



Ministry of Infrastructure
and Water Management

True pricing: the policy implications of internalizing external and infrastructure costs of transport

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What is 'true pricing'?

- › True pricing may mean different things for different people
- › Preferred term: internalizing external and infrastructural costs
 - External costs are costs that are not borne by the users but by others
- › Polluter's pay principle



What are external costs?



Direct emissions



Congestion



Accidents



**Indirect emissions of
fuel and electricity
production**



Noise nuisance

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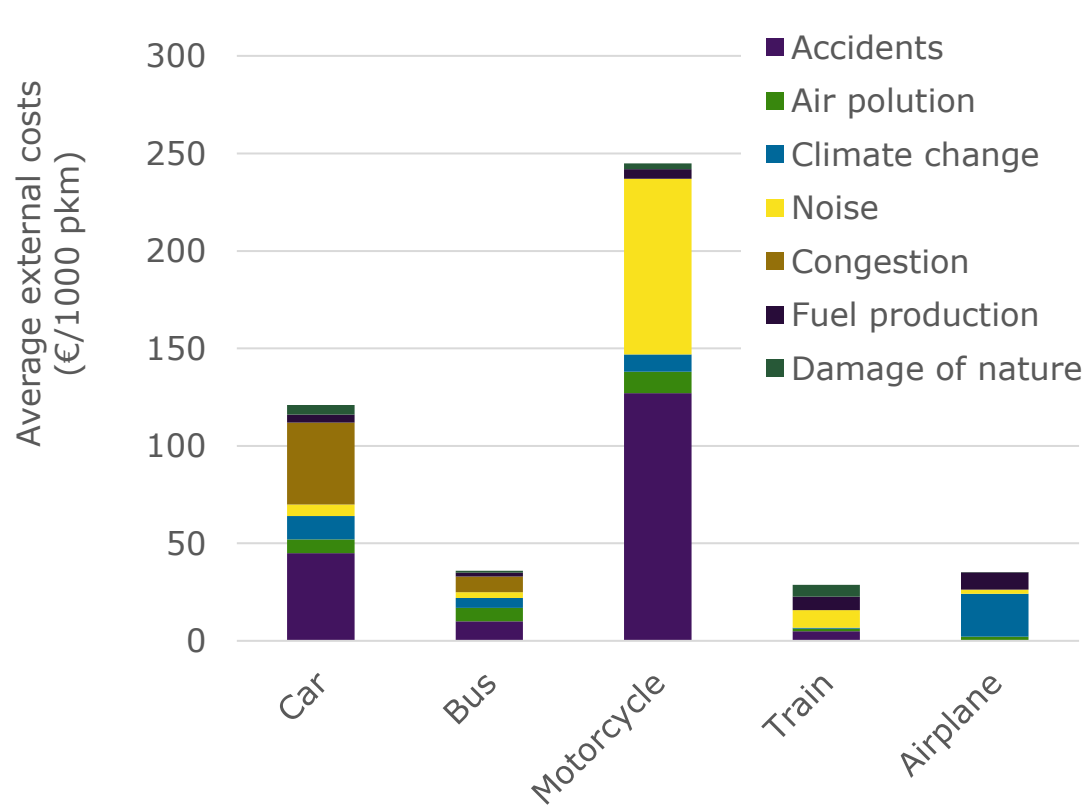
Advantages of internalising external costs

- › If all external and infrastructural costs are internalized, users (of mobility) would incorporate these costs in their (mobility) choices
- › Increase social welfare
 - Reduction of external costs (but they will not become zero)
- › Internalizing external and infrastructural costs generate funds

