aviation

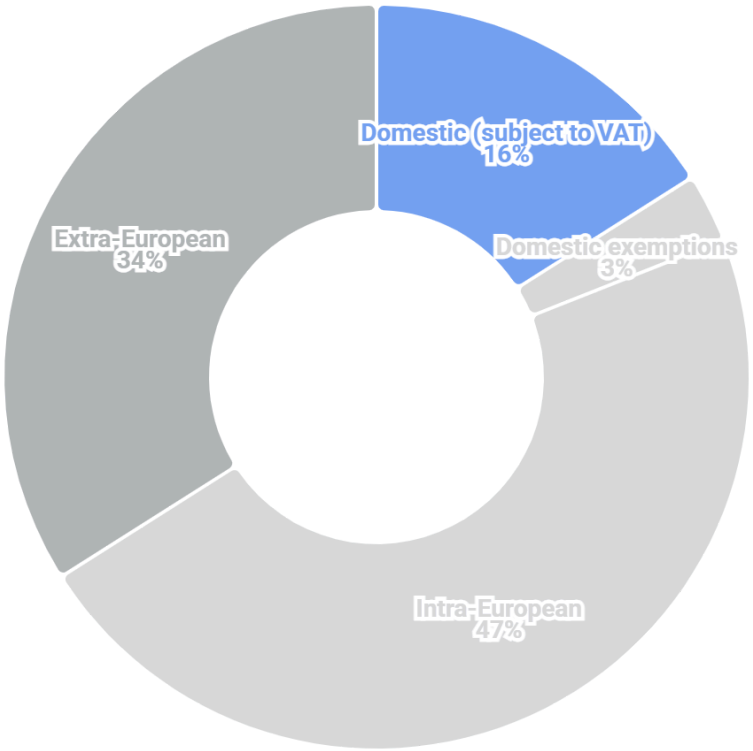
A €29 billion VAT gap in European aviation

Aviation is one of the most carbon-intensive modes of transport, yet it enjoys some of the most generous tax exemptions in the EU. Decades of under-taxation have kept ticket prices artificially low, boosted demand, and deprived governments of revenues. If this privileged status continues, both traffic and emissions will keep rising.

One of the key exemptions is the Value Added Tax (VAT). VAT is a general consumption tax applied to almost all goods and services sold in the EU. Under the VAT Directive (Article 98), Member States may exempt domestic flight tickets by applying reduced or zero rates. For example, across the EU, four countries (Cyprus, Denmark, Ireland and Malta) apply a zero VAT rate, while others apply either a reduced rate or the standard national rate.

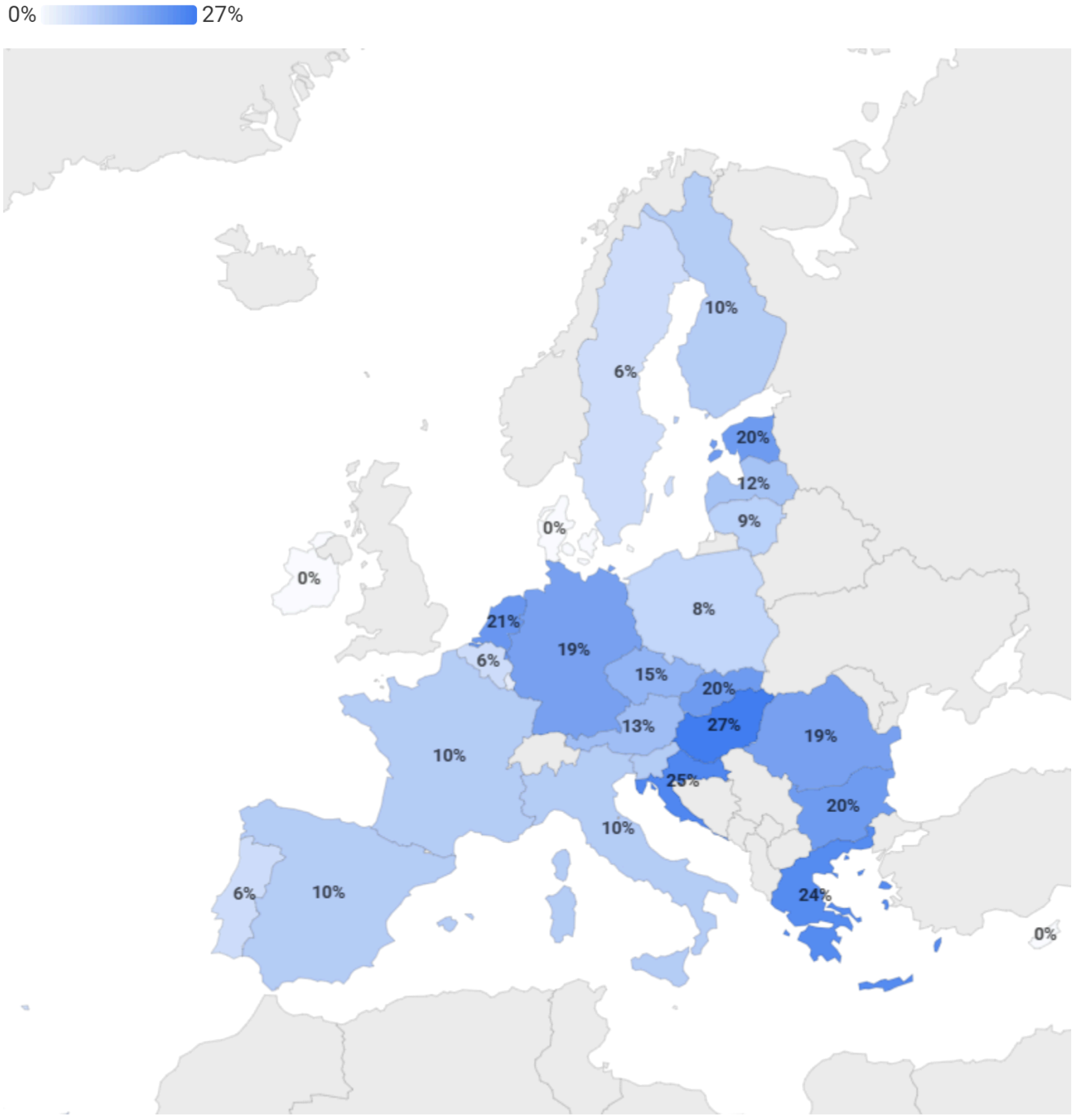
Intra-European flights are not subject to VAT. More prominently, international flights, which cause the bulk of emissions, are fully exempt from VAT across the EU. As a result, more than 80% of passenger traffic pays no VAT at all.

