



Infrastructure and external cost coverage of road freight transport on EU28 motorways

Summary



CE Delft

Committed to the Environment

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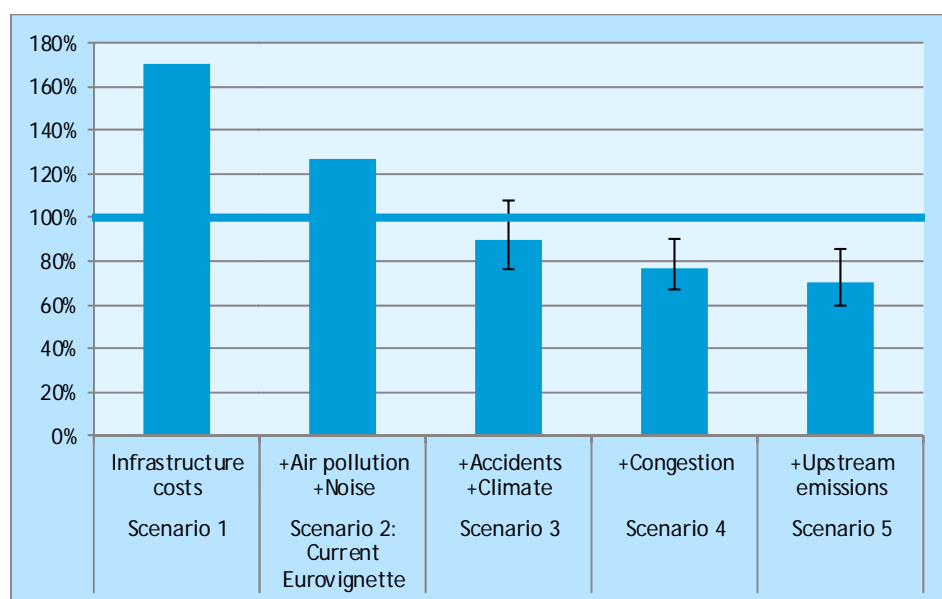
Internalising the infrastructure and external costs of transport is an important objective of the European Commission's transport policy. In road freight transport, the Eurovignette Directive is one of its main instruments to stimulate Member States to implement the 'polluter-pays' and 'user-pays' principles in their transport taxes and charges, in order to ensure that these national instruments better reflect the social costs of transport. Therefore, this Directive provides that the infrastructure costs and some external costs (air pollution, noise) can be leveraged through tolls and vignettes to heavy goods vehicles (HGVs).

In light of the planned revision of the Eurovignette Directive, IRU commissioned CE Delft to examine the infrastructure and external costs of road freight transport on EU28 motorways versus the revenue that is collected from taxes and charges paid by this sector.

A significant part of the infrastructure and external costs are already covered by taxes

The revenue from current taxes and charges related to the kilometres driven by vans and HGVs on EU28 motorways do cover the cost categories that are included in the current Eurovignette Directive (infrastructure costs, air pollution and noise) associated to these kilometres. The revenue exceeds these costs by 28% for HGVs (see Figure 1) and 42% for vans.

Figure 1 Cost coverage ratios for all scenarios for HGVs on EU28 motorways in 2013



Note: A cost coverage ratio presents what share of the infrastructure and/or external costs are covered by tax revenues. E.g. a cost coverage ratio of 128% means that tax revenues are 28% higher than costs.

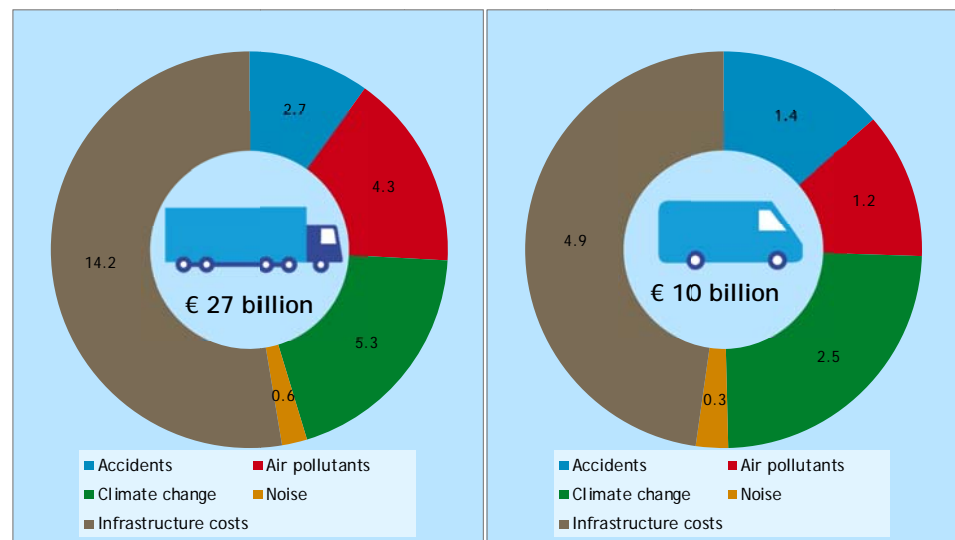


However, the revenue from current taxes and charges do not completely cover all infrastructure and external costs related to kilometres driven on EU28 motorways. As is shown in Figure 1, the costs exceed the revenue by 10% (-8% to 23%) for HGVs (and by -11% to 27% for vans)¹. Including congestion costs and upstream emission costs as well would further increase the difference between cost and revenue.

