

NEW UPDATE STUDY ON EXTERNAL COSTS

# THE TRUE COSTS OF TRANSPORT



TIME TO ACT



*The Voice  
of European  
Railways*

## MEASURING THE EXTERNAL COSTS OF EUROPEAN TRANSPORT MODES

The volume of transport in Europe has more than doubled since 1970<sup>1</sup>. This increase in transport brings enormous benefits to society. But it also brings many costs, including three of particular concern. Firstly, transport in general, and some modes in particular, damage human health and the environment by emitting pollution and greenhouse gases. Secondly, transport networks are often very congested, threatening the smooth working of the internal market, hampering production and employment decisions. Finally, transport is associated with risk to human life: on average, over one hundred and twenty people die every day on the roads of Europe.

For several decades, European transport policy has sought to find a way to break the link between rising demand for transport and damage to the environment and society at large. Since the early 1990s, there has been a growing political consensus that this can be achieved, at least in part, by applying the “polluter pays principle”. Under this principle, the tax system is used to ensure that consumer prices reflect not only direct production costs, but also the wider costs in terms of damage to the environment or society at large, more usually referred to as **external costs**. Applied to the transport sector, this implies that, for instance, low-sulphur fuel is taxed at a lower rate than high-sulphur fuel.

The polluter pays principle was formally adopted by the European Union in 1992, and included in the Rio Declaration in the same year. It formed the basis of the Commission’s 1995 Green Paper<sup>2</sup> on “Fair and Efficient Pricing in Transport”, and was adopted by the later 2001 White Paper<sup>3</sup> on European Transport Policy for 2010.

1. According to EUROSTAT data, over the period 1970 to 2002, passenger transport has grown across EU-17 by 128%, while freight has grown by 120%. Also the accident statistics in this paragraph come from Eurostat data.
2. COM(1995) 691
3. COM(2001) 370

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European Transport Ministers have also signed up to the principle. In 1998, ECMT Ministers passed Resolution 1998/1 on “the Policy Approach to Internalising the External Costs of Transport”; a decision which was recently reconfirmed in the 2004 Ljubljana meeting. In addition, the Göteborg Council of 2001 calls for the “full internalisation of social and environmental costs of transport”. The European Parliament has also supported this principle. In a recent proposal on the taxation of heavy-good vehicles in Europe, the Parliament approved a proposal<sup>4</sup> in which infrastructure charges fully reflect external costs.

### New study: External costs of transport - update, 2004

In order to implement policies to internalise external costs, robust information is required on the magnitude of the costs associated with different transport modes in Europe. In this context, therefore, we welcome the update study on the external costs of transport by the IWW/INFRAS consultancy. The previous study published in 2000 was widely quoted, including in the above-mentioned 2001 Commission White Paper.



4. The first reading by the European Parliament of the proposal for amendments to Directive 1999/62 on the charging of heavy goods vehicles for the use of certain infrastructures (the Eurovignette Directive), approved in May 2004, reads: “Not later than two years after entry into force of this Directive, the Commission shall devise a generally applicable, transparent and comprehensible model for assessment of all external environmental, congestion and health related costs to serve as the basis for future calculations of infrastructure charges” (art 10a).

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The 2004 study employs an improved methodology, drawing on a larger European database, in order to provide revised estimates of the external costs associated with all transport modes.

The study finds that external costs (mostly comprising air and noise pollution, accident costs, climate change<sup>5</sup>) amount to just over 7% of EU-17 GDP. Two-thirds of this damage is attributable to passenger transport, while one-third is from freight. In addition, congestion costs<sup>6</sup> account for a further 3% of GDP. In total, the road sector is responsible for over 80% of external cost damage; the airline sector for nearly 15%; the railways for just under 2%.

5. The report distinguishes between a “low” and “high” scenario for climate change damage. The high value results from a reduction target of 50% of CO<sub>2</sub> between 1990 and 2030 – in line with the scientific assessment of the Intergovernmental Panel on Climate Change (IPCC) - assuming the reduction is reached within the European transport market only. The low value assumes a less ambitious reduction target – in line with the short-term political goals of the Kyoto Protocol - and the use of flexible trading mechanisms. Although, as the report makes clear, uncertainty remains over climate change, we consider it prudent to adopt a long-term perspective and thus use the “high” values. However, using a low figure does not alter the basic thrust of our arguments.

