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ROUND TABLE 71

INTERNATIONAL ROAD HAULAGE:

TAXATION SYSTEMS

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

PARIS 1986

ECONOMIC RESEARCH CENTRE

REPORT OF THE SEVENTY-FIRST ROUND TABLE ON TRANSPORT ECONOMICS

Held in Paris on 12th-13th December 1985 on the following topic:

INTERNATIONAL ROAD HAULAGE:

TAXATION SYSTEMS

EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT

THE EUROPEAN CONFERENCE OF MINISTERS OF TRANSPORT [ECMT]

The European Conference of Ministers of Transport (ECMT), an inter-governmental organisation, established by a Protocol signed in Brussels on 17th October 1953, constitutes a forum for the Ministers of Transport of 19 European countries[1]. The work of the Council of Ministers is prepared by a Committee of Deputies.

The purposes of the Conference are :

a) to take whatever measures may be necessary to achieve, at general or regional level, the most efficient use and rational development of European inland transport of international importance;

b) to co-ordinate and promote the activities of international organisations concerned with European inland transport, taking into account the work of supranational authorities in this field.

Major problems which are being studied by the ECMT include: transport policy; the financial situation and organisation of railways and road transport; problems concerning inland waterway transport and combined transport; development of European trunk lines of communication; problems concerning urban transport; the prevention of road accidents and co-ordination, at European level, of road traffic rules and road signs and signals; traffic trends and long-term traffic forecasts.

Moreover, the ECMT organises Round Tables and Symposia. Their conclusions are considered by the competent organs of the Conference, under the authority of the Committee of Deputies, so that the latter may formulate proposals for policy decisions to be submitted to the Ministers.

The ECMT is equipped with a computerised Documentation Centre.

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PREFACE

The problems associated with the harmonization and liberalisation of international transport are at present major issues in the European transport policy debate.

Interest in this topic has been focussed and strengthened by two recent major events well known to transport specialists. The first is the European Court Decision and the second is the EEC White Paper stemming from the meeting of the Council of the Ministers of Transport of the EEC, held in Milan in June 1985.

The whole subject is nevertheless in need of clarification, otherwise there is a danger that any decisions taken will govern a field in which there remain too many shadow areas. This applies in particular to the question of the taxes and charges paid by and the balance of services performed by international road haulage vehicles. If the problem is dealt with over-hastily in the first place there is all the more chance of serious misgivings in the longer term.

International road haulage has expanded enormously over the past quarter of a century and there is every reason to believe that it will go on expanding, even though the rate may be slower. This being so, it is important that the debate should cover the correct geographical dimension from the outset, i.e. a vast area of Europe. If this were not done, agreements painfully arrived at could become inoperative due to the reaction of countries not covered by them and considering themselves disadvantaged by them. This is why the ECMT considers that it can play a supporting and consolidating role in this field.

This Round Table fits into a fairly tight schedule of ECMT policy activities. The need to base this work on concrete information became apparent during 1984, but the magnitude of the problem and its urgency was such that it was not possible to allow a long period to pass before going on to a more operational stage of the debate.

In concrete terms this meant that there was less than a year in which to carry out the necessary research and present the findings to a Round Table for the opinion of experts in order to be able to be able to pass them on to the political authorities in time for them to be of use.

The authors of the background reports therefore had only six months in which to complete their studies of a relatively unexplored field. For this reason it was impossible for them to carry out the usual number of iterations to perfect the data.

As for the ECMT Secretariat, it had only a few weeks in which to attempt to quantify the findings of the two reports in monetary terms.

The upshot of all this is that the results constitute but a first approach which remains to be extended as regards the geographical coverage of Europe and refined as regards the statistics.

Despite the inevitable imperfections due to the short time available for preparation, Round Table participants were unanimous that the authors of the reports had accomplished a significant amount of scientifically valid work which constituted an important step forward in the understanding of the problem. They also expressed the wish that this research should be continued so that it would soon be possible to provide the decision-makers with still sounder and more complete information to help them in their task.

The ECMT Secretariat joins with this tribute and with the desire to perfect the research findings whose relevance and value cannot but enrich the debate on a problem that is vital to European transport policy.

STRUCTURE AND COST IMPLICATIONS OF CHARGING SYSTEMS

APPLIED TO ROAD HAULAGE VEHICLES IN SELECTED ECMT COUNTRIES

[with particular reference to national and territorial aspects
and to fixed and variable charges]

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1. INTRODUCTION

The study of the cost burden of the road haulage industry is one of those fields to which the ECMT attaches particular importance. The fierce public discussion on liberalisation of the transport market and harmonization of the conditions of competition and the very controversial views held on these matters are proof that this is indeed a major problem of European transport policy.

The brief to study charging systems applied to lorries in selected ECMT Member states was coupled with the express instruction to do so with particular reference to types of charge (fixed and variable) paying special attention to the closely associated question of the territoriality and nationality principles. Concentration of the study on charging systems implies that this report will only be concerned with those cost burdens on international road haulage the regulation of which is within the control of the public authorities.

In view of the intense discussion already mentioned on liberalisation and harmonization in international road haulage, the information deficiency is staggering, especially when an attempt is to be made to form a picture of the charging system as a whole and a comparative picture at that, covering a number of different countries. Against this background, the ECMT Secretariat General at the start of 1985 conducted a Survey of some Member states on the results of which the study of the subject specified was to be based. The author of this report had no influence on the scope and content-related structure of this Survey. No direct contact with the responding institutions was planned and none took place, but it may be suspected that the responses to the ECMT questionnaire were to some extent conditioned by differing interpretations of the questions. To supplement the Survey results, a number of additional indications were obtained and evaluated and a number of information interviews were conducted.

It has to be concluded at the outset that the present contribution can only be a first attempt to introduce a little light and system into the jungle of the different charging systems for road haulage vehicles. All information was assembled with the best of intentions and to the best of our knowledge, but we make no claim to its completeness. Further information resources are needed for an adequate discussion of harmonization and liberalisation in international road haulage which gives full coverage of all the problems. This applies both to the completion and continuous updating of the information on the countries dealt with below and to the extension of these considerations to the other European countries.

2. DELIMITATIONS

The ECMT Survey mentioned in the Introduction provided information for the following countries:

-- Denmark

-- Federal Republic of Germany

-- France

-- Italy

-- Netherlands

-- Norway

-- Switzerland

-- Sweden

-- United Kingdom

The fact that three of these nine countries do not belong to the European Community to some extent increased the difficulty of obtaining additional information but at the same time showed that the solution of European transport problems cannot be limited to the European Community. This is particularly in evidence where the Alpine transit countries are concerned.

The term charges applied to road haulage vehicles is used in this report to mean all taxes, dues and charges levied on the purchase, keeping and operation of road haulage vehicles, irrespective of whether it is the State or other institutions which impose them. A distinction is made between:

-- Fixed charges collected without regard to the intensity of the output or service provision in question, and

-- Variable charges collected in terms of the volume or intensity of the output or service provision.

The term territoriality principle is taken from international law and means -- with specific reference to this subject -- that a foreigner is subject to the system of charges of a country on whose sovereign territory he conducts road haulage operations; i.e. the charging system of the country in which the vehicle is driven is effective.

In contradiction to this, the nationality principle means that the charging system of a country becomes applicable to the vehicles or firms domiciled in that country irrespective of where the transport services are actually performed.

The differences in practice from one country to another in levying taxes and charges on their own sovereign territory (territoriality principle), on the one hand, and on the road haulage business domiciled on their

Table 1

SYSTEMATISATION OF CHARGES AND ASSIGNMENT TO THE NATIONALITY PRINCIPLE OR THE TERRITORIALITY PRINCIPLE

Type of charge	Nationality principle	Territoriality principle
A. Fixed charges		
1. Vehicle purchase		
-- taxes on vehicle purchase (turnover tax, capital goods tax)	x	
-- registration fees	x	
2. Vehicle keeping		
-- vehicle tax	x	
-- insurance tax	x	
-- fees for compulsory technical inspection (ordinary and special inspections)	x	
3. Basic costs of engaging in road haulage business		
-- admission to the business		
* operators' fees/licences	x	
* fixed contributions to trade organisations	x	
-- permit fees		
* national long-distance road haulage (domestic traffic)	x	
* international traffic (bilateral and multilateral permit quotas)	x	
4. Other fixed charges		
-- Heavy traffic levy (Switzerland)		x
-- Diritto fisso (Italy)		x
B. Variable charges		
1. Charges based on commercial operations		
-- mineral oil tax	(free amount)	x
-- turnover tax/customs duties on oil		(x)
-- turnover tax/customs duties on repairs		(x)
2. Charges based on transport operations		
-- charges on turnover	x	
-- road traffic charges		x
3. Administrative charges		
-- freight documents	x	(x)
-- other variable charges		x
4. Charges on infrastructure utilisation		
-- roads (motorways)		x
-- bridges/tunnels		x
-- parking facilities		x

territory, on the other hand, are of great importance to an internationally relevant classification of the costs and income of the road haulage industry and to a comparative evaluation of the cost burden on international road haulage. Table 1 presents a systematisation of charges and assigns them to the principle according to which they are predominantly effective in terms of costs or income.

The systematisation of charges shows that fixed charges are predominantly effective in terms of the nationality principle, while variable charges, insofar as they are directly linked to vehicle operation, arise predominantly according to the territoriality principle. Of course the actual relevance of the charge types can only be assessed on the basis of a concrete consideration of the charging systems, but for this it is necessary to draw upon information on the average transport outputs of the different countries, on the one hand, and of the road haulage business domiciled in those countries on the other.

In conclusion to this discussion of the delimitations of the study, it should be mentioned that the ECMT Survey took 1984 as its reference year and covered 38-tonne articulated vehicles (or "similar type most often used in international transport"). All conversions of price data in national currencies to ECU (European Currency Unit) were carried out on the basis of the average annual exchange rates for 1984 presented in Table 2.