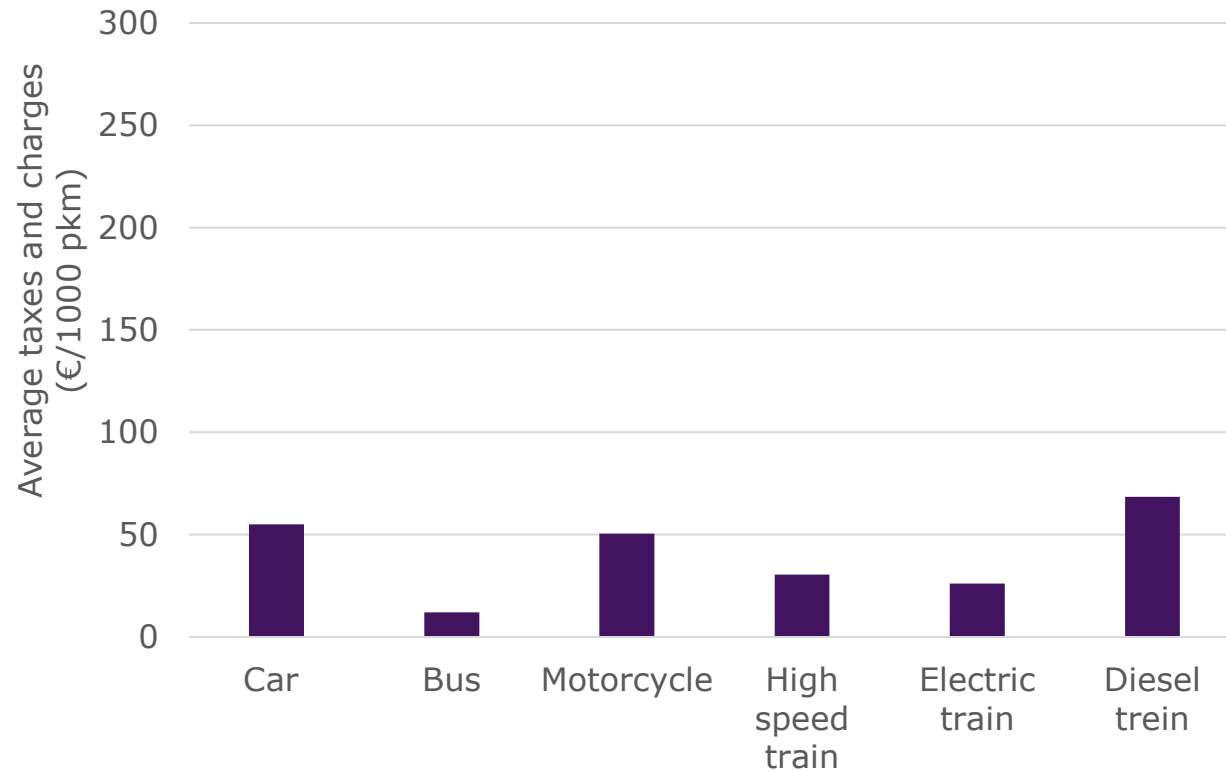


EU studies (2019) – passenger transport

External costs



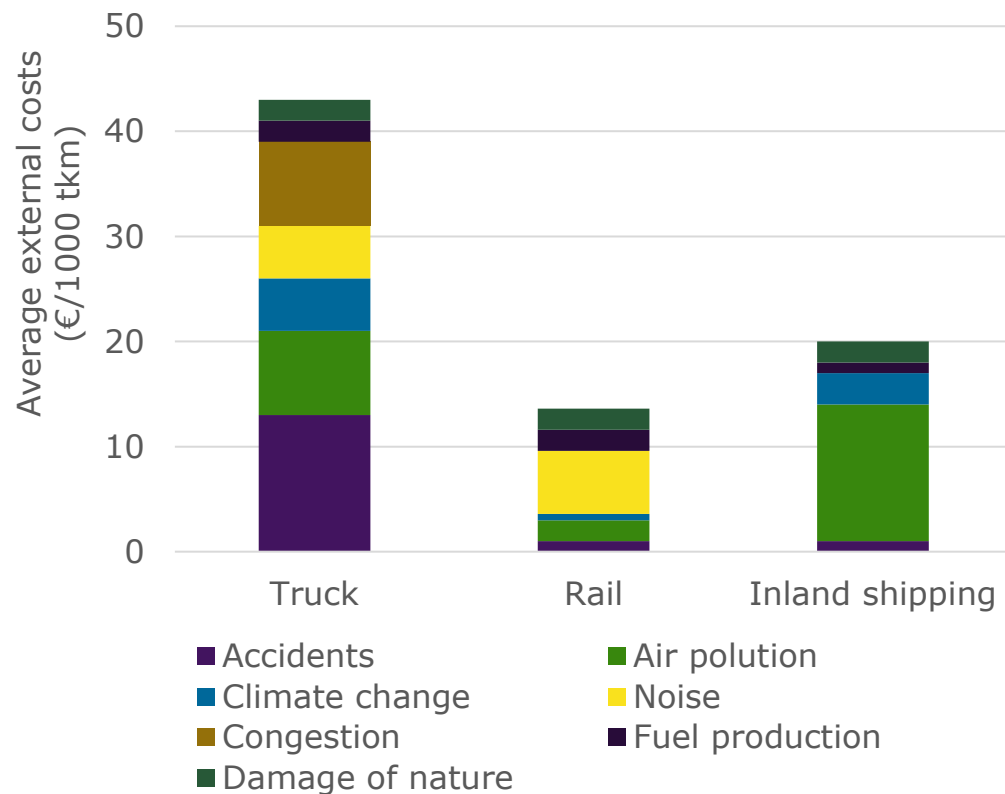
Taxes and charges



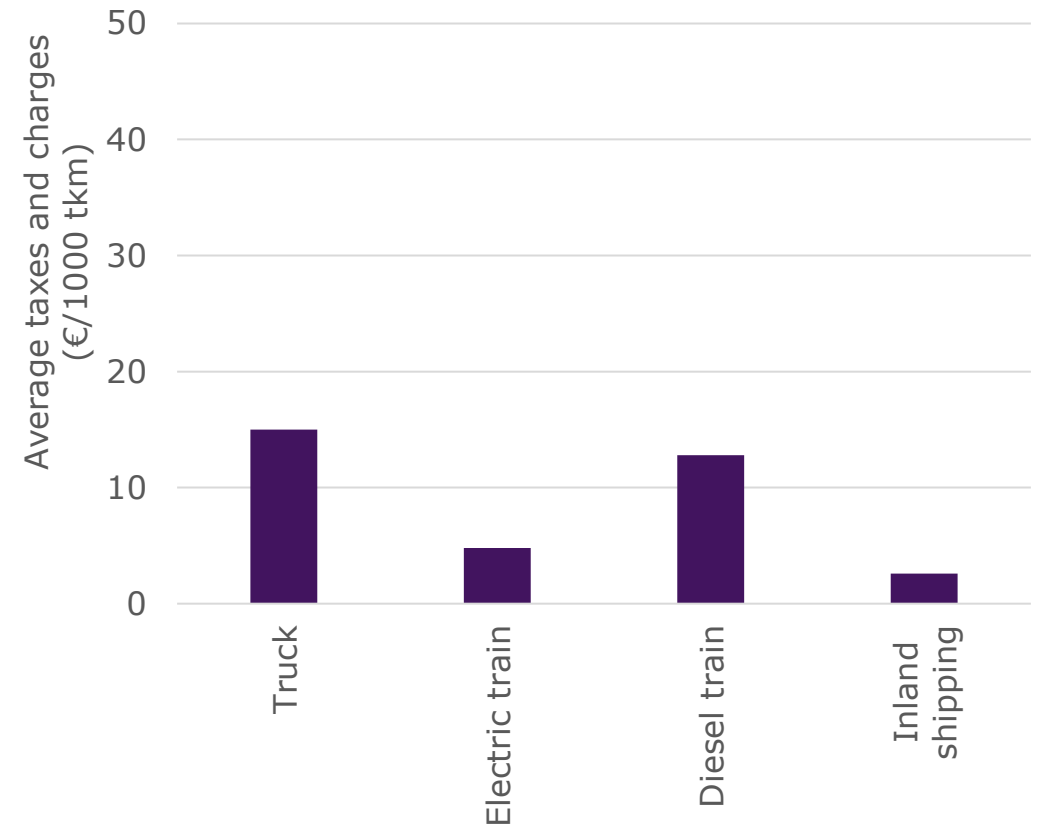


EU studies (2019) – freight transport

External costs



Taxes and charges



Travel from Amersfoort to Barcelona

Results show that train, bus en plane are not fully internalised, but car is.

Results are only valid for the analysed context (that is high share of highway for cars)