Less than two in ten EU air passengers pay VAT



Source: T&E modelling based departing flights from the EU27 • OAG flight schedule data

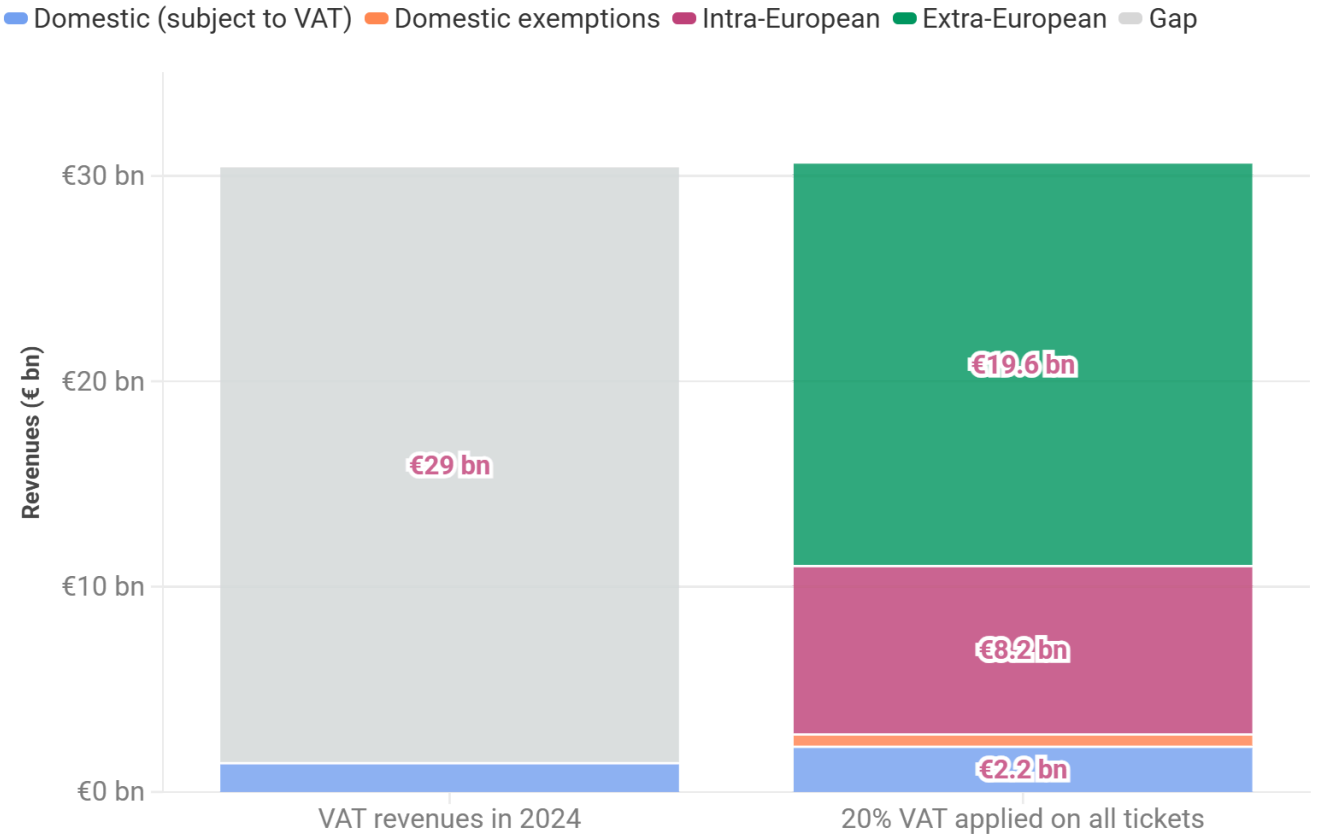
VAT on domestic air tickets



Source: T&E (2025)

These exemptions come at a significant cost for public finances. We estimate that VAT levied on air travel amounted to merely €1.4 billion in 2024. By contrast, if VAT exemptions were removed and a standard 20% VAT rate applied to all tickets for journeys departing from the EU, governments would have collected more than €30 billion. This means that in 2024 alone, **Europe lost an estimated €29 billion in VAT revenues from aviation**.

Europe loses €29 billion in VAT revenues from aviation



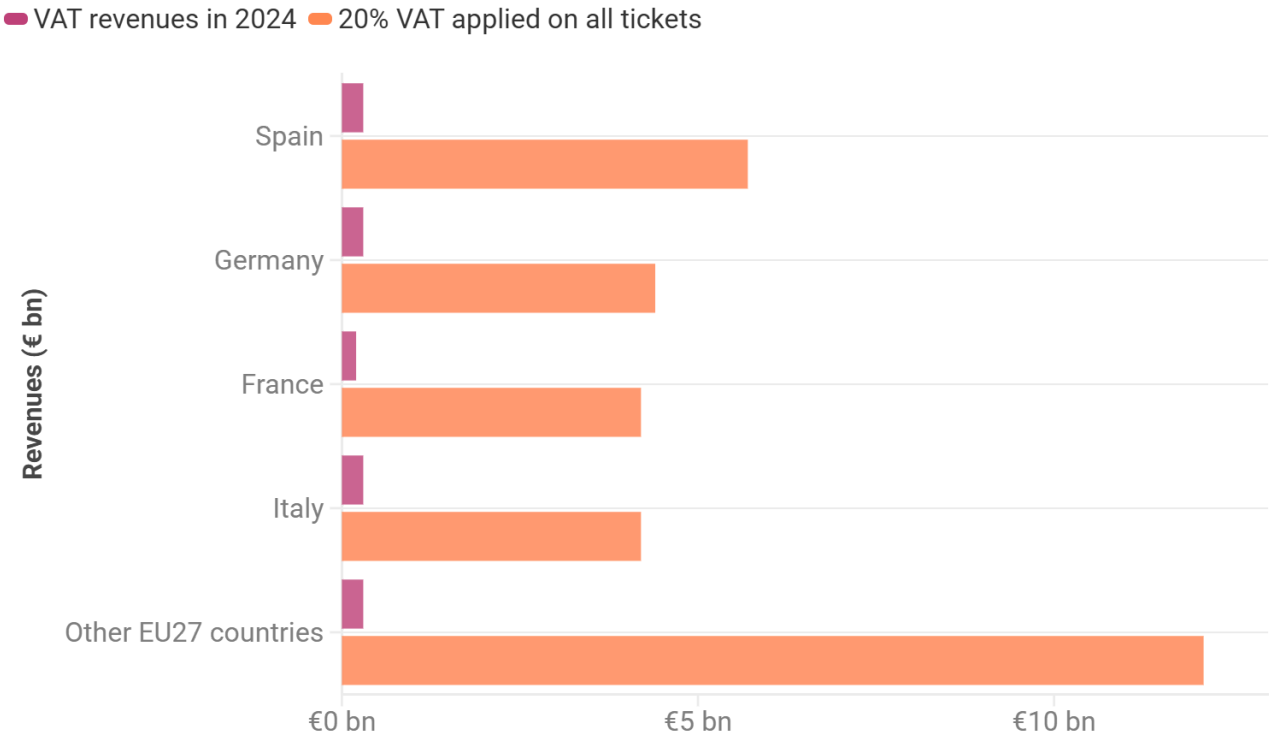
Source: T&E modelling based departing flights from the EU27 • OAG flight schedule and airfare data.