Table 2

CONVERSION RATES FOR NATIONAL CURRENCIES TO ECU IN 1984

Denmark	1 DKR	=	0.1228 ECU
FR Germany	1 DM	=	0.4468 ECU
France	1 FF	=	0.1455 ECU
Italy	1000 LIR	=	0.7239 ECU
Netherlands	1 HFL	=	0.3963 ECU
Norway	1 NKR	=	0.1559 ECU
Switzerland	1 SFR	=	0.5414 ECU
Sweden	1 SKR	=	0.1536 ECU
United Kingdom	1 £	=	1.6931 ECU

Sources: Monthly Reports of the Deutsche Bundesbank, 37 (1985) no.1, p.80*; Statistical supplements to the Monthly Reports of the Deutsche Bundesbank, Series 5: Die Währungen der Welt (Currencies of the world), February 1985, no.1, p.52.

3. FIXED CHARGES

3.1. Purchase of vehicles

The burden of costs on road haulage vehicles begins with their purchase. A distinction should be made here between (turnover) taxes on the acquisition of the vehicle, which are usually deductible as prepaid taxes,

additional taxes levied on the purchase price (e.g. capital goods tax) and the fees for the registration of the vehicle for use in road traffic.

It can be concluded from the ECMT Survey that, in the countries surveyed, no turnover taxes diverging from the customary value-added tax are levied on the purchase of road haulage vehicles, so that these charges in principle have no effect on costs, since the turnover tax paid can be deducted in full as prepaid tax. The only exception here is Switzerland, whose turnover tax on goods (Warenumsatzsteuer - WUST) is a single-phase tax and must therefore be borne (also) by the road haulage firm.

According to the results of the Survey, Norway is the only country which levies a capital goods tax. It amounts to 10 per cent of the purchase price. In addition a duty was imposed in Norway on imported motor vehicles in 1984 amounting to 9 per cent of the import price, though this duty was abolished for road haulage vehicles at the end of 1984.

The level of charges for the registration of vehicles for road traffic, which are usually collected as a fee for the issue of the vehicle licence, was not covered by the ECMT Survey. In the Federal Republic of Germany, these fees are about 13 ECU on first registration of a vehicle and about 15 ECU on transfer to a new owner or to a new registration district (1). In Switzerland the fees for the issue of a vehicle licence vary from canton to canton. In Canton Basel City, for example, it amounts to about 24 ECU (2). A survey produced by the international Liaison Committee on Automobile Manufacture (Comité de Liaison de la Construction Automobile -- CLCA) in 1984(3) for Member states of the European Community shows that Denmark and the United Kingdom collect no registration fees, while France, Italy and the Netherlands do. According to the CLCA survey comparable data are now not available for France, because of a change in the Finance Law of 1st March 1984, under which the individual regional administrations are empowered to levy a supplementary tax in addition to the state registration fee, ranging from 10 per cent to 90 per cent of the state fee. In Italy the registration fees payable to the "Publico Registro Automobilistico" and other administrative authorities amount to about 6-7 ECU, in the Netherlands the annual licence fee for all motor vehicles is 8.5 ECU and the single registration fee for trailers and semitrailers about 19 ECU.

3.2. Keeping of vehicles

Fixed charges on the keeping of a motor vehicle include motor vehicle taxes, insurance taxes and fees for compulsory technical inspections. For Swiss owners of road haulage vehicles, the heavy vehicle levy introduced in 1985 also falls into the category fixed costs of vehicle keeping, since this charge -- the tax-equivalence of which is now hardly disputed even in Switzerland -- is collected on the basis of vehicle ownership, irrespective of the output of transport service produced. Moreover it is the only tax unrelated to output which is levied according to the territoriality principle, all other fixed charges being subject to the nationality principle on the basis of bilateral agreements for exemption from double taxation. Since it is also possible for Swiss vehicle keepers to secure at least partial exemption from the heavy vehicle levy, this charge will be discussed again later in the report.

The varying rates of motor vehicle tax are the most frequently quoted

figures in international comparisons of conditions of competition in road haulage. The annual motor vehicle taxes presented for 1984 in Table 3 can be reconstructed from the ECMT Survey and other sources.

Table 3

ANNUAL MOTOR VEHICLE TAXES FOR ROAD HAULAGE VEHICLES(1)[IN ECU]

Denmark	3 200 (a, c)
Federal Republic of Germany	4 185 (a, b, c)
France	760 (a, c)
Italy	375 (b, c)
Netherlands	1 625 (a, b, c)
Norway	2 650 (a)
Switzerland	1 320 (d)
Sweden	2 000 (a)
United Kingdom	5 185 (a, b, c)

1) Cf. the references in the text to the different tax assessment bases and reference vehicles and to other special features.

Sources: a) ECMT Survey, start of 1985.

b) Bundesverband des Deutschen Güterfernverkehrs (BDF) e.V. (ed): Verkehrswirtschaftliche Zahlen (Transport industry figures) 1984, Frankfurt 1984, p.67.

c) Comité de Liaison de la Construction Automobile (CLCA): La fiscalité ..., op. cit.

d)Schweizerischer Nutzfahrzeugverband (ASTAG) (ed): Annual Report 1984, Bern, no year of publ. (1985), pp.179, 182. The value given is a mixed value made up of three truck and trailer combinations and one truck and semitrailer combination.

In interpreting the figures it is essential to take into account indications of differences in tax assessment bases, different reference vehicles and other special features which limit the comparability of the figures.

The basis for the assessment of motor vehicle taxes is geared to entirely different criteria in the different countries, reflecting the particular considerations on tax fairness, tax clarity and other financial policy objectives current in the country concerned. Since tax assessment bases were not covered by the ECMT Survey, the observations on this aspect must be limited to a selection. The following bases for tax assessment apply in the countries considered for this purpose:

-- Permissible overall weight (e.g. Denmark, Federal Republic of

Germany, United Kingdom, 7 cantons/demicantons in Switzerland, the axle-load tax in France),

-- Unladen vehicle weight (e.g. in the Netherlands),

-- Payload (e.g. in Italy and in 13 cantons/demicantons in Switzerland),

-- Fiscal horsepower (e.g. in France for the ordinary motor vehicle tax (taxe différentielle) and in 3 cantons/demicantons in Switzerland),

-- Cylinder capacity (in conjunction with the permissible overall weight or payload in 2 cantons/demicantons in Switzerland), or

-- DIN horsepower (in Canton Tessin in Switzerland).

Moreover in some countries (e.g. Denmark, Federal Republic of Germany, United Kingdom and France) taxation is further differentiated according to number of axles, though in France this only applies to the axle-load tax.

In France the ordinary motor vehicle tax is also scaled according to vehicle age. For trucks, trailers, semitrailers and articulated combinations upwards of a certain (variable) permissible overall weight, an axle load tax (taxe à l'essieu) is imposed as an infrastructure levy, which replaces the ordinary motor vehicle tax. The axle load tax reduces according to the fulfilment of certain conditions (restriction to specified areas of circulation, vehicle use in combined transport or in works transport), but by a maximum of 75 per cent. In the Federal Republic of Germany too, in addition to the general exemption of certain vehicle keeper groups from motor vehicle taxation [Article 3 Motor Vehicle Taxation Act -- KraftStG (4)], there are provisions for the refund of tax for road haulage vehicles used in piggy-back traffic (depending on the number of journeys completed)(Article 4 KraftStG).

In Denmark a supplementary tax is levied, in addition to the ordinary motor vehicle tax, on all motor vehicles not driven by petrol. On the other hand there are refunds for road haulage vehicles used continuously in international traffic of 25 per cent on the ordinary motor vehicle tax and 75 per cent on the supplementary tax.

In Switzerland each canton/demicanton regulates road haulage vehicle taxation autonomously. In some cantons also, trailer and semitrailer combinations are subject to tax assessment bases which differ from those applied to trucks.

As already indicated, the ECMT Survey was conducted on the basis of a 38-tonne articulated vehicle but did not specify this reference vehicle in any more detail. In Switzerland in any case -- apart from exemptions granted for certain frontier zones -- only vehicles with a maximum overall weight of 28 tonnes are permitted. It should be pointed out, however, that the same vehicles -- if suitable -- can be issued with a second vehicle licence for operation as a 38-tonne vehicle abroad. The reference vehicles for Switzerland are three trucks with permissible overall weights between 16 and 25 tonnes with an accompanying 12-tonne trailer and a 28-tonne semitrailer combination. The value given is a mixed value made up of all four reference vehicles and for all cantons, in which the taxes vary as a mixed value for the reference vehicles between 720 and 2070 ECU.

The reference vehicles for Denmark, Norway and Sweden are a three-axled towing vehicle and a three-axled trailer with permissible overall weights of 22 tonnes and 16 tonnes respectively. In the United Kingdom truck and trailer combinations are only permitted up to an overall weight of 32 tonnes; the reference vehicle is therefore a semitrailer combination consisting of a two-axled tractor and a three-axled semitrailer. In the United Kingdom this combination (according to the ECMT Survey) accounts for about 80 per cent of all 38-tonne semitrailer combinations.

For Germany the reference vehicle consists of a towing vehicle and a trailer of 16 and 22 tonnes permissible overall weight respectively, for France a four-axled truck and trailer combination of 38 tonnes permissible overall weight. In Italy a towing vehicle with a 8.5-tonne payload and a trailer with a 15.5-tonne payload are assumed and in the Netherlands, finally, a towing vehicle of 7.5 tonnes unladen weight and a trailer of 6.5 tonnes unladen weight.