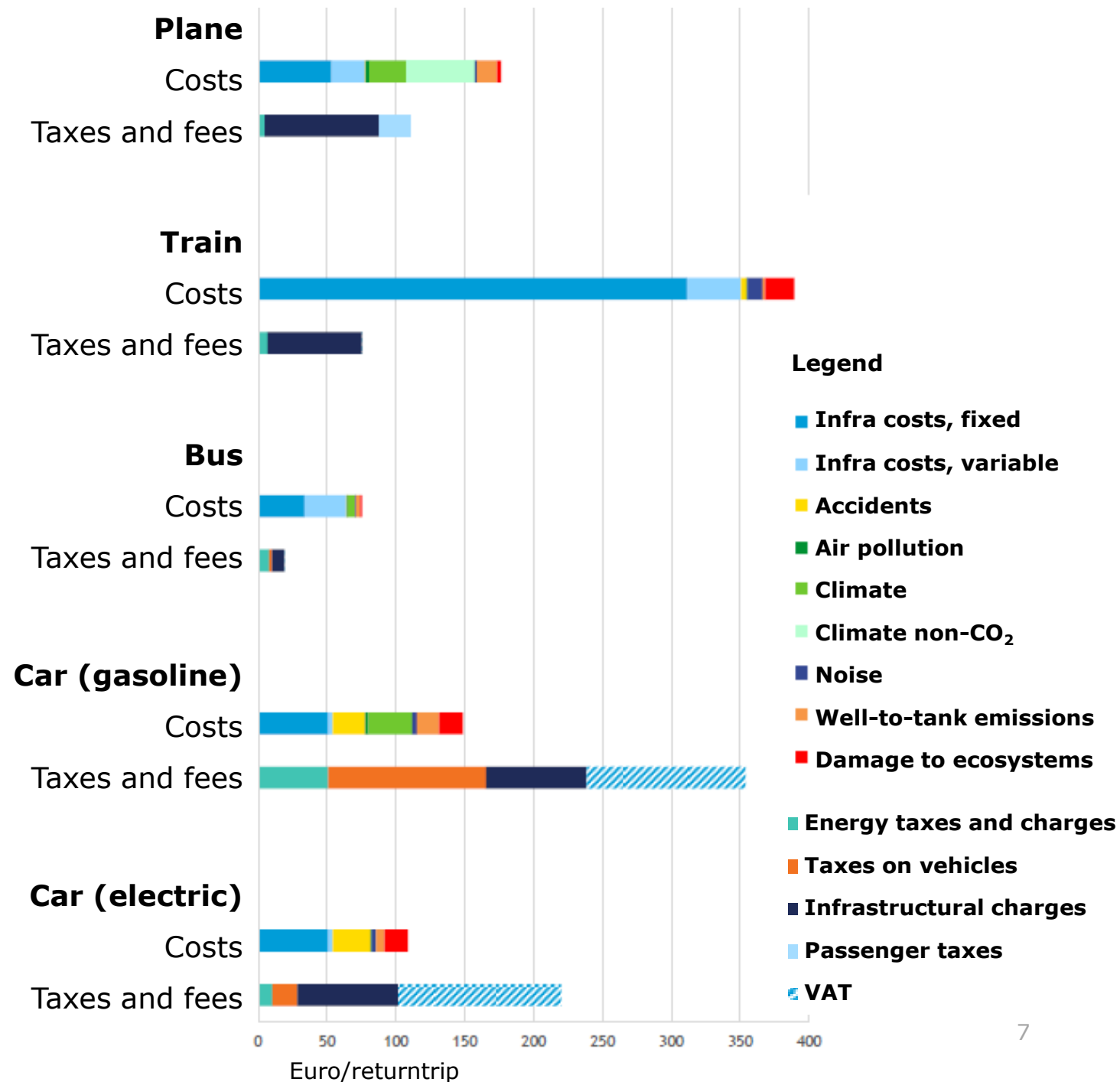


Figure from: CE Delft (2023);
Prijs van een vliegtreip



Results seems to be very precise, but

A lot of assumptions are needed to come to the results:

- > What kind of vehicles (efficiency, weight) are used?
- > Which external costs are included?
 - CE Delft ignores for instance congestion
- > The costs of the external effects are also uncertain

Uncertainty margins will help to give more insight into these uncertainties.



Knowledge gaps

- > External and infrastructural costs are based on a lot of assumptions and there are uncertainties in the external costs
- > The external costs are often only for the use of the vehicle
- > Currently, taxes and charges are already collected. However, good and up to date overviews of current tax levels are missing



Different measures to internalise external costs

Best and second-best or pragmatic methods to internalise different external costs (based on Ecorys and CE Delft, 2012; Bruinsma et al., 2003)

External costs	Best method	Second best or pragmatic method
Congestion	<ul style="list-style-type: none">- Price per km differentiated to time and location- Cordon charges for congestion sensitive areas	<ul style="list-style-type: none">- Parking tariffs (differentiated to place and time)- Toll
Noise	<ul style="list-style-type: none">- Price per km differentiated to time and location	<ul style="list-style-type: none">- Cordon charges- Parking tariffs (differentiated to time and place)
Air pollution	<ul style="list-style-type: none">- Price per km differentiated to location	<ul style="list-style-type: none">- Cordon charges- Parking tariff
Climate change	<ul style="list-style-type: none">- Excise duties- ETS	<ul style="list-style-type: none">- Price per km (differentiated to vehicle characteristics)- Cordon charges- Parking tariff