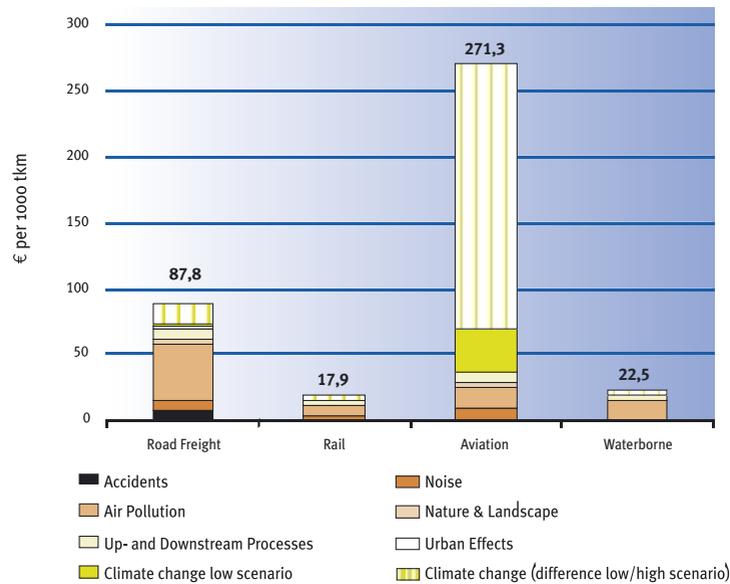
6. As is made clear in the report, there are a number of ways to measure congestion costs. We quote the medium figure, i.e. 3% henceforth, although a range exists from nearly 1% to 8% depending on the technique used.



## THE EXTERNAL COSTS OF FREIGHT TRANSPORT IN WESTERN EUROPE

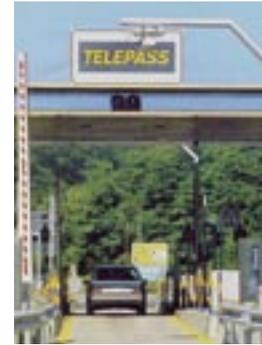
Figure 1 is taken directly from the IWW/INFRAS report. It shows the average external cost associated with transporting a thousand tonne-kilometres by different modes, excluding congestion costs. The figures represent an average across Western Europe (EU-17) for the year 2000.

FIGURE 1 AVERAGE EXTERNAL COSTS: FREIGHT 2000 (EXCL. CONGESTION)



The key message emerging from the work is that, on average, road freight has **five times** greater external costs than rail; air freight is nearly sixteen times more damaging; while inland waterways are approximately equivalently environmentally friendly.

## THE EXTERNAL COSTS OF FREIGHT TRANSPORT IN WESTERN EUROPE



Taxation policy towards the freight sector within Europe typically fails to internalize these external costs. A patchwork of tolling levels and systems exist across Europe's motorways. Yet recent plans of the European Commission to harmonise the charging of trucks (the so-called Eurovignette Directive<sup>7</sup>) on the trans-European network does not allow Member States to set charges that properly reflect external costs<sup>8</sup>.

This contradicts the principle of polluter pays. It also misses an opportunity: getting the pricing right on the "biggest player" in the freight market will produce valuable revenue, which can be used to ensure that the transport sector as a whole is self-financing and can, at least partly, contribute to new infrastructure<sup>9</sup>. This has been nicely illustrated recently in Switzerland: a public referendum has voted in favour of introducing a charge on heavy-goods vehicles, which between 2000 and 2015 is expected to raise in excess of EUR 11 bn. This revenue is to be used to construct two new rail tunnels through the Alps, as well as broader investments in public transport.

