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**EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT
COUNCIL OF MINISTERS**

Council of Ministers

REFORMING TRANSPORT TAXES AND CHARGES

Ministers noted the conclusions of the report at the Brussels session of the Council of Ministers.

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REFORMING TRANSPORT TAXES AND CHARGES

Policy towards the reform of transport charges and taxes is set out in two resolutions, adopted by Ministers in previous years:

- Resolution 2000/3 on Charges and Taxes in Transport and Particularly International Road Haulage;
- and Resolution 1998/1 on the Policy Approach to Internalising the External Costs of Transport.

These resolutions promote a gradual, stepwise reform of charges and taxes to improve the efficiency of transport, avoid discrimination and distortion of competition and provide incentives to reduce the environmental impacts of transport and manage congestion.

The resolutions were followed-up by an analysis of the size of the changes in taxes and charges involved and an examination of the issues raised in political debate on pricing reform. This work, summarised below, confirms that:

- the potential benefits of the reforms set out in the resolutions are large;
- there are no arguments of principle that give reason to delay reform;
- therefore a focus on implementation and carrying public opinion is now indicated.

Ministers noted:

- the following report and its conclusions on reforming transport taxes and charges;
- that the two Resolutions, together with this report, provide an appropriate framework for the reform of transport charges and taxes towards greater efficiency, fairness and sustainability for the transport sector, and for the economy as a whole;
- that pricing reform needs to be co-ordinated with other instruments fundamental to achieving environmental and safety goals (emissions standards, enforcement of speed limits, etc.) and with investment in improving the quality, management and capacity of infrastructure;
- that the Committee of Deputies will monitor implementation of pricing reforms and, as required by resolution 2000/3, report to Ministers in 2004/5 on progress towards ensuring non-discrimination and non-accumulation of charges in international haulage.

REFORMING TRANSPORT TAXES AND CHARGES

Pricing reform is underway

Many ECMT member governments have taken steps over recent years to improve the efficiency of transport charges and taxes, differentiating charges in relation to emissions of air pollutants and CO₂, for example, and replacing charges that discriminate between local and foreign registered vehicles with non-discriminatory, territorial based charges. Switzerland has introduced an electronic truck t-km charge. Austria, Germany, Liechtenstein and the United Kingdom plan to do so and several other countries are expected to follow. Satellite tracking and automatic vehicle recognition systems have the potential to make further significant improvements to transport charging systems. New instruments to cope with congestion in urban areas have also been considered in many cities. London, for example, recently implemented a cordon charge to regulate traffic in the city centre. At the same time, traditional instruments such as parking charges and fares policy for public transport could be used more effectively. More efficient systems of charging offer gains including:

- reduced congestion;
- reduced pollution and noise nuisance;
- an overall increase in socio-economic welfare.

The potential benefits are large

Research undertaken for the ECMT and the European Commission¹ to model optimal charges for transport suggests that for the three largest economies examined, Britain, France and Germany, taken together, net welfare gains to society of over Euro 30 billion a year might be achieved². And additional revenues of over Euro 100 billion a year could be available for these three countries to cut distortionary taxes across the economy or support beneficial public expenditure both inside and outside the transport sector.

Public opinion

Public acceptance of the reforms envisaged is a key issue and carrying public opinion will require careful attention. Reforming transport charges and taxes will induce adjustments in traffic and in wider patterns of economic activity. This will encounter opposition from certain groups, locally or internationally, that enjoy specific benefits from current inefficiencies in pricing systems. Communicating the benefits of the reforms proposed to the community as a whole is an essential part of implementation. Whether the ways in which governments use revenues from transport charges are viewed as fair, is also central to public opinion. The principles relevant to these issues are discussed in the paragraphs that follow.

Charges determine the effectiveness of many other transport policies

Taxes on transport, and the way in which they are levied, have a profound influence on the way traffic and infrastructure develop and play a fundamental role in conditioning the impact and effectiveness of almost all government policies towards transport. To provide firms and individuals with pricing signals that guide their behaviour in a more rational economic manner, charges need to be levied closer to the point of use of transport infrastructure. Without this, interventions to manage congestion or influence modal split

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1. Joint ECMT-EC project reported in Chapter 2 of *Efficient Transport Taxes and Charges 2003*, CEMT/CM(2003)8.
 2. The gain in welfare recorded here is a net gain: it is what remains after subtracting the welfare losses at various points – in particular, the reduction in the consumer surplus currently enjoyed by motorists who are under-charged – from the sum of the various elements of welfare gain, including the increase in revenues, the reduction in travel time for motorists and freight traffic in the newly de-congested roads, the reduction in the real cost to society represented by pollution and accidents, and so on.

will be less than fully successful. Without better pricing, many investments and subsidies may be wasted and confidence in the outcomes of a wide range of policies undermined.