The VAT gap is not distributed evenly across the EU. Spain, Germany, France and Italy account for the majority of the deficit, followed by the Netherlands, Greece, Portugal and Ireland. This is due to the number of domestic flights and higher tax rates.

The exemptions are unfair and distortive. While luxury goods and services, such as cruise tickets, are also exempt in some cases, many essentials are not. These exemptions distort the market: most other passenger transport modes pay VAT, leaving the lower-carbon alternatives, rail and bus, at a disadvantage.

Maintaining the VAT exemption keeps air tickets artificially cheap, boosting demand and driving up CO_2 emissions. Moreover, At the same time, it deprives governments of a reliable source of tax revenue. Broadening the tax base with a uniform VAT rate for aviation would create a fairer, more consistent market environment across transport modes.

Spain, Germany, France and Italy account for the largest aviation VAT gaps



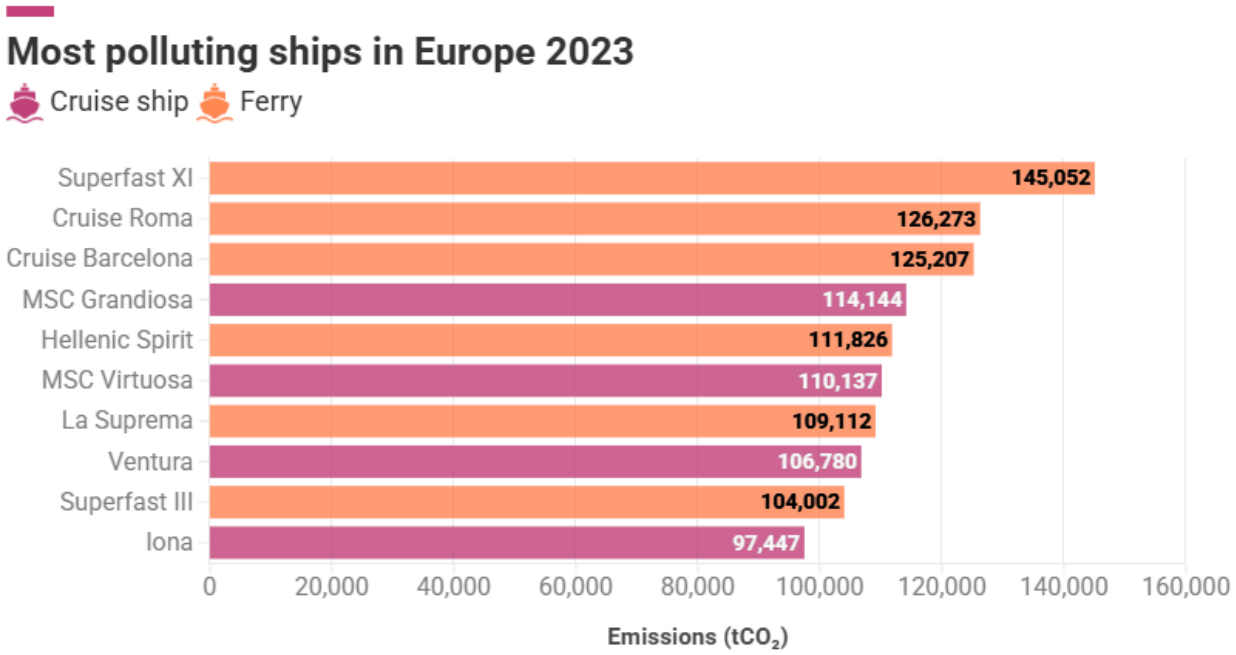
Source: T&E modelling based departing flights from the EU27 • OAG flight schedule and airfare data

Recommendation: End the VAT exemption for international aviation. This raises much needed revenues, while putting cleaner transport modes such as a rail on a more level playing field.

Shipping

The VAT treatment of passenger shipping in the EU varies considerably depending on the type of service provided, making it essential to distinguish between different categories of vessels. Most passenger vessels are either cruise ships or ferries. Regarding ferries, a certain share of their operations are carried out under public service contracts, providing essential connectivity for islands and remote coastal regions. Cruise ships, by contrast, operate purely as tourism and leisure services. This contribution focuses on these two main passenger ships.

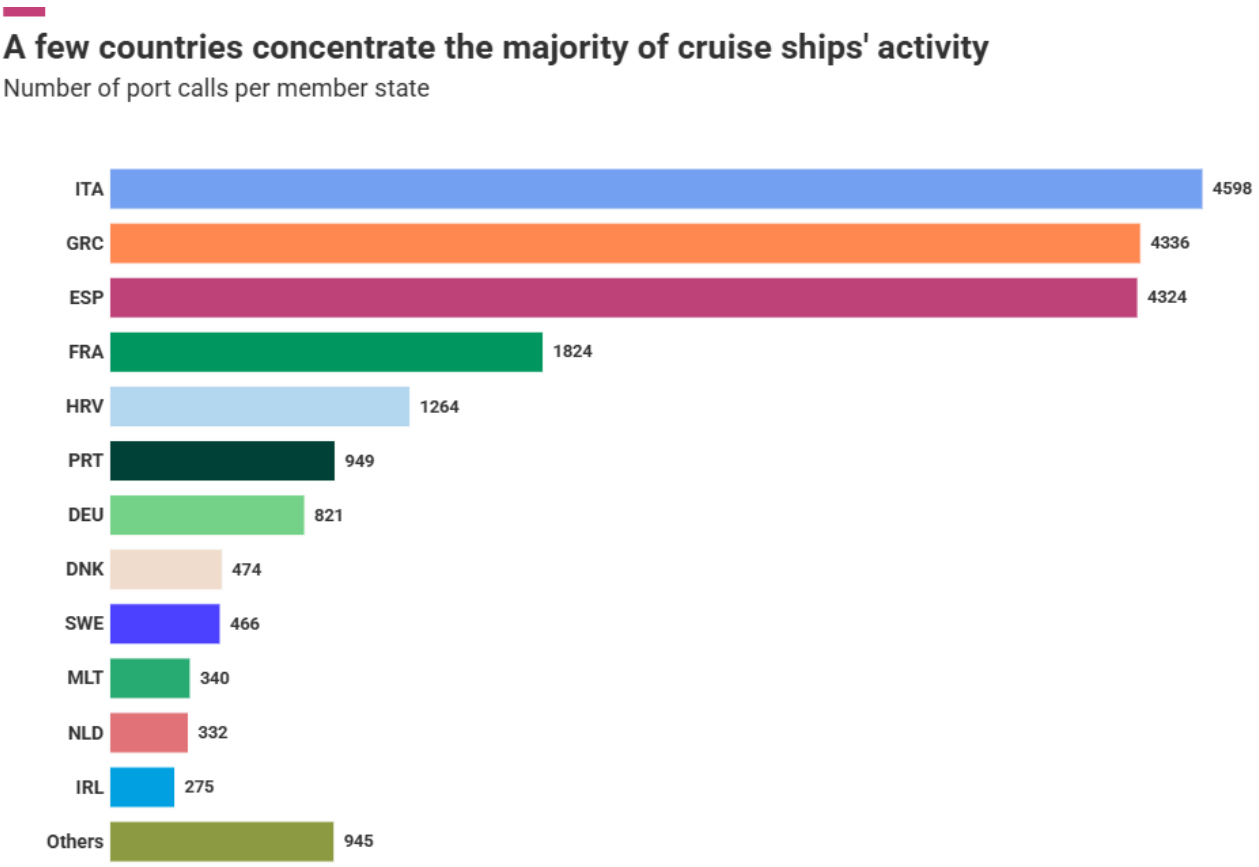
Both cruise ships and ferries are significant emitters of greenhouse gases and air pollutants. On average, a single cruise ship emits around 20,000 tonnes of CO_2 per year, equivalent to the annual emissions of approximately 10,000 cars[1]. Ferries, particularly those operating on long or high-speed routes, are also among the most emissive ships in the EU fleet. In 2023, they represented 13.3 $MtCO_2$ emissions.