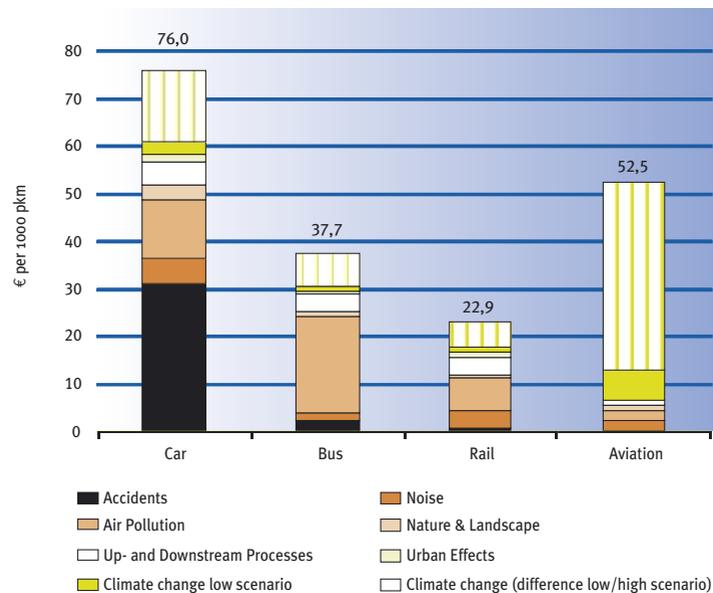
Rail freight is one of the most environmentally-friendly modes of transport. However, the rail sector is committed to improving its environmental performance, particularly where simple measures can boost environmental performance at low cost. The external costs of both rail freight and passenger are largely made up from air pollution, notably from diesel emissions; climate change and noise pollution. UIC have taken action in these three areas. In particular, plans are underway to reduce noise pollution from rail freight traffic through the installation of quieter, so-called composite, brakes. Plans are also being developed<sup>10</sup> to reduce diesel emissions and promote energy efficiency.

- see endnote 4 above.
- Rather, the current proposal allows for some variation in average toll levels according to environmental criteria. Overall, however, toll levels can only reflect infrastructure costs. This will lead to tolling levels that are, on average, too low.
- This is the finding of a 2003 study by ECMT on "Reforming Transport Taxes".
- Further details can be found from the UIC website: [www.uic.asso.fr](http://www.uic.asso.fr) and click on section of activity – environment.

## THE EXTERNAL COSTS OF PASSENGER TRANSPORT IN WESTERN EUROPE

Figure 2, also taken directly from the report, shows the external costs from passenger transport, measured in euros per thousand passenger kilometres. As with Figure 1, these represent an average across Western Europe, while congestion costs are excluded.

**FIGURE 2 AVERAGE EXTERNAL COSTS: PASSENGER 2000 (EXCL. CONGESTION)**



Passenger car travel is, on average, associated with **three times** the level of external cost of an equivalent trip by rail – a ratio that is likely to increase in urban areas, where road congestion costs are likely to be significantly high. London introduced a road pricing scheme in the

## THE EXTERNAL COSTS OF PASSENGER TRANSPORT IN WESTERN EUROPE

spring of 2003. According to statistics from Transport for London<sup>11</sup>, the scheme has resulted in 50,000 fewer car trips per day in the charging zone – a reduction of nearly 20%, with most of these people switching to public transport; it is expected to raise almost EUR 100 million in net revenue per year; and, perhaps most strikingly, a majority of Londoners support the scheme, confirmed by the recent re-election of the London Mayor. We encourage other metropolitan areas to follow the London example.

Figure 2 shows that air travel generates twice the level of external costs of rail. The air sector uses kerosene fuel, which leads to relatively high emissions of carbon dioxide. The current policy adopted by most member states of not taxing kerosene fuel is equivalent to suggesting that there is no climate change damage at all. This is clearly not supported by the scientific evidence, and we call for member states, as a start, to extend energy taxation to all internal EU flights. This measure increases the efficiency of the air sector, and helps generate a level-playing field between the different transport modes.



11. Further details can be found from the official Transport for London website: [www.tfl.gov.uk](http://www.tfl.gov.uk)

## FINAL ASSESSMENT

We welcome this new update study from IWW/INFRAS. It confirms that, although work remains to fine tune the estimates, the “bigger picture” – i.e. the relative ranking of damages across the modes - has not changed since the publication of the previous study. It is our view that sufficient information exists now to form a reliable basis for a socially-efficient charging policy – based largely on external costs - at the European level.

The report also acts as a timely reminder that, despite the good intentions of the Commission’s 2001 White Paper, transport prices still fail to reflect external costs. If 2001 was “the time to decide”, 2004 is “the time to act”.



The Infrass/IWW update study

“External costs of transport – update study”, October 2004

Is available from

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