***Coherent
baseline***

Transport pricing policies can be oriented to promoting a wide variety of aims, including for example, the economic development of regions that currently have no all-weather road connections to the rest of the country (as in large parts of Russia), promoting investment in particular types of infrastructure by increasing cost recovery and earmarking revenues (as with tolled motorways in some countries) and managing congestion. Usually a number of policy objectives are pursued simultaneously. To ensure a coherent result, pricing policies need to be based on a common principle. Economic efficiency — that is prices and charging systems that tend to maximise socio-economic welfare — provides this baseline. It should be noted at the outset that this is not a prescription for uniform charges, as prices need to be determined according to local conditions.

***Guidance for
reform***

Ministers agreed the importance of efficient levels and structures of transport charges and taxes in Resolution 2000/3 and made recommendations as to how charging systems should evolve. The present report draws conclusions on the structures and levels of charges that should result. It is acknowledged that economic efficiency is not always the primary basis for fiscal policy. Nevertheless, an indication of the magnitude and direction of changes required for efficiency is an important guide in the reform transport charges and taxes.

Infrastructure capacity and congestion

There are two quite fundamental aspects to efficiency: efficient use of the infrastructure that exists and, over the longer term, efficient provision of transport infrastructure in terms of quantity and quality. The use of any road, railway, waterway, port, etc. is optimised when its traffic is charged the short run marginal costs of using it. When there is ample capacity, this means charging for the use of infrastructure according to the following main categories of cost: maintenance and administration; emergency services and other external accident costs; air and noise emissions. When there is a capacity shortage, a demand management charge should be used to balance demand with capacity — in place of rationing by congestion. This should ensure that capacity is reserved for the highest value uses.

Short run marginal social costs

The reference level for setting charges to achieve the economic optimum is alignment with marginal social costs. *Marginal* because we are concerned with the additional costs of adding one more user to the system, *social* because as well as private costs we are interested in the costs to other users of the transport system and to society as a whole, including impacts on safety and the environment. As discussed in the main text, both short and long run costs are important but the short run costs provide the basis for charging for the use of transport infrastructure.

***Expanding
capacity***

When such charges reach levels that generate sufficient revenues to finance expansion of capacity, this should be a trigger for an assessment of the potential benefits of investing in additional infrastructure. The assessment would have to go beyond financing to consider the full range of costs and benefits that affect economic welfare, including the opportunity costs (for example of land cleared that could instead be used for housing, offices etc.) and impacts on landscape, water courses and biodiversity. Projects that pass assessment would proceed in order to ensure efficient development of transport infrastructure.

Projects that would pass this test may not always get implemented, due to shortage of available capital funds, for example. But even when efficient investments to expand capacity are not made, charges to balance demand with supply will still result in efficient use of infrastructure. Investment in infrastructure at levels that are lower than efficient is most likely to distort transport markets seriously when very different investment decision making systems apply to competing modes of transport, road and rail for example. Similar appraisal methodologies are therefore to be recommended for all types of infrastructure.

Recovering costs When congestion is present and charged for, the capital costs of roads will normally be recovered. Where there is no congestion, optimal pricing could leave these costs uncovered. Treating transport infrastructure as a public good, these costs should be met through general taxation. In cases where governments seek to recover some or all of these costs directly from users it is most efficient to do this through fixed charges (such as annual road taxes) in order not to exclude beneficial use from the capacity available.

International traffic Thus for international traffic it will be efficient for foreign vehicles to pay the marginal costs, including congestion, of using infrastructure in the same way as local vehicles. It is not efficient, however, to charge them for the fixed costs of that infrastructure (charging on the basis of average costs). This has important political implications for the fairness of charging systems internationally.

Charging systems

Current systems of taxes and charges for transport are the result of an accumulation of successive instruments, not always introduced for the purposes of transport policy. They do not therefore tend to follow a coherent set of principles.

Parking In many towns and cities, parking represents the single largest cost of using cars and vans. Frequently it is not paid for, often as a result of inadequate enforcement of roadside parking fees. Failing to charge the full resource costs of parking inflates road traffic demand.

Fuel tax Fuel taxes dominate current transport charges. Though efficient in relation to CO₂ emissions, they cannot be differentiated to provide effective incentives for reducing congestion, pollution, noise and accident costs.