Policy implications

- > The polluter pays principle is one elaboration of **equity principles**, but there are others.
- > The **distributional consequences** of measures to internalize external and infrastructure costs should be considered.
- > Regulations which aim to internalize external and infrastructure costs are **not a guarantee for efficient policy**.
- > Due to transaction costs, it is **uncertain if welfare is increased**.
- > Regulations to internalize external and infrastructure costs are **not necessary in line with other policy goals**, like sustainability and accessibility.



Policy implications - II

- > There are **different perspectives** on which costs should be internalized. These choices will lead to different conclusions which mode has the lowest and highest costs.
- > **External costs vary**, for instance, for various types of vehicles, the time of the day, place, and driving style. If external costs must be perfectly internalized, taxes have to vary also along all these dimensions.
- > The external effects are uncertain; the pleas for **not a too exact approach**
- > If external costs and infrastructural costs are (fully) internalized, **monitoring** is needed to assess whether the tax level remains in line with the costs.



Current work

- › Compare the external & infrastructural costs, charges and taxes of different modes for different trips within the Netherlands
 - Range of trips varying in distance, share of highway, rural vs. city
 - electric car/ gasoline car/ (electric) bike/ motorcycle/ public transport/ moped
- › Many assumptions needed, unclear what the best assumptions are:
 - New versus typical car
 - Similar kilometrage for electric and gasoline cars per year and over their lifetime?



Questions