Total infrastructure and external costs of road freight transport are € 37 billion

In this study the infrastructure costs of EU28 motorways that can be allocated to HGVs and vans are considered, as well as the external costs (accidents, air pollution, climate change, noise) that are related to the kilometres driven by these vehicles on these motorways. From the total infrastructure and external costs of € 37 billion, almost three quarters (73%) are caused by HGVs (€ 27 billion). Both for HGVs and vans, infrastructure costs contribute most to the total costs, followed by climate change and air pollution costs (see Figure 2).

Figure 2 Total external and infrastructure costs (excluding congestion and upstream emissions) of HGVs and vans on motorways in the EU28 in 2013 (billion €₂₀₁₃)



As congestion costs are (partly) borne by the same parties causing them, it is not completely clear to what extent they can be regarded external from a total cost perspective. For that reason these costs are presented separately in this study. The congestion costs of road freight transport on motorways are roughly estimated at € 7 billion in 2013 (HGVs: € 4 billion; vans: € 3 billion). The costs of upstream emissions are presented separately as well, as these effects are indirectly related to road transport. These costs are estimated at € 4.3 billion (€ 2.1 - € 6.4 billion).

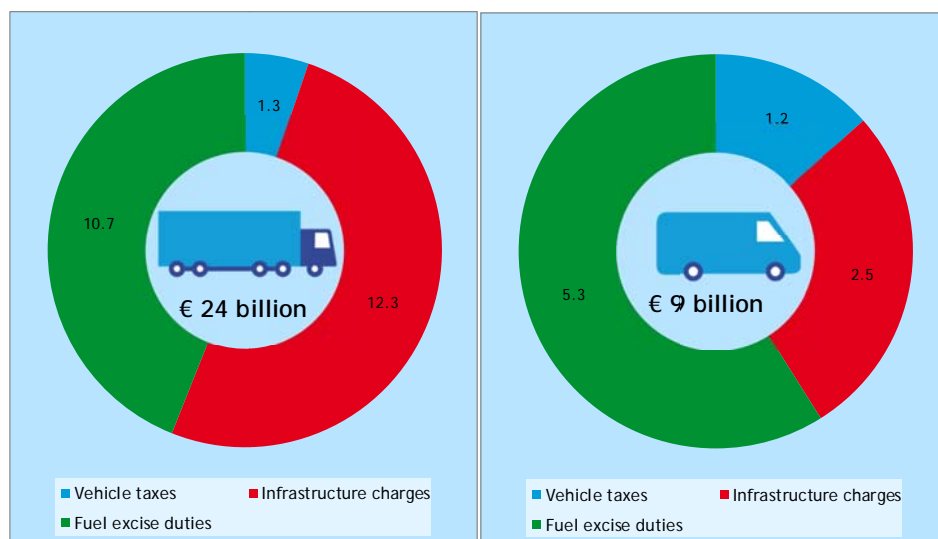
¹ The range in these results is coming from the uncertainty in the costs of climate change and upstream emissions.



Revenue of road freight transport taxes estimated at € 33 billion

The revenue collected from specific transport taxes (registration tax, ownership tax, insurance tax, road infrastructure charges, fuel excise duties) for HGVs and vans in 2013 in the EU28 is estimated at € 33 billion. For all taxes/charges, only the share that can be related to the kilometres driven on motorways is taken into account. By breaking down the total revenue to vehicle type, it is seen that HGVs contribute about 73% of the total revenue (24 billion). Fuel excise duties (vans) and infrastructure charges (HGVs) contribute most, while the revenue from vehicle taxes is rather limited.

Figure 3 Total tax/charge revenue from HGVs and vans associated to kilometres driven on motorways in the EU28 in 2013 (billion €₂₀₁₃)



Part of road freight transport tax revenue is earmarked

Based on a thorough analysis of national road freight transport taxation schemes, we find that part of the revenue of these taxes/charges are earmarked for investments in road infrastructure and/or mitigation measures for the external costs of road transport. For HGVs, 35% of the total tax/charge revenue related to kilometres driven on EU28 motorways has been earmarked, while for vans this share is about 20%. The majority of this earmarked revenue is coming from road infrastructure charges; in contrast to vehicle taxes and fuel excise duties, the revenue from this instrument is earmarked in most European countries.

Robustness of results

The results of this study contain some uncertainties, which has to be kept in mind when interpreting them. Particularly, the congestion cost estimates should be considered rough estimates, as they are based on model exercises (because EU wide consistent congestion indicators are not available). The costs of GHG emissions are uncertain as well, which is closely linked to the uncertainty on the social costs of climate change. To reflect this large uncertainty, a bandwidth of the cost of climate change is presented. Finally, particularly the data on infrastructure expenditures in Eastern Europe is rather scarce, resulting in relatively significant uncertainties in the infrastructure cost estimates for EU28 motorways. Despite these uncertainties, the order of magnitude of the results is reliable and hence the general conclusions presented in this study are considered to be robust.