Fixed charges have in many cases been differentiated to provide incentives for reducing road wear and air emissions, but in many countries it would be efficient to replace part or all of these taxes with differentiated use charges.

Beneficial taxation Charging for the costs of pollution, noise, accidents and congestion in ways that succeed in reducing the levels of the damage caused towards an optimum level provides a direct welfare benefit. Charges that achieve this are one of the rare examples of taxation that produces direct welfare benefits as well as raising revenues.

Charging closer to the point of use The key to achieving the potential benefits of pricing reforms is to charge closer to the point of use of the infrastructure. This would enable rational decisions by individuals and firms, informed by price signals of the full costs of their travel demands, to determine traffic levels and trends in transport demand. This is probably best achieved through electronic km charges with satellite or ground based tracking systems to differentiate charges by time and location. These systems are being introduced for trucks in a number of countries. Subject to controlling the costs of administration and enforcement satisfactorily,

such systems are also attractive for managing car traffic. Even without these systems much can be achieved with more conventional instruments — parking charges, differentiated road tolls and cordon tolls.

The expected effects of moving towards more efficient, better targeted charges

Distribution of charges and revenues

The research undertaken for the ECMT and the European Commission to model optimal charges for transport in five countries³ suggests that more efficient charges would result in the changes in relative prices and traffic levels set out below. As a heuristic device, the optimum was modelled with the replacement of all existing taxes by a new externality tax, best thought of as a differentiated km charge. This gives an estimate of the optimal level of taxes (right order of magnitude) and the direction for changes in transport prices. In practice, governments will need to consider how best to combine the new tax with old taxes they wish to retain.

Combining old taxes and new charges

Roads

The research suggests significantly higher charges for cars, trucks and vans in urban areas and on some inter-urban routes, largely as a result of charging for congestion. This would be accompanied by reductions in car traffic in the large metropolitan areas, moderate reductions in other urban areas and a mixed pattern of changes outside the urban areas. Truck traffic volumes would be little changed overall, with a small shift from peak to off peak periods. The overall pattern is for trucks and other business traffic to benefit from a rationalisation of shopping, leisure and other car trips (perhaps one shopping trip to three stores in place of three separate trips, for example).

Public transport

Urban areas would see lower charges for public transport relative to the costs of using cars, accompanied by greater efficiency in public transport services, encouraging a better modal balance. Bus and metro traffic would grow in the metropolitan areas, particularly in off-peak periods, with a mixed pattern in other areas depending on the country concerned and current prevailing prices.

Rail freight and inland waterways

There would be a change in relative road and rail prices encouraging modal shift. The size of the change in each country is dependent on how far current charges for the use of both road and rail infrastructure differ from marginal social costs. Changes in prices and volumes for freight waterways are small but generally result in increased waterways traffic.

Comparison with current charges

The research suggests price increases to arrive at efficient pricing of urban road use in peak periods of around 100% for small petrol cars that currently pay no parking charges in three of the major metropolitan areas examined (Ile de France, Munich and the Randstad) compared with the prices prevailing in 2000. For the off-peak, the increase is around 50%. In London the increases are larger, around 150% in the peak period and 100% off-peak. In all four cities, for those currently paying parking charges all these increases are halved. Although not specifically examined, part of the mixed pattern of changes expected outside of cities is likely to be explained by reductions in charges for using small cars in many rural areas.

Optimal prices for using trucks on roads in the metropolitan areas were estimated to be around 40% higher than prices prevailing in 2000, for peak periods, except in London

3 . Britain, Finland, France, Germany and the Netherlands.

where the increase was around 100%. Price increases for off-peak periods were roughly half these figures. For motorways outside urban areas, prices and charges for trucks in the optimum show a mixed pattern of increases and reductions, depending on the country and the structure and level of charges applied there in 2000. In the case of Germany, the level estimated for the optimal charge is around 50% higher⁴ than the total charge that will apply following the introduction of the new kilometre charge in August 2003.

**Caution:
limits to the
model**

The purpose of these comparisons is only to give a rough illustration of the model output. It must be cautioned that to design charges, a different modelling exercise would be required using less aggregated data and examining specific types of vehicles and particular categories of infrastructure. The current exercise was designed only to illustrate the overall direction and magnitude of changes in charges for broad categories of transport services.

Welfare gains

The overall result would be annual welfare gains of Euro 9 to 17 billion in each of the three largest economies examined, and increased revenues from transport ranging from 57% to 74%. In Finland, a country with few cities, low population density and little road congestion the work foresaw a 20% reduction in revenues from transport charges and an annual welfare increase of Euro 300 million.