The ECMT Survey, in connection with the taxation of vehicle keeping, also included a question on the tax content of motor vehicle insurance. The responses supplied the following data:

-- Denmark:	25 per cent
-- Federal Republic of Germany:	5 per cent
-- France:	31.5 per cent
-- Italy:	10 per cent
-- Netherlands:	7 per cent
-- Norway, Sweden:	No tax on insurance

In order to determine the charge burden resulting from these figures it would be necessary to have information on the absolute amount of motor vehicle insurance(s), which was not covered by the ECMT Survey. For Italy, for an insured sum of 500 million lire, an annual insurance premium of about 2 800 ECU was mentioned. For the Netherlands insurance costs of the order of about 3 790 to 5 460 can be calculated from the ECMT Survey data. In Switzerland the annual insurance costs of third party liability, comprehensive and other insurances can be worked out, in accordance with a computation key of the Swiss Commercial Vehicle Operators' Association (ASTAG), to about 3 480 ECU for a 28-tonne truck and about 5 150 ECU for a 28-tonne semitrailer combination. The insurance premium by law contains additional elements of 0.75 per cent for an accident prevention levy, 1.25 per cent for stamp duties and 0.6 per cent for damage by vandalism, which in 1984 represented about 46 ECU (5). WASNA in the Federal Republic of Germany states annual insurance costs of about 5 860 ECU for a 38-tonne truck and trailer combination, in Denmark the figure is about 8 120 ECU and in France about 4 910 ECU (6).

The level of fees for the compulsory technical inspection of road haulage vehicles was covered explicitly in the ECMT Survey. In the Federal Republic of Germany one annual main inspection is required for trucks and trailers with, in addition, one interim inspection and an annual check on observance of the accident prevention regulations. The fee rates are uniform throughout the Federal Republic and amount, for one truck and trailer combination, to about 110 ECU per annum (7). This amount includes the charges for the inspection of special vehicles, but not those for the special exhaust

inspection currently required for petrol-driven vehicles only or the compulsory special inspection of brakes, which are normally conducted in conjunction with the servicing of the vehicles in specially authorised workshops.

In Switzerland there is a Federal requirement for the compulsory presentation of road haulage vehicles and trailers for motor vehicle inspection every three years. Vehicles for the transport of dangerous goods have to be presented every year. The fee rates are laid down on a cantonal basis. In Basel the current rate is about 55 ECU per vehicle combination per year (8). The inspection of a truck and trailer combination for the transport of dangerous goods in Basel currently costs about 190 ECU per year. No other compulsory technical inspections are imposed in Switzerland.

3.3. Basic costs of road haulage vehicle operation

The basic costs of road haulage vehicle operation considered here only include those (fixed) charges which are specifically imposed on commercial road haulage operations. A distinction is made here between charges which are imposed on the firms without regard to transport operations (e.g. compulsory contributions to occupational insurance associations or licence fees), in other words constituting general conditions of admission, and charges which arise from restrictions on access to the road haulage market in the form of permit charges.

In connection with licence fees reference was made in the ECMT Survey, on the one hand, to the "Operator's Licence" in the United Kingdom, on which each road haulage vehicle is entered for a fee of about 35 ECU per year, serving for the administration of the road haulage regulations. In addition every truck driver must have a heavy goods vehicle (HGV) licence, which costs about 3 ECU per year. On the other hand, reference was made to the annual Italian contribution to the Transport Association (tableau des transporteurs) of 16 ECU and the state concession fee per vehicle registered of about 25 ECU. In France too there is a tax-equivalent annual due payable to the transport occupational insurance association of about 26 ECU per road haulage vehicle (9). In addition there is a levy in the Federal Republic of Germany for the financing of the activities of the Bundesanstalt für den Güterfernverkehr (BAG -- Federal Road Haulage Institution), which is fixed for one (smaller) section of the trade but variable for the majority of operators and will therefore be dealt with elsewhere in the report (see section 3.2).

With regard to the costs which result from regulations on access to the road haulage market or from the issue of the permits required in that connection (10), the ECMT Survey included questions on both "administrative" prices and the "market prices" for the permits. The results are presented in Table 4.

The international system of market regulatory arrangements means that in principle only those permit costs can be regarded as fixed charges which arise for the issue of a -- non-trip-related -- (period) permit, while the cost of individual (trip) permits are to be regarded more properly as variable charges even if, in terms of transport service provided, they are in fact fixed.

In the Netherlands the transport operator, in respect of the loading

capacity allocated to him for inland traffic, has to pay an annual charge of 5.5 ECU per tonne of capacity. Trip permits under bilateral quota arrangements cost about 2 ECU per trip, in traffic to and from Yugoslavia (with full exemption from transport tax) 26 ECU. In Switzerland trip permits in international traffic cost about 13 to 16 ECU (11), in the United Kingdom about 5 ECU.

Table 4

COST OF PERMITS FOR ROAD HAULAGE OPERATIONS (IN ECU)

Country	Administrative price	Market price
Denmark	(No data)	(No data)
Federal Republic of Germany	125 - 190	No overall indications possible(1)
France	0	21.800/26.200(2)
Italy	580	2900 - 4350
Netherlands(3)	a) bilateral - D, F: 54 - others: 21 b) multilateral - EEC : 277 - ECMT : 277	Registrations and permits are not transferable
Norway	(No data)	(No data)
Switzerland	(No data)	(No data)
Sweden	(No data)	(No data)
United Kingdom(3)	a) bilateral: 85 b) multilateral -- EEC : 178 -- ECMT : 178	No market price known since transfer of permits not permitted

1. Cf. on this point the note to the provisions of the Road Haulage Act regarding the transfer of permits in the text.
2. Permit A for the long-distance zone (domestic transport).
3. Prices for period permits. In the case of the Netherlands no indications for the period of validity, in the United Kingdom prices per annum.

Source: ECMT Survey, start of 1985.

As a rule the prices for period permits in international traffic may be considered to determine the upper limit of the cost burden if it can be assumed that the operator also gets these permits when he needs them. In this case it can be taken that a period permit is applied for when the sum of trip permit costs exceeds the cost of the period permit. In national (long-distance) traffic the cost burden on the transport firm due to permits depends on the stringency of the quota arrangement. In Germany it seems that as much as 90 000 ECU has been offered for the allocation of a German long-distance transport concession (12) -- an astonishing sum considering the contributions normally taken into account in the harmonisation debate.

3.4. Other fixed charges

It is appropriate under this heading to deal briefly with two levies which can be classed as fixed road haulage charges. These are the Swiss "Schwerverkehrsabgabe" (heavy traffic levy) and the Italian "diritto fisso" (fixed charge).

The Swiss heavy traffic levy is a special case in that it is collected, without any reference to output of transport operations, on the sole basis of ownership of a road haulage vehicle. This ownership tax is therefore systematically collected from Swiss residents together with the other road haulage vehicle taxes and is charged in relation to permissible overall weight and number of axles. For a cross-section of the reference vehicles discussed above this tax, which has been collected since 1.1.85, amounts to 1 895 ECU per vehicle combination. In principle foreigners are required to pay the tax at the same rate but enjoy the facility of paying it on a daily or monthly basis. Thus foreigners only bear the full amount of this tax upwards of a certain number of trip days in Switzerland. Conversely, in accordance with Article 15 of the Implementing Regulation for the Heavy Traffic Levy of 12.9.84, domestic road haulage firms can obtain refunds of 25 per cent, 50 per cent or 75 per cent of the Heavy Traffic Levy for those vehicles which they can prove spend more than 90, 180 or 270 days on trips outside the country (13). No concrete data arising from these arrangements were available at the time this report was written, however.

The Italian "diritto fisso"(14) differs from the Swiss heavy traffic levy, at least for domestic transport firms, in that it only falls due when transport operations are actually performed on Italian territory. The key aspect of the transport process to which it relates is the volume of transport effected; the only criterion of operational output is a distinction according to whether the distances covered total less than or more than 100 km. The countries of domicile to which the "diritto fisso" is actually applied, however, could not be determined from the information available. It does not apply to vehicles from the Federal Republic of Germany and Switzerland at all events, because of the current double-taxation agreements, although negotiations are in progress with Switzerland on its (re-)introduction in retaliation for the heavy traffic levy (5).

4. VARIABLE CHARGES

4.1. Charges based on commercial operations

The main cost burden due to charges geared to vehicle operation stems from mineral oil tax and turnover tax and duties on mineral oil. The servicing and maintenance of vehicles, which in view of the high annual trip performances of a road haulage vehicle indeed also have to be treated as a variable cost factor (related to operational output), also contain contributions to the cost burden from turnover tax and duties on repair work and spare parts. However these were not covered by the ECMT Survey and will therefore not be dealt with here. Even so, they would also have to be considered in any detailed comparison of costs due to charges borne by road haulage firms.

The ECMT Survey included a question as to the rate by which the oil tax in the transport sector might be higher than in other sectors of industry. The answers were to distinguish between general and specific taxes. The responses received, however, for the most part did not concern themselves with this question as such but with the absolute taxation of petroleum products. Table 5 gives the amounts of tax payable on diesel fuel.

Table 5

TAXES ON DIESEL FUEL (ECU per 100 l)

Denmark	4.42	(a, b)
Federal Republic of Germany	19.75	(a, b)
France	17.58	(a)
Italy	7.79	(b)
Netherlands	7.91	(a, b)
Norway	0.37	(a)
Switzerland	33.60	(a)
Sweden	7.97	(a, b)
United Kingdom	24.52	(a, b)

Sources: a) ECMT Survey, start of 1985.

b) Bundesministerium der Finanzen (Federal Finance Ministry): Die wichtigsten Steuern im internationalen Vergleich (The main taxes compared internationally), in: Informationsdienst zur Finanzpolitik des Auslands, no 1/1984 of 22.10.84, Bonn 1984, p.14.

Some comments are called for in this connection: in Denmark -- as has already been pointed out -- a supplementary tax is levied on non-petrol-driven vehicles. On the other hand the oil tax is refunded to domestic and foreign transport firms on application (16). In France, in addition to the ordinary diesel tax which amounts to 60 per cent of the petrol tax, there is a special tax for the "Fonds spécial de grands travaux" at a rate of 0.68 ECU/100 litres

and a levy for the "Caisse nationale de l'énergie" at 1.0 ECU/100 litres (17). Both are contained in the value given in Table 5.

In the Netherlands, in addition to the ordinary diesel tax, there is a supplementary levy for the control of noise and air pollution at a rate of 0.59 ECU/litres. This amount too is contained in the value given in Table 5. Norway has only a minimal oil tax. Instead a kilometre tax, which will be discussed later in the report, is levied on diesel-driven vehicles.