Source: MRV 2023 v18. MRV data excludes CH4, N2O and emissions from ships below 5000 GT. MRV scope includes all EEA countries. Emissions 2018-2020 adjusted for EU27.

While ferries provide a genuine transport function and social utility - especially under public service obligations - their fiscal treatment does not always reflect their environmental footprint. Cruise ships serve a small segment of the population, provide minimal social benefits and have a high environmental impact that is not reflected by their taxation level.

1 https://www.transportenvironment.org/te-france/articles/paquebots-de-croisiere-et-yachts-pourquoi-et-comment-taxer-ces-loisirs-ultra-carbones



In 2023, Italy, Greece, and Spain alone accounted for the vast majority of cruise ship port calls, with more than 4,000 each. France and Croatia follow at a distance, while most other EU countries register fewer than 1,000 calls per year.

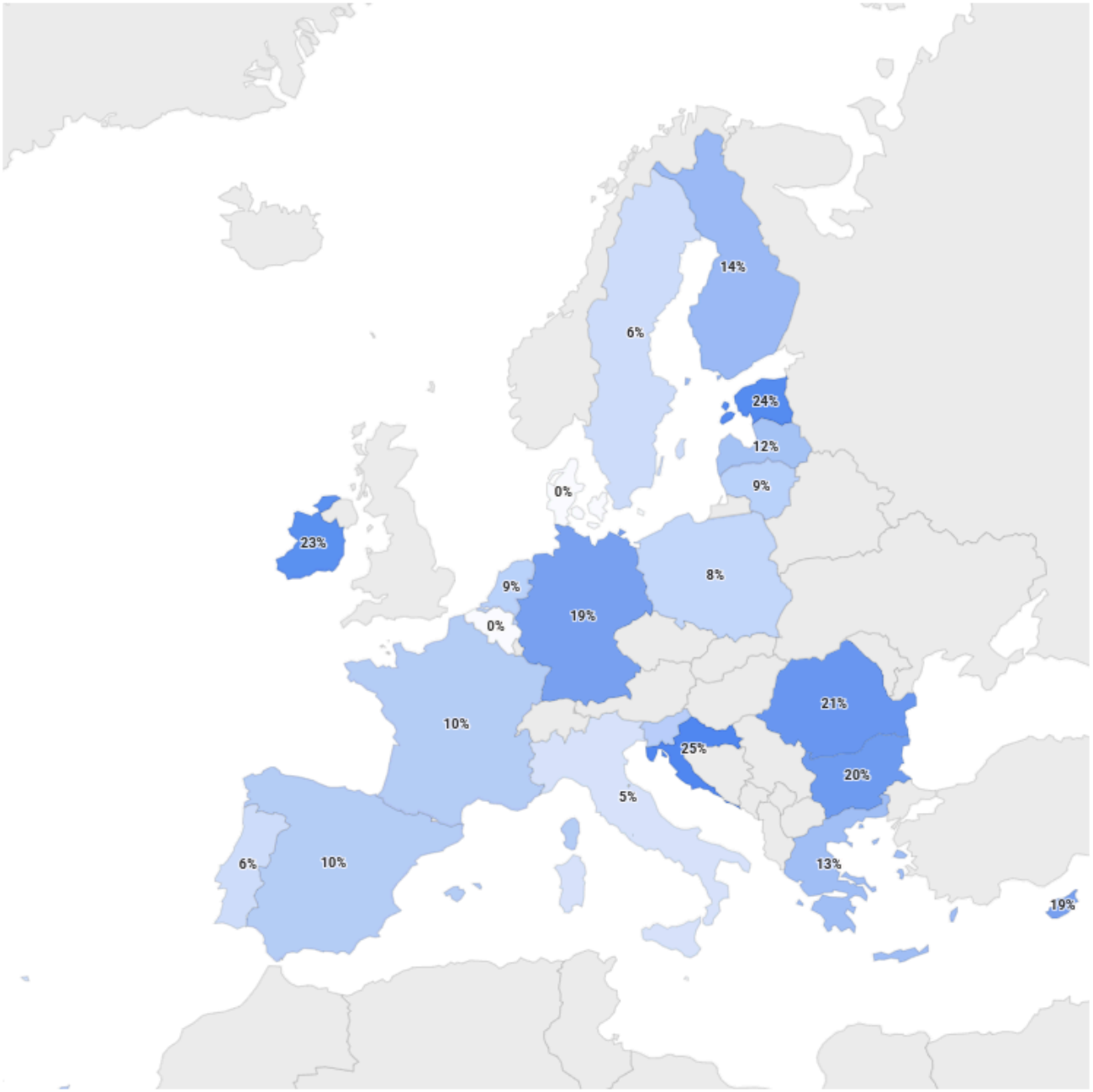
Existing regulatory framework

Both ferries and cruise ships over 5,000 gross tonnage (GT) are covered by the EU Emissions Trading System (ETS) for maritime transport and by the FuelEU Maritime Regulation. However, the implementation of the maritime ETS includes temporary exemptions for certain ferry operations, such as domestic routes serving islands without alternative transport connections and voyages to outermost regions, which significantly limit its scope for the passenger shipping sector. Additionally, the sector as a whole continues to benefit from extensive fiscal exemptions, notably fuel tax exemptions that apply broadly to marine fuels used in both passenger and freight transport.

Under the EU VAT Directive, international maritime passenger transport services **are exempt from Value Added Tax (VAT) across all EU Member States**. This means that passengers are not charged VAT, while service providers can still deduct VAT on their inputs.

Moreover, at the domestic level, Member States retain the discretion to grant VAT exemptions for national maritime passenger transport, with rules varying across jurisdictions. Exemptions often depend on factors such as vessel capacity, route type, or whether the service qualifies as public transport. In general, domestic ferry services are subject to VAT - often at a reduced rate - depending on national implementation.