Changes from optimising charges in 2000

	Britain	France	Germany	Netherlands	Finland
Welfare gains (Billion Euro / year)	17	10	9	2	0.3
Revenue changes (Billion Euro / year)	+ 39	+ 28	+ 42	+ 8	- 1
Air pollution and CO₂ emissions costs (Result of optimising emissions control technology as well as traffic)	- 54%	- 50%	- 37%	- 33%	- 42%
Congestion Average increase in metropolitan rush-hour road traffic speed	+ 11%	+ 9%	+15%	+ 9%	+ 9%

Optimising capacity

These tax and revenue changes were produced with a model that takes current infrastructure capacity as fixed. However, the case of the Netherlands was re-examined to test the effect of increasing inter-urban road capacity 5% across the board. Relative to the case when only pricing was optimised, this was found to increase the potential welfare gain only 2%. This is close to the findings of recent work undertaken for the Netherlands Ministry of Finance⁵ that examined optimisation of road capacity in rather more detail.

4. Optimal charges for trucks (replacing fuel tax and all other current charges) using German motorways outside urban areas were estimated at Euro cents 3 per tkm for off-peak periods and 4 cents in the peak. These are average prices per net ton transported for trucks over 3.5 tons. In 2001, 40 ton trucks on long hauls in Germany paid an average of roughly 17 cents per vkm through all the various taxes levied (See *Efficient Transport Taxes and Charges 2003* CEMT/CM(2003)8). This equates to 1 cent per net tkm on average, assuming an average load factor of 16 tons rather than the maximum capacity of 25 tons of a typical 38 or 40 ton truck. With the introduction of the new km charge in August 2003, this will rise to roughly 30 cents per vkm or roughly 2 cents per net tkm on motorways.
5. *Returns on Roads - Optimising road investments and use with the user pays principle*, CE Delft 2002.

This result is conditioned very much by local circumstances, including the optimality or otherwise of current road capacity and investment plans in the Netherlands. Therefore the result can not simply be transferred to other countries. Nevertheless, for countries and regions not too dissimilar to the Netherlands the result supports rather than undermines the thesis that the biggest improvements in the management of congestion will be achieved from optimising prices rather than infrastructure capacity.

Other studies of the costs of using transport infrastructure

In France, the costs of the use of infrastructure by various transport modes have been assessed periodically since 1994 by the Commissariat Général du Plan (Boiteux group). This work, updated in 2000 and 2001, provides the basis for setting out the main lines of an approach to charging following marginal social costs, including external costs. In the accompanying report, *Efficient Transport Taxes and Charges 2003* [CEMT/CM(2003)8], two sets of results are presented for France using, in turn, standard values for external costs as used in modelling the other countries studied, and the specific French values from the *Boiteux-2* report, that currently provide official national reference figures. Comparison of the results shows a remarkable degree of agreement.

Peripheral regions

Lower charges

As found in the case of Finland, in many non-urban and peripheral regions where congestion is generally absent, charges are generally likely to fall. The direction for changes in prices and revenues in peripheral countries can thus be opposite to that in countries near the economic centre of Europe but the welfare gains from optimising charges and taxes are no less significant. It should be noted that revenues in the optimum scenario are still more than sufficient to cover total infrastructure costs.

The work undertaken confirms the value of pricing reform for peripheral countries but suggests that additional studies are merited to adapt more fully the methods developed originally to model economies at the centre of Europe to the conditions prevailing in peripheral areas. Taking adequate account of local conditions is indeed essential for all regions, peripheral or not, as the purpose of pricing reform is to reflect marginal costs close to the point of use of infrastructure — by definition conditioned by local circumstances. In the case of Finland, for example, charging in relation to snow clearance deserves deeper analysis as it is a major item of expenditure.

Trucks in transit

It should be noted that when trucks from peripheral countries travel through congested areas at the centre of Europe they will be charged in the same way as local trucks. This follows from principles of both non-discrimination and efficiency. A desire to correct regional imbalances is not a good reason for overturning these principles. Issues of regional development and peripherality are best addressed by enhancing international regional infrastructure investment funds and other international redistributive policies.

Social equity

Direct measures rather than transport policy

Some pricing reforms to promote efficiency might be regressive in terms of income distribution. As with regional equity, this is not a reason to forego efficiency. Distributional issues are much better addressed more directly through the powerful instruments available to finance and other ministries, including income tax and social security frameworks. Compensation for public service obligations and other subsidies to

public transport are often partly motivated by concern for social equity but are also founded on the basis of maximising welfare as a whole.