The diesel taxes indicated for Switzerland, in addition to the customs duty element, also contain 6.2 per cent (non-deductible) goods turnover tax, which is not applicable to other forms of energy, and as well as a "Carburagegebühr (burn-rate levy) and an energy research contribution (18). In the United Kingdom, finally, the oil tax contribution is made up of an ordinary petroleum tax of 1.3 ECU/100 litres and a road-specific tax of 23.2 ECU/100 litres.

No further consideration will be devoted here to the cost element attributable to turnover tax on diesel fuel, since turnover tax (except in Switzerland) is at least in part deductible as prepaid tax or is refunded when it was paid abroad. Even so there appear to be difficulties in certain countries in "...getting adequate refunds of any VAT paid in them at all". In most European Communities countries moreover limits are imposed (e.g. for diesel fuel, expenses) (19).

In view of the fact that, apart from vehicle taxes, differences in oil taxation are mostly taken as a criterion for comparisons of the cost burden of taxes and levies on road haulage firms in different countries, it is appropriate to comment briefly on this aspect. Table 5 does indeed reveal considerable differences between the individual countries in the taxation of diesel fuel. To assess cost burden differences, however, it is not enough to multiply average annual trip totals by average fuel consumptions and then by the rate of the diesel fuel tax in the home country of the vehicle (20). Precisely in cross-frontier traffic -- to which such approaches are in fact usually applied -- a considerable proportion of the trip total is effected abroad, so that, taking into account the duty-free diesel fuel allowance, it is probable that the tax burden differences, which in any case usually arise in accordance with the territoriality principle, are at least to some extent cancelled out again when considered in terms of the nationality principle.

4.2. Charges based on volume of transport operations

The transport output-related charges considered here include charges based on turnover and road traffic charges imposed on the basis of output of transport service.

The turnover-related charges include turnover tax, which will not be considered further here, trade tax and, finally, other levies collected specifically in the transport sector in relation to turnover. One of the questions in the ECMT Survey related to the last-mentioned. The only answer to it came from the United Kingdom, where a levy based on turnover is collected for the Road Transport Industry Training Board. It amounts to about 170 ECU per annum for a 38-tonne truck.

In the Federal Republic of Germany there is also a levy which is

payable on the volume of freight handled. In applies to commercial traffic and serves to finance the activities of the Bundesanstalt für den Güterfernverkehr (BAG). In the case of freight inspection by the BAG, depending on the type of freight rate, the amount to be collected in 1985 is 1.02 per cent (at the reference rate) of the freight charge and 1.77 per cent (at other rates); in the case of freight inspection by a freight inspection service (authorized for the purpose by BAG), the deduction is generally 0.2 per cent. In addition to this variable charge there is a fixed charge, which for forwarding firms amounts to about 74 ECU per establishment per year and for works traffic (on notifiable vehicles upwards of 4 tonnes and 50 HP) and the Deutsche Bundesbahn (Federal Railways, on vehicles owned by them) about 42 ECU per vehicle per year.

A trade tax is one of a number of possible ways of taxing commercial performance. The forms it takes are an integral part of the particular national taxation system, or of the taxation policy objectives underlying it, and therefore varies to some extent considerably from one country to another. Among the countries considered here trade taxes are only levied in the Federal Republic of Germany, in France and in Sweden. It is not possible to examine the entire system of profits taxation in detail here, although it would be essential in a comprehensive comparison of the international burden of charges.

In the group of countries considered here, road traffic charges levied on transport output are only collected in Norway and Sweden but, in Western Europe as a whole, are also collected in Austria. No further attention will be devoted to the Austrian road traffic contribution which, because of the possibility of choosing between a lump-sum charge and a charge per payload tonne-kilometre, constitutes a hybrid case.

Road haulage vehicles operating in Norway have to pay a kilometre tax which is calculated on the basis of gross weight (unladen vehicle weight plus payload) and the distance covered on Norwegian sovereign territory. The tax rate moreover varies according to the number of axles, amounting for the reference vehicle combination specified earlier to about 0.19 ECU/km.

A kilometre tax is also payable in Sweden on commercial vehicles with diesel engines, if the permissible overall weight exceeds 10 tonnes and the distance travelled on Swedish territory exceeds 50 km. The tax rate varies according to overall weight categories amounting for the reference vehicle combination specified earlier to about 0.7 ECU/km.

The cost burden effect of these taxes depends not only on the volumes of transport service effectively provided in the countries concerned but also on which countries are covered by these regulations and which are not. Thus, for example, there is a bilateral agreement between Norway and the Federal Republic of Germany on exemption from kilometre tax, which affords German trucks operating in Norway a competitive advantage over those of other countries.

4.3. Administrative charges

The administrative charges arising in relation to transport operations and routes include charges for freight documents, incidental charges for customs clearance and in a certain way also the fees for individual trip permits discussed earlier.

The ECMT Survey, apart from the question on permit prices, also included one on freight and document taxes. Apart from Italy ("no information available") all the questionnaires returned denied the existence of any such charges. A more detailed investigation would appear necessary, however, since "... some countries, notably Austria and Switzerland, have a positively inventive way of imposing charges. Worthy of mention here are 'excess weight fees', 'clerical fee for the processing of vehicle documents', 'overtime charges' and similar 'administrative charges', which add up to a considerable burden of costs, to some extent discriminating against foreigners (21)". A detailed survey of the burden of charges, however, would involve a great deal of work -- not least because of their multiplicity and special features (22).

4.4. Charges based on the use of infrastructure

In this section only those charges for the use of infrastructure will be dealt with which directly relate to the use of roads, bridges, tunnels and parking facilities, since indirect traffic infrastructure charges -- indeed the taxes and dues imposed on road users are for the most part justified as such -- have already been discussed in the preceding sections.

The ECMT Survey included a question on both parking charges (annual expenditure) and road tolls (average motorway kilometrage per reference vehicle and average toll rate per kilometre). The answers are presented in Table 6.

The responses on parking charges already reveal more problems for cost comparison calculations: while in Italy -- as in many other European countries -- parking charges are actually imposed (e.g. in customs yards) which are effective according to the territoriality principle; the property rates imposed in respect of private parking areas of truck firms, added for the United Kingdom, can hardly be treated as parking charges, although such taxes could in principle also form part of a charge-burden comparison. Of course they could only be assigned in this way according to the nationality principle, and the exact determination of the tax amounts to be entered in the comparison calculation would be highly problematic.

The application of the territoriality principle is particularly important in the case of charges for the use of facilities by moving traffic. It should not go unmentioned that some of the ECMT Member states not covered here (e.g. Greece, Yugoslavia, Spain, Austria) also impose such charges. A particular problem in the cost burden comparison arises from special regulations for domestic truck firms, such as exist in France and Austria: in France there is a percentage of reduction of the axle-load tax in relation to certain distances travelled on toll motorways (23) , "In Austria foreign... operators on all motorways apart from the Brenner section have to pay several times what Austrians pay, thanks to an 'annual season ticket' arrangement specially devised for them" (24).

5. BASIC DATA FOR THE RELATIVISATION OF THE BURDEN OF CHARGES

The ECMT Survey included questions -- no doubt with an eye to the need to collate information on the charge burden and to relativise the significance

Table 6

CHARGES FOR THE USE OF TRAFFIC INFRASTRUCTURE (IN ECU)

Country	Parking charges	Road tolls
Denmark	Amounts unknown	No information available(1)
Federal Republic of Germany	None	None
France	No information available	1.66/100 km(2)
Italy	600/year	7.75/100 km(3)
Netherlands	None	Only a few installations(4)
Norway	Amounts unknown	No information available(1)
Switzerland	No data	No data(5)
Sweden	Amounts unknown	No information available(1)
United Kingdom	(200/year)(6)	None(7)

1. According to indications from the institution responding to the Survey, there are "only a small number of toll roads" in Scandanivia.
2. Average value for a 38-tonne vehicle combination 1983.
3. Basic rate before VAT.
4. Limited in time to the amortisation period of the investment.
5. For private cars 16.24 ECU/year (motorway sticker), for trucks "heavy traffic levy" (see section 2.4).
6. Estimated amount per 38-tonne vehicle of the municipal rate levied on property.
7. The charges for some larger tunnels and bridges are estimated at about 42 ECU per year for the average of 38-tonne trucks operating in the United Kingdom.

Source: ECMT Survey, start of 1985.

of the charges to national budgeting in general and transport infrastructure investment in particular -- covering tax revenue, expenditure on road construction, annual vehicle kilometrages and the structure of the goods vehicle fleet. The answers to the question on tax revenue to the public authorities at central, regional and local level were in part conditioned by differing interpretations of the question put and in consequence were to a large extent not comparable with one another. For that reason no attempt will be made to analyse the results of the questionnaire on this point.

The respondents were asked to answer the question on road construction expenditure making a distinction between new or capacity extension investment on the one hand and maintenance and replacement investment on the other hand. The results are presented in Table 7.

Table 7

EXPENDITURE ON ROAD CONSTRUCTION -- NEW AND MAINTENANCE INVESTMENTS
[in million ECU (1)]

Country	Year	New construction/ extension	Maintenance/ replacement
Denmark	1983	240	380
Federal Republic of Germany	1983	5 970(2)	385(3)
France	1984	850	355
Italy	1982	425	
Netherlands	1983	2 410	2 700
Norway	1983	545	565
Switzerland	1983	535	935
United Kingdom	1984(4)	2 490	2 995

1. Converted at the average annual exchange rates applicable.
2. Gross infrastructure investment, including 2000 million ECU for Federal trunk roads.
3. Only maintenance and operation of Federal trunk roads.
4. Calculated as a three-year average, 1983-1985.

Source: ECMT Survey, start of 1985.

For a fuller interpretation of these data it would be necessary to check to what extent the delimitations underlying the figures coincide with one another. In particular a clear distinction between extension and replacement investment would be highly problematic. In addition it would be necessary to show conclusively whether the cost of traffic control and traffic signalling were contained in the figure for maintenance costs or not. This was not always clear from the answers to the ECMT questionnaire.