VAT for domestic sea transport varies strongly, while international transport remains untaxed



Source: T&E (2025) based on Taxes in Europe Database v4 • Data for domestic sea transport (fields 50, 50.1 or 50.10)

This can create distortions in competitiveness for ferries serving similar destinations but departing from different Member States. For example, the route Italy to Corsica is VAT exempt because it is an international voyage, whereas the route from mainland France to Corsica is subject to a 10% reduced VAT rate when sailing in French territorial waters. In practice, however, the application of VAT to passenger shipping remains minimal across the EU. This is particularly true for cruise services, which are predominantly international in nature, and therefore benefit from near-total VAT exemption. These exemptions should be removed to improve the level playing field and ensure these ships' taxation reflects their true social and environmental impact.

Rethinking VAT classification for cruise ships

Beyond the question of whether a VAT should apply, another issue to consider is that the current VAT classification of cruise ships as sea passenger transport (CPA code 50.10.12) does not reflect the reality of their operations. Unlike ferries, cruise ships do not transport passengers between two territories but rather offer vacation experiences on board. Their primary function is accommodation, leisure, and entertainment, not mobility.

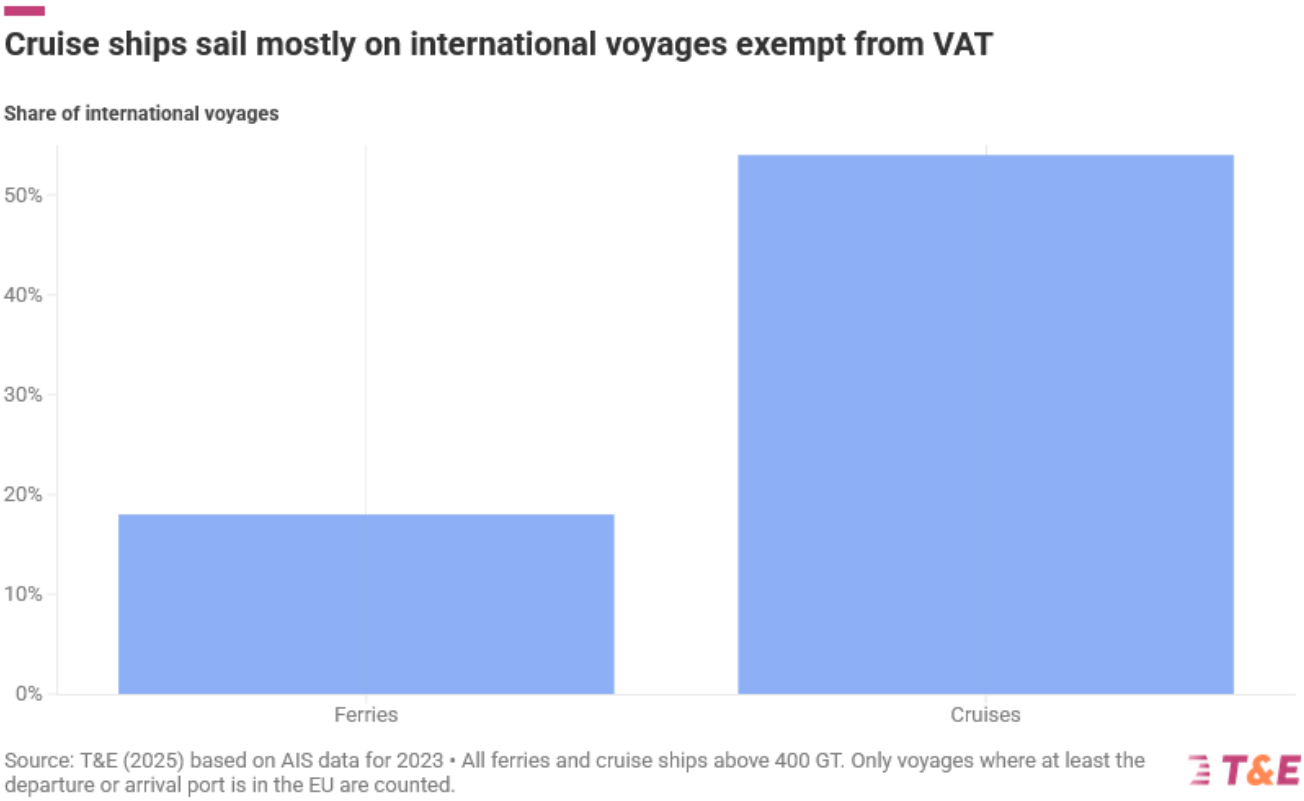
As a result, cruise services should therefore be treated as accommodation and tourism services for VAT purposes. Aligning the VAT regime for cruise ships with that of land-based tourism would ensure fiscal consistency, fair competition, and a more equitable contribution to public revenues.

More broadly, VAT rates should be updated to reflect both the social and economic benefits of an activity and its environmental impact. The current VAT exemption for international cruise trips is outdated, as it fails to account for the true environmental costs of cruise operations.

This misalignment is highlighted by the 2025 Quinet Report in France[2], which estimates the social cost of carbon emissions at €256 per tonne of CO_2 equivalent (tCO_2e). By contrast, the current price of carbon under the EU ETS is approximately €80 per tonne. This gap demonstrates that the actual societal cost of emissions far exceeds the financial burden borne by the industry, leaving approximately €176 per tonne of CO_2e unaccounted for, which runs counter to the polluter pays principle.

Updating the VAT regime for cruise ships would provide a mechanism to partially internalise these environmental costs, ensuring that the taxation of cruises reflects both their limited social utility and their high environmental footprint. In other words, reclassifying cruise ships under VAT would not only be a matter of fiscal fairness but also of environmental accountability, helping to bridge the gap between the true cost of emissions and the charges currently paid by the sector.

[2] Alain Quinet, La nouvelle trajectoire de la valeur de l'action pour le climat, March 2025