Fuel taxes

In many countries, moving to more efficient systems of transport charges with the introduction of new instruments would permit reductions in fuel, and other existing taxes, notwithstanding the fact that a fuel tax is a good way to address CO₂ emissions. This would enable a reduction in the overall burden of charges in those rural areas that are currently taxed at higher levels than efficient. Cutting fuel taxes without the introduction of more efficient instruments and making up the revenue shortfall with general taxation would, however, result in reduced welfare in most countries. It should also be noted that in some countries, for optimal pricing, variable charges like fuel tax should probably increase, with larger offsetting cuts in fixed charges.

Competition

Current differences in transport charges play very little part in determining the competitiveness of road haulage industries nationally. This is analysed in detail in *Efficient Transport Taxes and Charges 2003* [CEMT/CM(2003)8], with the new work lending strong support to the results presented to Ministers in 2000 that underlie Resolution 2000/3. Moreover, the charging reforms outlined in the present report would work to avoid distortions and discrimination, by replacing charges based on nationality with more territorial charges.

Preventing abuses

The principles for efficient taxes outlined should not be abused to justify the introduction or maintenance of arbitrary charges for crossing international or local administrative boundaries. Moreover, pricing reforms should encompass a general rationalisation of charging systems. In some of the New Independent States in particular this would involve a reduction in the number of charges levied on road haulage, the abolition of many local charges and adoption of a more unified approach to charging internationally.

Modal split

The main changes in modal split would be seen in large urban areas, with more passengers using public transport. Ridership would increase most on rail/metro systems in some cities and on buses in others, depending on the current levels of charges. The biggest increases in public transport ridership tend to be in the off-peak period and this would tend to increase the efficiency of these services.

Conclusions

1. The distortions common in current transport charges and taxes undermine many transport policies, as noted during debate on modal shift at the Bucharest Council in 2002. Although pricing reforms may not solve transport problems on their own, without more efficient prices, and charging systems that provide a predictable framework for prices, measures to address congestion will be severely hampered and investments to meet transport demands will frequently fail to deliver planned results.
2. More efficient transport prices and charging systems are required in all modes if transport policies are to have their intended effects. The need is greatest with respect to road transport,

which accounts for over 80% of all passenger and tonne kilometres, and greatest of all in and around major cities.

3. The ultimate aim is to charge for the use of transport infrastructure close to the point of use, with charges set at a level in line with that for other goods and services in a market economy, that is close to marginal costs. Normally, competition is relied on to achieve this outcome. In most cases competition is not feasible in the supply of transport infrastructure. So regulation will be required to establish the correct level of charges, as is the case with much other public infrastructure (telecommunications, electricity, water and so on).
4. There are two quite fundamental aspects to efficiency: efficient use of the infrastructure that exists and, over the longer term, efficient provision of infrastructure both in terms of quantity and quality. Even when efficient investments to expand capacity are not made, however, charges to balance demand with supply will still result in efficient use of infrastructure.
5. It will take time to achieve the reforms outlined in this report and to persuade public opinion of their importance. Ministers should seek, however, to ensure that changes to charges and charging systems should always move in the direction of improving efficiency, whatever the motivation for the change. Thus legislation that creates potential barriers to efficiency should be avoided and measures to harmonise or otherwise modify taxation, for example fuel taxes, should be carefully coordinated with improving the efficiency of transport charges.
6. The introduction of distance charges for trucks, differentiated by weight and environmental performance, is an important step towards greater efficiency. It would be desirable to differentiate these charges by time and location in relation to infrastructure damage, congestion, environmental and other marginal costs, using of satellite or land based positioning systems.
7. Similar distance and performance based charges for cars and vans are appropriate and merit examination in terms of implementation and acceptance.
8. Conventional instruments, such as parking charges and public transport fares policy, also have an important role to play to complete the charging system.
9. For maximum efficiency, the level of charges should reflect local conditions. In general charges would be expected to rise in and around urban areas and fall in rural and peripheral areas.
10. Revenues from congestion charges might be used in the first instance to invest in traffic management systems and in increased infrastructure capacity in cases where economic and environmental assessments justify expansion.
11. In countries at the economic centre of Europe, more efficient charges are likely to result in an increase in revenues from the transport sector overall. These revenues could be used to reduce distorting taxes across the economy or to fund public spending on projects with positive socio-economic returns both inside and outside the transport sector. In peripheral countries with little congestion there may be a decline in revenues, although revenues will still be more than sufficient to cover total transport infrastructure costs.