The question on "average kilometrage for a standard vehicle per year in all traffic sectors" did not make it clear whether this referred to the average distance travelled by vehicles domiciled in the country questioned on home territory or both at home and abroad or perhaps even the average distance travelled per year of all vehicles operating on the territory in question. This already points up the central problems in the selection of a correct/suitable reference value for the determination of average annual kilometrage.

This will be elucidated briefly by the example of the figures given for the Federal Republic of Germany (25). In response to the ECMT Survey, figures were given for 1983 which are identical with the kilometrages published in the pamphlet "Verkehr in Zahlen" (Traffic in figures) (26). Here it is explicitly stated that the figures presented refer to "kilometrages of German and foreign vehicles ... on the road network of the Federal Republic of Germany including Berlin (West)" (27). The reference value taken to determine average kilometrages, however, is the fleet of vehicles registered in Germany. Even if this contrivance is comprehensible as a consequence of the data situation, it cannot be accepted as a reference value for a cost burden comparison, which is to be used as proof of the need for the harmonisation of charges in Europe. The figures given in the responses to the ECMT Survey on annual kilometrages (for the Federal Republic of Germany, France, Italy, the Netherlands and Switzerland) will not be listed here therefore.

The final question in the ECMT Survey, on the number of lorries in service, broken down by tonnage size if possible, once again highlights the problem of securing suitable reference figures, since the data given are practically all based on different delimitations. The information given in international surveys from other sources (28) is also unsatisfactory in this respect. For this reason it has been decided not to present any of the figures supplied on this point.

When we review the results of the Survey with regard to the basic data for a comparison of the burden of costs due to charges on road haulage vehicle operation, it becomes particularly clear how much work is still needed to create the necessary preconditions for an objective discussion of the charges question.

6. SUMMARY AND CONCLUSIONS

At this point, against the background of the problems identified, all those who expected a comparative analysis of the cost burden on goods vehicle operation resulting from different charging systems will no doubt be disappointed: the to some extent ill-considered quoting of quantitative information on cost fractions (sum of charges per means of transport/unit of transport output) -- this applies to both the numerator (the charges) and the denominator (the reference values) of the calculation -- indicates that a great deal more care is needed in order to secure the credibility and acceptability of such calculations.

The information deficiency, referred to in the introduction, on the concrete configuration of the various charging systems is no longer surprising when one attempts to discover who actually could have a legitimate interest in comparable information which covers all components of the charging system. Certainly not the representatives of national interests of politics and industry since, by reason of their mandates, they are only interested in those factors in the distortion of competition, the removal of which promises to strengthen their own market or power position. Nor the international interest groups, since their concern is to balance out the interests of all their members. Not even the European Community, if only because it would not want to risk weakening the position of its Member states vis-à-vis non-Member

countries. In view of this it would appear that the supranational body best placed to force developments in this problem area is the Secretariat of the European Conference of Ministers of Transport . It is with this body that the best hope would seem to lie of promoting a neutral and unprejudiced investigation of the reasons for alleged market suboptimality in the tension area of factors which distort and inhibit competition and of consequent demands for harmonization and liberalisation.

Generally speaking it is to be noted that competition-inhibiting effects due to charging systems (and dependent possibilities for the improvement of profitability in road haulage) only arise when the charges differ in their level and/or are applied in different ways to different groups. A charging system which is "fairer" in terms of the originator principle is provided by those (variable) charges which are levied in direct relation to output, which take effect predominantly according to the territoriality principle and are thus imposed where the costs arise. The introduction of greater variability into charges would at the same time increase cost transparency for the operator and, by being related to output, would reduce undesirable risks.

On the other hand charges unrelated to results, which arise predominantly according to the nationality principle, form a fixed component of national taxation systems and of the concepts of taxation and distribution policy objectives reflected in those systems. European taxation systems have grown historically in their widely divergent national structures. The problems of bringing them into line are considerable even in the European Community, which professes to be a common (internal) market but has not in any very consistent way created the tax preconditions which would enable it to function as such. The problems become that much more acute when one attempts to look beyond the confines of the European Community. Up to now at all events there have been no indications in the context of a common transport policy that national taxation policy objectives might be subordinated to transport policy objectives, disregarding for the moment bilateral vehicle tax exemption agreements, which in countries with relatively high rates of vehicle tax mean a potential loss of tax revenue. Of course tax exemption agreements by their nature consolidate tax differences according to the nationality principle and the associated consequences for the competitive position of road haulage vehicle operators.

For the further consideration of the subject of charging systems and their effects on competition in road haulage, it remains to note that the indicative value and acceptability of comparative calculations increase the more complete and precise is the information on which they are based. A comparative calculation must in particular take account of the different effect principles of the various types of charges: fixed charges are predominantly effective according to the nationality principle and are therefore of relevance to those road haulage firms which are domiciled in the country in which the charges are collected. Variable charges are predominantly effective according to the territoriality principle; the suitable reference value for the determination of the cost burden here is therefore kilometrage covered by vehicles on the territory in question. The comparative calculations of charge costs undertaken hitherto have without exception failed to take account of this fundamental principle. There is nothing to indicate that the errors arising cancel each other out or that violations of the basic principle of reference value selection only lead to

negligible errors. The transport output balances presented at the 71st Round Table of the ECMT suggest rather the opposite effect.

The conclusion to be drawn from this is that the information basis for the study and comparison of charging system for road haulage vehicles needs to be improved considerably. The present report should constitute a small contribution to the clarification of this problem area, but much remains to be done....

* * *

NOTE OF THANKS

My special thanks are due to all those who have endeavoured to help me to battle my way across the desert of deficient information and through the jungle of national regulations and special features.

NOTES

1. According to information from the Lörrach District Office, Motor Vehicle Licencing Department, 12.7.85.

2. According to information from the Motor Vehicle Testing Establishment, Basel, 12.7.85.

3. Comité de Liaison de la Construction Automobile (CLCA) : La fiscalité spécifique automobile dans les pays de la CEE (Taxation specific to motor vehicles in the EEC countries), 1984 Edition, Brussels, no year of publ. (1984).

4. Motor Vehicle Taxation Act (Kraftfahrzeugsteuergesetz -- JraftStG) in the version of 1st February 1979, Bundesgesetzblatt (BGBI) I, p.132.

5. Cf. Schweizerischer Nutzfahrzeugverband (Swiss Commercial Vehicle Operators' Association - ASTAG) (ed): Annual Report 1984, op. cit., p.135.

6. WASNA, Klaus: Unterschiedliche Wettbewerbsbedingungen und deren Auswirkungen im grenzüberschreitenden Güterkraftverkehr der Bundesrepublik Deutschland mit anderen Staaten der Europäischen Gemeinschaft (Different conditions of competition and their effects on the cross-frontier road haulage traffic of the Federal Republic of Germany with other Member States of the European Community), unpublished manuscript, Cologne 1984, p.8. All the data refer to 1983. The conversions of the DM figures to ECU are based on the average annual ECU excchange rates for 1983.

7. According to information from the Technischer überwachungsverein (Technical Inspection Establishment) of Baden, Lörrach station, 18.7.85.

8. According to information from the Basel Motor Vehicle Inspection Establishment, Münchenstein Testing Station, 18.7.85. These rates are the highest in Switzerland; in other cantons they start at about 20 ECU per year.

9. Cf. Comité de Liaison de la Construction Automobile: La fiscalité spécifique automobile..., op. cit., p.24.

10. The market access regulations for national (inland) road haulage traffic in the individual countries will not be examined in detail here, since these regulations vary considerably; cf. on this point the informative tabular presentation in Willeke, Rainer with the collaboration of Schild, Gregor and Werner, Michael: Zur liberalisierung der Marktordnung des Strasengüterverkehrs (Towards a liberalisation of market regulatory systems in road haulage), Kaarst

1984, pp. 150-154. For international (cross-frontier) road haulage, bilaterally agreed permit quotas usually apply. In addition there are multilateral quotas provided under European Community arrangements (European Communities permits) and within the area of competence of the European Conference of Ministers of Transport (ECMT permits).

11. According to information from a member of the board of Transport Union (Muttenz) of 16.7.85.

12. Cf. in this connection a communication of the Deutscher Industrie- und Handelstag (DIHT - German Industrial and Trade Association) to members of the Transport Committee of the German Bundestag on the phasing-out of border controls (21.6.84, p.5). It should be noted here of course that, according to the provisions of §10 (3) and (4) of the Road Haulage Act (Güterkraftverkehrsgesetz -- GüKG, in the version of 10.3.83, BGBl. I, p.256), transfer of permits is only permissible in exceptional cases.

13. According to information from the Swiss Commercial Vehicle Operators' Association (ASTAG) of 17.7.85.

14. Cf. here International Road Union (IRU): Handbook of International Road Transport, 8th edition, Geneva 1982, p,244 ff.

15. Cf. (no author): "Bumerang-Effekt" (Boomerang effect), in: Der Güterverkehr, 34 (1975), no.5, p.14.

16. No author (BDF): Kraftfahrzeugsteuer für Lastkraftwagen in europäischen Ländern, Stand: 1.4.1985 (Motor vehicle tax on HGVs in European countries, status: 1.4.85), unpublished manuscript, no place of publ. (Frankfurt), no year (1985), p.3.

17. Cf. Bundesministerium der Finanzen: Die wichtigsten Steuern ..., op. cit., p.14.

18. Cf. Schweizerischer Nutzfahrzeugverband (ASTAG) (ed): Annual Report 1984, op. cit., p.128 ff.

19. Bundesverband des Deutschen Güterfernverkehrs (BDF) e.V.: Marktordnung im Güterverkehr, Voraussetzung für optimalen Wettbewerb (Market regulatory systems in road haulage, conditions for optimum competition), Frankfurt 1985, Annex 5.

20. This approach was adopted in all the comparison calculations of which the author of this report has had sight.

21. Bundesverband des Deutschen Güterfernverkehrs (BDF) e.V.: Marktordnung im Güterfernverkehr, op. cit., Annex 5.

22. Cf. in this connection the graphic description of a single transport operation by Fischer Karl: Krieg der Formulare (The war of forms), in Wirtschaftswoche (39), 1985, no.22 of 24.5.85, p.72.