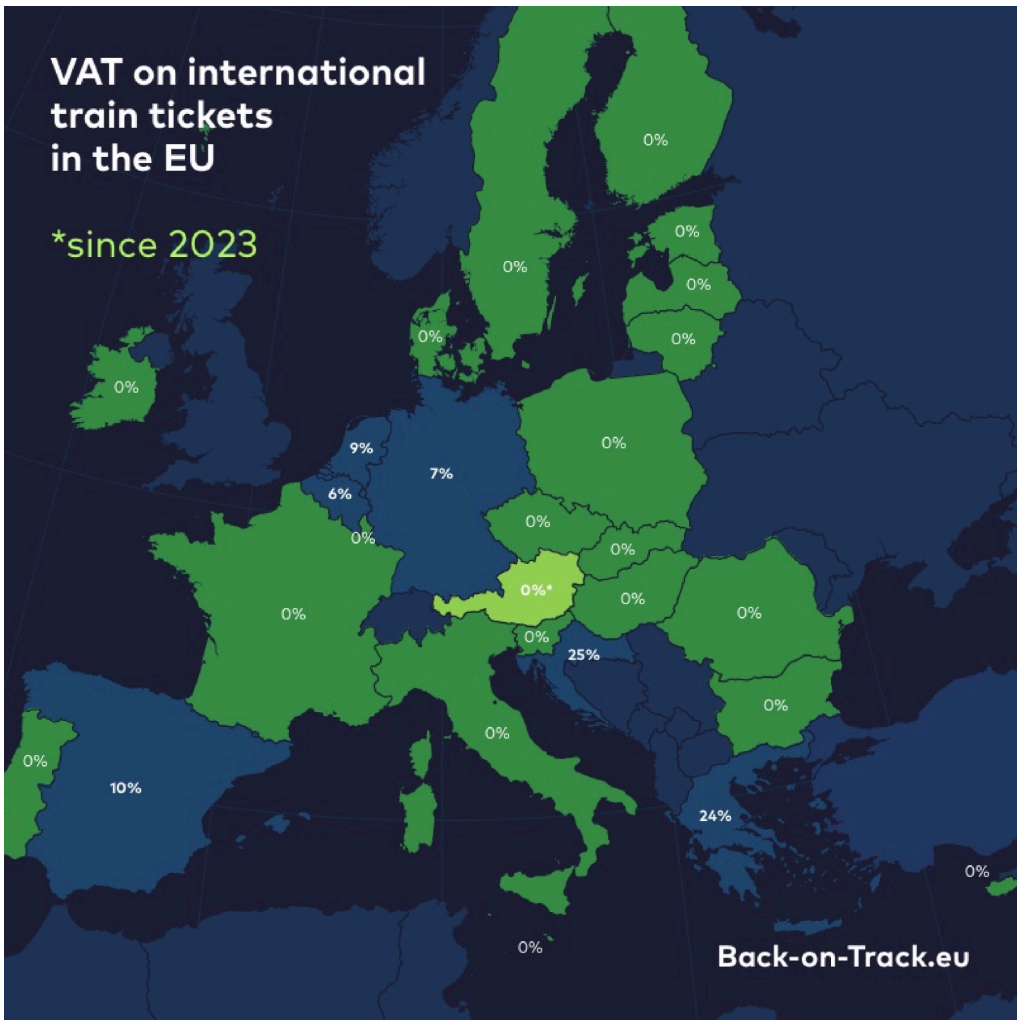
To ensure greater fiscal equity and environmental responsibility, **T&E recommends the following measures**:

- Remove VAT exemptions for ferries and cruise ships operating on international voyages.
- Reclassify cruise ships under VAT rules as accommodation or tourism activities, not as passenger transport and align cruise ship VAT with land-based tourism to create a level-playing field.

Rail

1. The cleanest form on international passenger transport is still VAT taxed in 5 countries

Currently, five member states still apply VAT on international train tickets, as detailed below. Greece also applies VAT to international train tickets, but no cross-border services currently arrive in or depart from Greece.



In 2023, **5.2% of passenger rail traffic** (in passenger.km) **was international**, according to Eurostat, which represents around **74 million passengers** departing from European member states. This is less than a third of the 264 million passengers that flew between two European Member States that same year (according to OAG Traffic Analyser). Among international rail passengers, **about 16.3 million passengers departed from countries that apply VAT to international rail tickets**. This represents **less than a quarter of EU international rail passengers.** The majority of international rail passengers are already exempted from VAT.

2. Removing VAT at international level will contribute to boosting international rail connections, competition and deliver more affordable fares

Removing VAT on international rail tickets would make cross-border train travel more affordable and competitive compared to air and car travel, directly supporting a shift from more polluting modes to rail. The 2023 Back on Track (BoT) and Transport & Environment (T&E) report on night trains shows that VAT exemptions and Track Access Charges reductions could reduce ticket prices on international night trains by 15% on average.

In addition, lowering VAT can stimulate demand for new or reinstated international routes, especially in markets where operators are still struggling to reach financial viability. New entrants to the rail market continue to face substantial challenges, including unequal fiscal treatment compared to aviation. Removing VAT would be a straightforward, administratively simple way to improve the business case for new services and operators. Evidence from markets such as Spain and France shows that when competition increases the offer surge and ticket prices drop. The last analysis for the Spanish competition authority shows that since competition has arrived in Spain, average ticket prices have slashed by 33% and demand is up by 77.2%.

3. Rail pan-European VAT exemption will have a minimal cost

a) Case study: Eurostar between Paris and Brussels

We estimated the VAT cost on a specific route for which passenger numbers can be reasonably inferred. Based on Eurostar service frequency, approximately 1.4 million passengers travel annually between Paris and Brussels (only accounting for the trains stopping their journey in Brussels, see methodological note for details). Assuming an average ticket price of €86, and considering that France and Belgium apply VAT rates of 0% and 6% respectively on international rail tickets, the **estimated cost of removing VAT on this route would be around €2 million** a year (based on trains departing from Paris). Although this is not an EU-wide estimate, it provides an indication of the potential cost on one of Europe's busiest international rail connections.

b) EU level simulation

To estimate the VAT cost at the EU level, we used data on international passenger-kilometres (pkm) from Eurostat for countries that apply VAT to international train tickets. Passenger-kilometres represent the distance travelled by passengers on the network of a given Member State. VAT on international train journeys is applied proportionally to the distance travelled within each country. For example, if 70% of a trip takes place in France, that portion is

VAT-exempt. The remaining 30%, if travelled in Germany for instance, would be subject to a 7% VAT rate. Using pkm makes it possible to calculate and apply VAT only to the part of an international journey that occurs in Member States that levy VAT on international rail travel, and consequently, to calculate the overall VAT cost for international rail transport in Europe.

Using average ticket prices per kilometre from T&E's Mind the gap! report, we estimate that **removing VAT on international rail could cost between €106 million and €117 million**. This figure is likely to be overestimated, as the Netherlands and Belgium do not report their national data to Eurostat, and their values had to be approximated (see the methodological note for more details).

Our estimate is in the same order of magnitude that a figure from the 2018 Impact Assessment accompanying the Proposal for a Council Directive amending Directive 2006/112/EC on VAT rates noted that **international road and rail passenger transport generated only €0.5 billion in VAT revenues** in the EU-27 in 2010, **representing just 0.06% of total VAT revenues at the time**. Rail still accounts for a small share of passenger transport in Europe compared with road, so it is very likely that the majority of these revenues come from international road transport.

Accurately modelling the cost of fully exempting international rail tickets from VAT is challenging due to the limited availability of international data. **The figures presented in this note should therefore not be taken as precise estimates**, but rather as an indication of the possible order of magnitude of such a measure. Most importantly, they provide a useful point of comparison with the potential revenues that could be generated by applying VAT to departing air tickets: while the removal of VAT on all international rail tickets would likely cost several tens of millions of euros, applying VAT on departing flights could generate around tens of billions of euros, as previously demonstrated.