23. Cf. Comité de Liaison de la Construction Automobile (CLCA) (ed): La fiscalité ..., op. cit., p.67.

24. Bundesverband des Deutschen Güterfernverkehrs (BDF) e.V.: Marktordnung im Güterfernverkehr, op. cit., Annex 5. Cf. also Seeger, Volker: Die NfzBesteuerung nach dem Nationalitäts-prinzip ist gefärdet (Commercial vehicle taxation according to the nationality principle is at risk), in: Der Güterverkehr, 34 (1985), no.4. pp.12-14.

25. The reason for the choice of this example is neither that the traffic statistics of the Federal Republic of Germany are thought to be particularly bad -- indeed the author considers them to be arguably the best traffic statistics of all -- nor that the figures from the other countries appear to be more reliable; on the contrary, this choice was guided solely by the possibility of tracing the figures back to their origin by way of other information sources.

26. See Der Bundesminister für Verkehr (Federal Transport Minister) (ed): Verkehr in Zahlen, 13 (1984), Bonn 1984, p.131.

27. Ibid., Note 1).

28. For example: Kraftfahrt-Bundesamt (ed): Bestand an Kraftfahrzeugen und Kraftfahrzeuganhängern am 1. Juli 1983 (Goods vehicle and trailer fleet at 1st July 1983), Bonn, no year of publ. (1984), p. VIII; Verband der Automobilindustrie e.V.: Tatsachen und Zahlen aus der Kraftverkehrswirtschaft (Facts and figures from the road transport industry), 48th Series 1984, Frankfurt am Main 1984, p.452.

INTERNATIONAL ROAD TRANSPORT OUTPUT BALANCES FOR TRUCKS REGISTERED IN ONE COUNTRY AND OPERATING ON THE ROADS OF OTHER COUNTRIES

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SUMMARY

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1. INTRODUCTION, AIMS AND BASIC CONCEPTS

In the present European transport policy debate over international road haulage and what should be its "fair" financial contribution to the country whose infrastructure it uses and the "fair" transnational investment contribution to improve transport infrastructures in foreign countries, things quickly arrive at an impasse because the concept of "fair" can scarcely be defined in a universally binding way, let alone -- if a definition could be agreed upon -- be backed up in quantitative terms. Each country tends to choose the definition most favourable to itself and supports this with figures generally based on data produced by its own national statistical office, but which -- insofar as they concern events outside the national frontiers -- are often subject to considerable uncertainty (among other things because of lack of comparability in the definitions) and leave a good deal of scope for interpretation. In order to try to remedy this state of affairs and provide a generally acceptable basis for reasoned argument, this paper puts forward a set of international road haulage output balances. This means that for selected European countries the transport output over a given period of time of trucks registered in each of those countries on the roads of the other countries was determined.

The transport output is taken as the product of the quantity of goods carried in tonnes and the distance covered in kilometres and is thus measured in tonne-kilometres (tkm). This is the unit that is statistically most reliable and the data can be uniformally obtained or determined for all the countries studied. Another possible measure often proposed is the product of the number of truck trips and the distance covered (operating performance: truck-kilometres) is not feasible because of a lack of data (apart from very few exceptions) and also raises the difficulty of finding an internationally acceptable definition of what constitutes a truck. All the calculations in what follows are based without exception on transport output in terms of the weight of the goods carried and the distance covered, i.e. tonne-kilometres.

In order to produce these transport output balances it was first necessary to establish a number of clear definitions and distinctions. The most important and basic factor is the classification of countries. A careful distinction has to be made between four concepts here:

- -- Consignor country, loading country, country of origin: the country in which a truck is loaded with the goods to be transported;
- -- Consignee country, unloading country, country of destination: the country in which a truck is unloaded;
- -- Country of registration, home country: country in which the truck is registered;
- -- Driving country, transport country: the country on whose sovereign territory the road transport operation or part thereof is carried out.

In connection with this, two types of traffic must be distinguished in international trade:

-- Exchange transport: transport in which either the country of origin or the country of destination is identical with the country of registration;

-- Third country transport: transport in which neither the country of origin nor the country of destination is the country of registration.

In the case of third country transport a distinction has to be made from the legal standpoint -- and hence also from the standpoint of obtainability of data -- between three categories:

-- Transport in which the country of registration is identical with one of the transit countries (i.e. a transport operation in which the country of registration is included: "own transit");

-- Transport resulting from multilateral community authorisations (EC authorisations, community quotas);

-- Transport resulting from multilateral ECMT authorisations.

The last two groups may be (but are not necessarily) sub-groups of the first. Within these two groups "exterritorial domestic transport" is also possible (for example, a Belgian truck can carry out a transport operation within France) (1).

Lastly, with respect to the transport country, a distinction has to be made between three main types of traffic:

-- Origin traffic (trip starts in the country concerned);

-- Destination traffic (trip ends in the country concerned);

-- Through traffic (transit).

(Here domestic traffic -- apart from the above-mentioned "exterritorial domestic transport" -- is not considered.)

2. DETERMINING THE SURVEY AREA AND PERIOD

The following considerations determined the choice of the countries to be included in the survey area:

-- All major European international flows of goods carried by road should be included;

-- The survey area should form a topological whole (it should contain no "holes");

-- The required basic data should be available or obtainable within a short period.

These requirements are in some cases in conflict (for example, Italy is an important country for European goods transport, but the data situation leaves much to be desired. Austria is an important transit country but road transport is broken down according to country of truck registration in the statistics only in the case of carriage for hire or reward and even then only at a high level of aggregation) (2).

After considering all the above factors, the following 11 countries were chosen as countries of registration and as transport countries:

-- Germany	(D)	(1)
-- France	(F)	(2)
-- Italy	(I)	(3)
-- Netherlands	(NL)	(4)
-- Belgium	(B)	(5)
-- Luxembourg	(L)	(6)
-- United Kingdom	(GB)	(7)
-- Ireland	(IRL)	(8)
-- Denmark	(DK)	(9)
-- Austria	(A)	(10)
-- Switzerland	(CH)	(11)

This order will be retained because for the EC countries it is the order adopted in the relevant statistics produced by Eurostat (the Statistical Office of the European Communities -- see Section 3). Austria and Switzerland then follow in alphabetical order.

For each of these 11 countries the transport output balance with each of the other 10 was calculated.

In addition to this survey area proper, it is necessary to include a broader catchment area of consignor and consignee countries, since the origin and/or destination of road transport operations carried out on the sovereign territory of the 11 named countries may lie outside the area they cover. Seven neighbouring areas were therefore added:

-- Balkans (Yugoslavia, Greece, Bulgaria, Turkey) (3)	(BALK)	(12)
-- Hungary and Romania	(H+R)	(13)
-- Czechoslovakia	(CS)	(14)
-- German Democratic Republic South (4)	(DDRS)	(15)
-- German Democratic Republic North (4)	(DDRN)	(16)
-- Scandinavia (Sweden, Norway, Finland)	(SKAN)	(17)
-- Iberia (Spain and Portugal)	(IBER)	(18)

The following two factors determined the choice of the survey period:

-- it should be as recent as possible;

-- the data available should be as complete as possible.

These two criteria pointed to adopting the year 1982.

3. BASIC DATA

The fundamental requirement for carrying out the analysis is a knowledge of international flows of goods carried by road broken down and cross-tabulated according to three criteria:

-- Consignor country;

-- Consignee country; and

-- Country of registration of the truck.

The required input is thus a three dimensional matrix of international road transport output by trucks registered in the eleven countries with the origin and destination of the trip in one of 18 countries or areas: A (11, 18, 18).

No such matrix exists in any of the statistics, so it has to be built up as far as possible from various sources, filled in in a plausible fashion where required, checked for inconsistencies and where necessary modified. (The production of this three dimensional matrix took up a substantial proportion of the total processing time.)

The following sources were used:

1) Statistical Office of the European Communities (Eurostat): Road Haulage 1982, Tables 1.3 and 1.4, Luxembourg 1985.

   This source is the basis for all EC exchange traffic, but does not contain any information about Italy as the data was not available when it was compiled.

2) Kraftfahrt-Bundesamt und Bundesanstalt für den Güterfernverkehr: Statistische Mitteilungen, 29 (1983), No. 5, Tables G-j (9B, 10, 16, 17 and 18), Bonn 1983.

   This source contains all the data items required for the matrix for transport flows crossing the frontiers of the Federal Republic of Germany. This source is of considerable help in breaking down the transport flows of neighbouring countries according to the country of truck registration and also makes it possible to construct some of the data for Italian trucks.

3) Oesterreichisches Statistisches Zentralamt: Internationale Transportstatistik 1982, Tables 12/A and 12/E, Transit Strasse 1982, and Schnellbericht Verkehrsstatistik (Güterverkehr) 1982, Vienna 1983.

   This source contains data on international road transport operations in which Austria is the origin, destination or transit country, giving a breakdown according to consignor or consignee country but not according to country of registration. (The Schnellbericht also gives complete data about road haulage for hire or reward using Austrian trucks.)

4) Bundesamt für Statistik: Schweizerische Verkehrsstatistik 1982, Tables 61 and 110, Statistische Quellenwerke der Schweiz, Heft 750, Berne 1983.

This source contains data on road transport output where Switzerland is involved as consignor, consignee or transit country, including a breakdown according to country of registration (global figures only, not cross-tabulated).

5) Ministère des Transports, Département de Statistiques des Transports: Système d'Information sur les Transports Marchandises, Résultats Généraux Trafic Intérieur et International 1982, Tables III and IV, Paris, 1983.

This source contains data on international road transport having its origin or destination in France, broken down according to frontier crossing point and the total volume of transit traffic, but no breakdown according to country of registration of trucks (it was nevertheless possible to carry out plausibility checks for neighbouring Italy).

6) European Communities: Europa Transport, Annual Report 1983, Table 2.3, Brussels 1984.

In the tables given for all exchange transport within the European Communities, this source gives a breakdown in percentage terms (interestingly without giving the absolute figures) for each origin-destination link to show the ratio of the amount of goods carried by trucks registered in the country of origin to that carried by trucks registered in the country of destination. This makes it possible to produce figures for exchange traffic using Italian trucks. However, checking with the figures for exchange traffic with the Federal Republic of Germany in both directions (using Source 2) showed a very substantial discrepancy:

D from I using trucks from I (Source 2): 1 693 000 tonnes

I to D using trucks from I (Source 6): 3 400 000 tonnes

(the value from Source 2 was used).

7) Bundesanstalt für den Güterfernverkehr: Gemeinschaftskontingent 1982: Beförderte Mengen nach Verkehrsrelation und nach Land der Genehmigung, Köln, unpublished (5).

This compilation contains all the information required concerning traffics resulting from the Community quota. It was possible to obtain the third country traffics under the Community quota (see Section 1) from this source.

8) Department of Transport: road goods vehicles on roll-on roll-off ferries to mainland Europe, Table 2, London 1984.

This source contains data on truck traffic crossing by ferry from the United Kingdom to the continent, broken down according to country (France, Belgium, Netherlands, Germany and Denmark).

However, this data is available for the number of trucks and not for the quantity of goods carried.

4. METHODOLOGY

The methodology used to prepare these transport balances can be broken into two major sections:

-- Producing the above-described three dimensional transport matrix;

-- Determining the average transport distance for each individual origin-destination link and hence the distances covered in the individual countries involved in the transport operation, taking into account possible alternative routes and the associated route-split.

The subsequent amalgamation of these two sections involved a great deal of calculation, for which a special FORTRAN program was written.

Constructing the three-dimensional transport matrix necessitates extremely painstaking and time-consuming detailed research, with the results being checked wherever possible using the scanty redundant information available. The three dimensional matrix can be split into 11 two-dimensional matrices that form the actual data input of transport volume values. For reasons of space it is not possible to reproduce all the matrices here, but in order to give an idea of the orders of magnitude of European flows of goods transport by road and of the differences between different links the matrix of totals is reproduced in Table 1.

This matrix of totals thus gives the values for the volume of traffic between 18 origins and 18 destinations for goods carried by trucks registered in each of the 11 countries in the survey area (6). A threshold of 1 000 tonnes was taken as significant, i.e. transport volumes are correct (rounded) to the nearest 1 000 tonnes. Values under 500 tonnes are ignored. The main diagonals (only partly occupied and then with very low figures) represent "exterritorial domestic transport".

It should be noted that this matrix does not contain all international goods transport by road, but only that part carried by trucks registered in the 11 survey countries. It should also be noted that even with this limitation, part of the third country traffic is missing, i.e. that part that neither crosses the frontiers of the Federal Republic of Germany nor is carried out in the framework of Community authorisations. (Another category missing is also, for example, transit from Yugoslavia to France through Italy using Italian trucks, though that using French trucks is included since this constitutes exchange traffic.) No information is available on these residual quantities, but they must be extremely small when it is considered that virtually all of the "own transit" (see Section 1) traffic within the survey area has to cross the frontier of the Federal Republic of Germany because of its geographical position.

Taking the sums of the rows and columns in Table 1 (7) for the first 11 rows and columns gives an approximation for each country of the amount of goods imported and exported by road, which in the case of the Federal Republic of Germany, France, Austria and Switzerland can be compared with the corresponding data in the national statistics. (In all cases these latter values were slightly higher than those derived from the table, which appears entirely logical as the matrix contains only goods carried by trucks registered in one of the eleven countries.) The figures thus determined for road exports and imports appear as "shipped" and "received" in Table 2.

In order to determine average transport distances, two simplifications had to be made:

-- The route for a given origin-destination link is symmetrical, i.e. on average the outward and homeward journeys are the same length and if there are alternative routes the split is identical for outward and homeward journeys;

-- The route for a given origin-destination link is basically independent of the country of registration of the truck. There is just one exception, though an important one, which was shown to be essential through the check calculations. This concerns transit through the Alps for Austrian and Swiss trucks, which go exclusively through their own countries, since only in this way can they operate "own-transit" in the defined sense.

To determine average transport distances and their breakdown between countries the procedure for each origin-destination link was as follows:

-- First the total distance for each origin-destination link was determined. In the case of links between the nine EEC countries considered these values could be constructed on the basis of Source 1, although these values had to be roughly checked against a road map of Europe (scale 1:4 000 000) as many of the distances were clearly wrong (8). For the links to and from Austria and Switzerland and to the frontiers of the neighbouring outside areas values were estimated from the above-mentioned road map (9).

-- Using these overall distances it was possible to determine road transport centres in the eleven countries and transfer these to the map. Joining these centres shows the journey of an average truck between two areas (10). This procedure had to be adopted because the individual centres for specific links were not known.

-- After establishing these traffic centres, the distance covered in individual countries over the routes between them was determined (11). As far as possible the procedure followed the long distance driver's principle of crossing as few frontiers as possible, provided the detours involved are within reasonable limits.

-- Important alternative routes (12) formed two main groups:

* Transalpine north-south/south-north traffic, and

* Ferry traffic in both directions between the United Kingdom and Ireland and mainland Europe.

Table 1

TRANSPORT OUTPUT MATRIX FOR TRUCKS REGISTERED IN ALL 11 COUNTRIES -- 1982 ('000 tonnes)

FROM \ TO	D	F	I	NL	B	L	GB	IRL	DK	A	CH	BALK	H+R	CS	DDRS	DDRN	SKAN	IBER
D	3	8 864	5 448	15 947	7 942	913	1 025	41	1 913	4 592	3 893	286	53	24	89	89	629	448
F	11 624	1	4 391	2 202	9 057	343	1 359	48	316	229	3 010	85	6	2	49	0	87	909
I	5 489	4 483	1	989	1 144	38	1 110	83	151	1 226	2 448	141	0	0	9	0	45	0
NL	14 438	3 580	1 212	0	9 335	164	509	24	466	355	340	156	19	8	0	86	295	78
B	7 717	13 230	1 203	11 256	1	911	381	11	248	220	200	94	19	7	0	27	64	172
L	1 390	748	25	77	815	0	8	0	12	22	18	2	0	0	2	0	3	0
GB	620	883	494	304	227	10	0	622	115	70	92	64	6	2	0	20	10	55
IRL	35	70	23	13	15	0	417	0	2	2	5	0	0	0	0	3	0	0
DK	2 767	330	266	339	120	2	460	8	0	33	64	156	3	1	0	27	1 143	39
A	3 469	222	1 997	264	181	13	111	2	41	0	847	200	35	40	20	0	25	30
CH	1 290	308	304	132	57	15	60	3	48	274	0	12	2	3	3	0	45	26
BALK	252	43	48	71	33	0	17	2	15	213	18	0	0	0	0	0	0	0
H+R	183	17	0	52	20	0	3	0	11	150	5	0	0	0	0	0	0	0
CS	646	7	3	28	10	0	1	0	7	600	6	0	0	0	0	0	0	0
DDRS	306	65	15	0	0	1	0	0	0	10	58	0	0	0	0	0	0	0
DDRN	306	0	0	149	54	0	4	3	37	0	0	0	0	0	0	0	0	0
SKAN	574	83	42	236	44	0	7	0	1 229	20	63	0	0	0	0	0	0	0
IBER	521	610	0	69	169	0	59	0	34	23	86	0	0	0	0	0	0	0

Table 2

INTERNATIONAL TRANSPORT OUTPUT FOR TRUCKS REGISTERED
IN ALL COUNTRIES --1982 ('000 tonnes)

Country	Shipped	Received	Transit	Total
D	52 196	51 627	11 038	114 861
F	3 617	33 542	4 814	71 973
I	17 356	15 471	171	32 998
NL	31 065	32 128	1 361	64 554
B	35 760	29 131	9 242	74 133
L	3 122	2 410	193	5 725
GB	3 593	5 529	393	9 515
IRL	585	847	0	1 432
DK	5 758	4 639	2 272	12 669
A	7 497	8 039	16 549	32 085
CH	2 582	11 153	640	14 375

In the first case the alternative routes run through Austria or Switzerland and then through the Federal Republic of Germany or direct through France. In the second case they run through France, Belgium, Holland or (to a far lesser extent) direct to the Federal Republic of Germany or Denmark. In both cases it was possible to determine the amount of goods using individual routes:

* In the first case using data on the total volume of road transit traffic in Austria (Source 3, 1982: 17.322 million tonnes), Switzerland (Source 4, 1982: 0.654 million tonnes) (13) and in France (Source 5, 1982: 6.328 million tonnes) (14).

* In the second case using data on ferry traffic between the United Kingdom and Ireland and the continent, broken down by country (Source 8: to F 34 per cent, to B 35 per cent, to NL 25 per cent, to D + DK 6 per cent, these percentages relating to the number of trucks carried).

The volume of goods determined after verifying the choice of routes amounted to:

* In the first case (see Table 2) for transit through Austria 16.549 million tonnes, through Switzerland 0.640 million tonnes, through the Federal Republic of Germany 11.038 million tonnes and through France 4.841 million tonnes;

* In the second case, for shipments from the United Kingdom and Ireland to F 36 per cent, to B 34 per cent, to NL 24 per cent and to D + DK 6 per cent (these percentages referring to the quantity of goods).

As with the single obvious routes, the distances covered in individual countries was also determined for each alternative route.

In order to achieve the aim of the exercise, i.e. <u>to determine the road transport balances</u> it is now necessary to create a matrix in which one co-ordinate is the country of registration and the other the transport country. The data items in this matrix are the product of transport volumes in tonnes (indexed by the country of registration) and the distance in kilometres covered in the country driven (indexed by the transport country), with each matrix element being shown as an integer over all origin-destination links.

In mathematical terms, each element L(h,f) represents:

$$L(h,f) = \sum_{q=1}^{18} \sum_{z=1}^{18} A(h,q,z) \cdot s(f,q,z)$$

$$(h=1, \ldots, 11;\ f=1, \ldots, 11)$$

Where:

$L(h,f)$ Is the transport output of trucks registered in country h on the roads of country f (tkm).