Annex - Methodology

Aviation

a) Calculating VAT revenues

We calculated VAT revenues under two scenarios. A business-as-usual scenario which reflects the current VAT rates applied in the Member States only to domestic flights in 2024.

Country	VAT rates for domestic journey	Country	VAT rates for domestic journey	Country	VAT rates for domestic journey
Austria	13%	France	10%	Malta	0%
Belgium	6%	Germany	19%	Netherlands	21%
Bulgaria	20%	Greece	24%	Poland	8%
Croatia	25%	Hungary	27%	Portugal	6%
Cyprus	0%	Ireland	0%	Romania	19%
Czechia	15%	Italy	10%	Slovakia	20%
Denmark	0%	Latvia	12%	Slovenia	10%
Estonia	20%	Lithuania	9%	Spain	10%
Finland	10%	Luxembourg	3%	Sweden	6%

Overview of VAT rates used in T&E's analysis

The counterfactual scenario entails that VAT is levied on all air tickets, for journeys originating from the EU, at a uniform rate of 20%, close to the EU's average rate of 21%.

We calculated the revenues based on passenger volumes, ticket prices, including two main components: airfare and airport charges, and the applicable VAT rate. We applied destination-specific ticket prices to corresponding passenger volumes, distinguishing four categories: VAT exempted domestic flights (e.g. France–overseas regions, Spain–Canary Islands, Ceuta and Melilla, Portugal–Azores/Madeira), domestic flights, intra-EU flights, and extra-EU flights.

The VAT revenue estimates presented in this study are static, meaning they do not take into account how demand might change if a 20% VAT rate were introduced. In practice, higher ticket prices could slightly reduce demand for air travel. However, available evidence suggests that

this effect would be limited and that demand for air travel is relatively inelastic. In fact, recent experience shows that consumer demand for air travel is highly resilient to higher prices. The International Energy Agency (IEA) proposed a price elasticity of air travel demand of -0.16. Therefore, a 20% increase in fares would result in a roughly 3% decrease in passenger traffic. This change is minor compared to other uncertainties in the analysis and does not significantly alter the overall results.

b) Data sources for passenger volumes and ticket prices

Our analysis covers passenger traffic from flights departing from EU27 countries. We extracted passenger volumes per journey from the OAG traffic analyser (2024), which provides journey-level data on origin, destination, possible stopovers, airline, travel class and base fares.

We used OAG airfares at journey level as the base for ticket prices. OAG compiles fares from two main channels. The first is the Global Distribution Systems (GDS), which centralises information about tickets booked via holiday agencies and breaks it down by travel class (i.e. first, business, premium economy, full economy and discount economy). For the analysis, we aggregated GDS first- and business-class fares into one "business" category. Premium economy, full economy and discount economy were grouped into one "economy" category. The second channel is online bookings. Although these are not differentiated by travel class, online sales predominantly consist of economy tickets.

We calculated the average airfare per travel class, weighted by passenger numbers. As the majority of online bookings are for economy class, we considered the simple average of economy class fares from GDS and online fares to be representative of economy class fares. Conversely, we considered the GDS business class airfares to be representative of business class airfares. Where the data were missing for a specific market, we used the EU average for that fare type. All figures are expressed in 2024 euros, adjusted with Eurostat's Harmonised Index of Consumer Prices (HICP).

To estimate the consumer price, we added airport charges and ticket taxes to base fares. Charges differ by airport and aircraft type, but to keep the analysis traceable we applied the same approach used in T&E's aviation tax gap report. This is based on averages derived from Aviation Economics' study of 21 major European airports.

We have included the ticket taxes that are currently in place across the EU. These taxes only have a marginal effect on the results as they represent a small proportion of the total fare. While applying VAT on top of ticket taxes could slightly overestimate total revenues, the impact remains within the margin of error of our airfare estimates and does not alter the overall scale.

This results in average ticket price per Member States, broken down per destination: domestic, intra-EU and extra-EU.

Geographical scope	Domestic	Intra-European	Extra-European
EU 27	€115	€142	€463

Ticket price assumptions used in T&E's analysis (EU 27 weighted averages)

c) Sensitivity to ticket price

The calculation of VAT revenues is directly linked to the assumed ticket prices. Since VAT is levied as a percentage of the consumer fare, any variation in price assumptions has a direct impact on the results. A deviation of ±10% in ticket prices changes the estimated VAT gap significantly:

- Lower-price scenario (−10%): the VAT gap totals to €26.3 billion
- Higher-price scenario (+10%): the VAT gap totals to €32.2 billion

This highlights how sensitive the results are to the underlying price data. Currently, there is no consistent and exhaustive database on air ticket prices across the EU. Prices are highly volatile and vary according to season, route and booking channel. Consequently, there is a high level of uncertainty in fare data.

Nevertheless, our methodology provides a robust and representative estimate. To validate the results, we compared our 20% VAT rate scenario revenues with independent estimates derived from IATA's latest global passenger revenue data and Europe's share of global industry revenue passenger-kilometres (RPKs) in 2024. The comparison shows that the revenues from our 20% VAT rate are 99% close to the IATA-based benchmark, confirming the reliability of our approach.

Shipping

a) Data used

Port call data for ferries and cruises are calculated by T&E based on AIS data acquired from Spire Maritime for 2023. AIS data are matched against our database of port coordinates to detect port stops.

Field	Data source
CO_2 emissions	2023 MRV database version 79
Ship characteristics	Clarksons' World Fleet Register
Fuel - use data	Clarksons' World Fleet Register

Port calls	2023 AIS data from Spire Maritime
Ship voyages	2023 AIS data from Spire Maritime
VAT rates for sea transport	Taxes in Europe Database v4

VAT rates are based on the standard rate, or the rate set for CPA codes 50, 50.1 and 50.10 depending on the level of granularity defined by each member state. Slovakia, Czechia, Austria, Hungary and Luxembourg are excluded due to their lack of coastline.

Country	VAT rates for domestic journey	Country	VAT rates for domestic journey	Country	VAT rates for domestic journey
Belgium	0%	Germany *	19%	Poland	8%
Bulgaria *	20%	Greece	13%	Portugal	6%
Croatia *	25%	Ireland *	23%	Romania *	21%
Cyprus *	19%	Italy	5%	Slovenia	9.5%
Denmark	0%	Latvia	12%	Spain	10%
Estonia *	24%	Lithuania	9%	Sweden	6%
Finland	14%	Malta	0%		
France	10%	Netherlands	9%		

*Overview of VAT rates used in T&E's analysis: * denotes countries applying the standard rate.*

b) Calculating emissions per pax

We modelled the average CO_2 emissions per pax for a cruise voyage between Amsterdam and Hamburg:

- We retrieved all vessels described as "Passenger ship" in the MRV and operating with HFO or MDO. This represents 195 vessels out of the 211 listed in the database.
- We calculated the average CO_2 emissions per transport work (*CO_2 / pax * nm*) based on all the cruise ships selected.
- We calculated the sea distance between the two ports based on Eurostat's searoute software. It allows us to calculate the shortest route exclusively on sea between two ports. The distance is expressed in nautical miles.
- We then took the product of distance and CO_2 emissions per transport work to obtain the CO_2 emissions per pax for the voyage.

c) Estimating port calls for cruise ships

We measured port calls based on AIS data for cruise ships above 400 GT. To do so, we match ship position data to ports' coordinates, using T&E's port database. We removed erroneous entries from the AIS data, resampled it at 1-h intervals and infilled the gaps in the time series for position speed, draught and voyage status (i.e. moored, anchored, cruising or other navigational statuses). We then counted port calls for each ship if it satisfied several criterions, depending on its distance to the port, speed over ground and stop duration.

d) Estimating the number of international voyages

International voyages are measured using AIS data. A voyage is defined as a ship sailing between two ports. Based on the method outlined in part c), we detected port calls for all cruise ships and ferries. For ferries, we use AIS data resampled at 5-min intervals, while for cruises we use AIS data resampled at 1-h intervals. The shorter frequency for ferries is used because ferry port stops can be under one hour. Once all port calls are detected, we calculated the share of voyages taking place between ports of different countries.

Rail

a) Estimating the number of rail passengers departing from countries that apply VAT to international rail tickets

Among international rail passengers, 12.3 million departed from Germany, Spain, and Croatia according to Eurostat. Belgium and the Netherlands do not disclose statistics on international rail travel on Eurostat. However, based on the annual reports of SNCB and NS, we estimate that over 2 million passengers departed from Belgium to international destinations, and around 2 million travellers departed from the Netherlands for international journeys. This brings the total to approximately 16.3 million passengers departing from countries that apply VAT to international rail tickets.

b) Cost of VAT exemption for trains between Paris and Brussels

The cost of removing VAT on Eurostar services between London and Paris was estimated using traffic and fare data for the Paris–Bruxelles section of the route. The analysis relied on train frequency data collected from the Eurostar booking engine, including all trains departing from Paris and stopping in Bruxelles, but excluding those continuing to Amsterdam or Cologne.

According to Eurostar, trains operating between France and Belgium have a maximum capacity of 399 seats. To approximate passenger numbers based on train capacities and frequencies we

applied an average load factor of 77.3% (corresponding to the load factor of international trains departing from France according to the ART).

Ticket prices between Paris and Bruxelles were derived from the 2023 dataset originally collected for T&E's *Mind the Gap! European Rail Operators Services Ranked (2024)* in August 2024. For this update, we collected prices for departures one and four weeks after the search date.

In Europe, VAT on international rail journeys is applied proportionally to the distance travelled within each country. The calculation therefore used the actual applicable rates: 0% for the French segment and 6% for the Belgian segment.

c) Cost of complete VAT exemption for international rail in Europe

We estimated the cost of a complete VAT exemption for international rail services in Europe based on international passenger-kilometres (pkm) from Eurostat (2023) for Croatia, Germany, Spain, Belgium, and the Netherlands - the five countries where VAT is still applied on international rail tickets. As Eurostat does not publish international pkm figures for Belgium and the Netherlands, we inferred their values by subtracting the total pkm of available countries from the EU-27 overall figure. This approach slightly overestimates the pkm attributed to Belgium and the Netherlands, since data for Hungary are also missing, and are therefore included in this estimate (international rail travel is exempt from VAT in Hungary).

For each Member State applying VAT on international rail, two average ticket prices per kilometre were applied, based on data from T&E's *Mind the Gap! European Rail Operators Services Ranked (2024)*. The price data used in the current calculations were collected from 11 European rail operators, covering Member States that apply VAT to international rail tickets and their neighbouring countries. We gathered ticket prices in August 2024 for a sample of ten routes per operator. Two fare types were recorded: tickets purchased four weeks before departure (lower-bound estimates) and tickets purchased one week before departure(upper-bound estimates).

For each Member State, we applied VAT to these average prices and multiplied by the respective passenger-kilometre volumes. For Belgium and the Netherlands, where pkm were estimated as described above, we applied the Dutch VAT rate (9%), resulting in a slight overestimation of VAT revenues.

Passenger-kilometre data represents the distance travelled by passengers within a Member State's territory. Since we applied VAT on international rail travel proportionally to the distance covered in each country, this measure allows our estimates to reflect the territorial application of VAT across borders and ensures consistency with the underlying fiscal logic of international transport taxation.

However, the results of this estimation are sensitive to the assumed ticket price per kilometre. In this analysis, we used two ranges to provide upper and lower bounds, but alternative price assumptions would yield different outcomes. Moreover, as noted earlier, some elements of the approach likely lead to slight overestimations. The resulting figures should therefore be interpreted with caution and considered as indicative of the order of magnitude of the potential fiscal cost of removing VAT on international rail.

Member State	Millions of passenger kilometer (international travel)	VAT on international train tickets	€/km - lower bound [3]	€/km - higher bound [4]	*Revenues from international tickets - lower bound (M€)*	*Revenues from international tickets - higher bound (M€)*	*VAT Cost - lower bound (M€)*	*VAT Cost - higher bound (M€)*
Croatia	34	25%	**€0.18**	**€0.20**	€6.2	€6.9	€1.2	€1.4
Germany	5955	7%			€1082.2	€1200.7	€70.8	€78.5
Spain	247	10%			€44.9	€49.8	€4.1	€4.5
Belgium + Netherlands	1972 [1]	9% [2]			€358.4	€397.6	€29.6	€32.8
						Total cost of VAT removal	**€106**	**€117**

[1] This number is estimated as EU27 international pkm from Eurostat minus the sum of pkm from which data is not confidential on this dataset. Meaning that Hungary pkm are also included in this number, leading to a slight overestimate of Belgian and Netherlands pkm.

[2] Using the NL VAT rate of 9% lead to a slight overestimation of VAT cost for Belgium, which apply a VAT rate of 6%

[3] Price based on data collected in August 2024 for operators from MS applying VAT on international train tickets and their neighboring countries, for trains departing one month after ticket search

[4] Price based on data collected in August 2024 for operators from MS applying VAT on international train tickets and their neighboring countries, for trains departing one week after ticket search

Further information

Giacomo Miele
Data analyst - Aviation
T&E
giacomo.miele@transportenvironment.org

Thomas Enriquez
Data analyst - Rail
T&E
thomas.enriquez@transportenvironment.org

Léo Tricaud
Sustainable Shipping Data Analyst
T&E
leo.tricaud@transportenvironment.org

Marte van der Graaf
Aviation Policy Officer
T&E
marte.vandergraaf@transportenvironment.org

Victor Thévenet
Rail Programme Manager
T&E
victor.thevenet@transportenvironment.org

Agathe Peigney
Maritime Transport Policy Officer
T&E
agathe.peigney@transportenvironment.org