$A(h,q,z)$ Is transport volume from country of origin q to destination country z using trucks registered in country h (t).

$s(f,q,z)$ Is the distance covered on roads of country f on the way from country of origin q to destination country z (km) [According to the agreed symmetry of outward and homeward journeys: $s(f,q,z) = s(f,z,q)$.]

The results are presented in Section 5.

For control and checking purposes the analogous <u>transport volume balances</u> (15), which can be expressed mathematically as matrices with the following elements T(h, f), were useful:

$$T(h,f) = \sum_{q=1}^{18} \sum_{z=1}^{18} A(h,q,z) \cdot k(f,q,z) \quad (h=1, \ldots, 11;\ f=1, \ldots, 11)$$

$$\text{with } k(f,q,z) = \begin{cases} 1, \text{ where f is a transport country on the way from country q to country z} \\ 0, \text{ where f is not a transport country on the way from country q to country z} \end{cases}$$

and where:

$T(h,f)$ Is the transport volume using trucks registered in country h on the roads of country f [t].

The sums of all these matrix elements are obviously not equal to those of the elements of the origin-destination transport volume matrix in Table 1, but is necessarily much greater since in international traffic each value is counted at least twice, i.e. for each transport country (16). These transport volume balances are shown in Table 3 for exchange transport only and in Table 4 for exchange traffic inluding the available figures for third country traffic, for information. This comparison of the two makes it clear that third country traffic makes up only a very small proportion of the total (approximately 5 per cent of the total transport volume and approximately 6.5 per cent of the total transport output). On the other hand, precisely the figures for this third country traffic are difficult to obtain and the process takes up a great deal of time.

Table 3

INTERNATIONAL TRANSPORT VOLUME BALANCES (EXCHANGE TRAFFIC ONLY) -- 1982 ('000 tonnes)

Country of registration	Transport country											Total
	D	F	I	NL	B	L	GB	IRL	DK	A	CH	
D	43 117	12 599	5 201	8 724	6 899	1 372	298	16	1 946	7 645	2 449	90 266
F	8 349	27 667	4 751	1 650	9 787	758	1 155	7	221	158	1 398	55 901
I	5 681	5 056	14 563	862	1 893	22	1 032	49	93	7 332	2 033	38 616
NL	24 332	4 702	1 185	44 103	19 447	140	324	2	978	1 282	427	96 922
B	8 038	15 173	1 247	6 040	29 980	822	43	0	118	475	128	62 064
L	924	359	30	101	1 071	2 354	0	0	0	10	14	4 863
GB	1 374	1 330	553	927	1 448	18	3 951	152	29	552	143	10 477
IRL	101	122	57	67	90	0	1 171	1 171	0	47	5	2 832
DK	5 032	524	330	450	203	13	570	10	7 917	543	61	15 653
A	7 078	330	1 528	425	411	30	116	2	46	10 515	671	21 153
CH	3 025	2 185	918	85	207	114	24	4	145	473	6 599	13 777
Total	107 050	70 047	30 362	63 434	71 437	5 643	8 684	1 413	11 493	29 033	13 928	412 525

Table 4

INTERNATIONAL TRANSPORT VOLUME BALANCES (EXCHANGE AND THIRD COUNTRY TRAFFIC) -- 1982 ('000 tonnes)

Country of registration	Transport country											Total
	D	F	I	NL	B	L	GB	IRL	DK	A	CH	
D	43 931	13 000	5 347	9 007	7 305	1 414	330	17	2 317	8 025	2 586	93 278
F	8 702	27 968	4 847	1 684	9 873	763	1 183	7	223	228	1 448	56 925
I	5 686	5 059	14 566	862	1 894	22	1 032	49	93	7 337	2 039	38 638
NL	27 366	5 144	1 316	44 465	21 265	150	918	16	1 610	1 382	429	104 061
B	8 753	15 705	1 418	6 338	30 086	842	158	2	128	566	133	64 129
L	1 024	442	62	114	1 149	2 354	4	0	0	23	14	5 187
GB	1 398	1 356	581	934	1 463	18	3 953	154	30	560	144	10 591
IRL	110	129	67	71	97	0	1 184	1 171	0	53	5	2 887
DK	5 234	560	374	490	235	14	578	10	8 040	585	81	16 201
A	9 420	356	3 321	489	539	33	143	2	74	12 811	724	27 914
CH	3 241	2 247	1 097	99	229	115	32	4	154	511	6 770	14 499
Total	114 864	71 967	32 996	64 554	74 134	5 725	9 515	1 432	12 669	32 080	14 375	434 310

5. FINDINGS

Table 5 shows the basic international transport output balances for 1982, as defined in Section 1. It shows the transport output of trucks registered in each of the eleven countries on the roads of each of the other ten and also on the roads of the home country where this forms part of an international transport operation (main diagonal).

These balances are shown in a clearer and more comparable form in Table 6. The first two columns are taken from Table 5, while the third column shows the bilateral balance, i.e. the difference between the larger and smaller transport outputs, first in absolute values (tkm) and then as a percentage of the smaller of the two outputs. (In the case of very small reference values and large differences, the high percentage values are not very meaningful. Where the reference value is less than 0.5 million tkm the percentage figure is not given.)

A further concentration of the figures in Table 5 is to be found in Table 7, which gives for the eleven countries of the survey area not bilateral, but global transport output balances, i.e. for each of the eleven countries the transport output of its own trucks in the ten other countries is given ("total" column of Table 5 minus the main diagonal), the transport output of trucks registered in the ten other countries on the territory of the country concerned ("total" row of Table 5 minus the main diagonal) and again the difference between the two as an absolute balance. In this case, unlike Table 6, the second value is in each case subtracted from the first, so that a positive balance means that a country's total transport output in other countries is greater than that of other countries on its own territory and a negative balance the opposite. Lastly, the right hand column gives a ranking of the eleven countries according to transport output surplus.

We have deliberately restrained from an interpretation or evaluation in order to avoid getting involved in the highly sensitive field of European transport policy interests. We merely point out a few facts that can be directly seen from the figures in Table 7. In general, as would be expected, the basic tendency is for the small countries to turn out "winners" (17) while the bigger countries are "losers". The biggest winner is the Netherlands and the biggest losers are France and the Federal Republic of Germany. It is rather surprising to see Austria as the second biggest winner, closely followed by Belgium and Denmark. The only country with a fairly neutral balance is the United Kingdom.

Table 5

INTERNATIONAL TRANSPORT VOLUME BALANCES (EXCHANGE AND THIRD COUNTRY TRAFFIC) -- 1982 (million tkm)

Country of registration	Transport country											Total
	D	F	I	NL	B	L	GB	IRL	DK	A	CH	
D	9 605	4 854	2 981	931	900	56	129	2	370	1 135	202	21 163
F	1 280	9 376	2 281	186	849	15	495	0	38	51	123	14 694
I	2 273	2 376	7 213	93	402	0	327	2	14	880	327	13 908
NL	6 461	1 845	691	4 474	2 072	10	358	2	288	222	50	16 473
B	2 131	3 839	740	587	2 702	33	58	0	21	84	17	10 211
L	301	156	33	11	184	90	2	0	0	3	1	780
GB	517	524	247	132	288	1	1 434	8	7	83	14	3 255
IRL	43	40	26	12	21	0	304	68	0	6	1	522
DK	2 417	251	204	91	31	0	155	1	1 164	107	10	4 431
A	3 571	152	1 696	71	97	1	42	0	13	2 301	107	8 051
CH	948	946	520	9	31	3	12	0	28	198	655	3 352
Total	29 548	24 357	16 632	6 596	7 579	210	3 316	84	1 943	5 070	1 505	96 839

Table 6

INTERNATIONAL TRANSPORT VOLUME BALANCES (EXCHANGE AND THIRD COUNTRY TRAFFIC) -- 1982 (million tkm)

Transport output			Transport output			Transport output surplus			
Of trucks from	On roads in	Mtkm	Of trucks from	On roads in	Mtkm	Of trucks from	On roads in	Mtkm	As %
D	F	4 854	F	D	1 280	D	F	3 574	(+ 279 %)
D	I	2 981	I	D	2 273	D	I	707	(+ 31 %)
D	NL	931	NL	D	6 461	NL	D	5 530	(+ 594 %)
D	B	900	B	D	2 131	B	D	1 231	(+ 137 %)
D	L	56	L	D	301	L	D	245	(+ 436 %)
D	GB	129	GB	D	517	GB	D	388	(+ 302 %)
D	IRL	2	IRL	D	43	IRL	D	41	(+ 2 433 %)
D	DK	370	DK	D	2 417	DK	D	2 048	(+ 554 %)
D	A	1 135	A	D	3 571	A	D	2 437	(+ 215 %)
D	CH	202	CH	D	948	CH	D	746	(+ 370 %)
F	I	2 281	I	F	2 376	I	F	95	(+ 4 %)
F	NL	186	NL	F	1 845	NL	F	1 660	(+ 894 %)
F	B	849	B	F	3 839	B	F	2 990	(+ 352 %)
F	L	15	L	F	156	L	F	140	(+ 913 %)
F	GB	495	GB	F	524	GB	F	29	(+ 6 %)
F	IRL	0	IRL	F	40	IRL	F	39	
F	DK	38	DK	F	251	DK	F	213	(+ 560 %)
F	A	51	A	F	152	A	F	100	(+ 195 %)
F	CH	123	CH	F	946	CH	F	824	(+ 670 %)
I	NL	93	NL	I	691	NL	I	598	(+ 646 %)
I	B	402	B	I	740	B	I	338	(+ 84 %)
I	L	0	L	I	33	L	I	32	
I	GB	327	GB	I	247	I	GB	80	(+ 32 %)
I	IRL	2	IRL	I	26	IRL	I	24	(+ 962 %)
I	DK	14	DK	I	204	DK	I	190	(+ 1 356 %)
I	A	880	A	I	1 696	A	I	816	(+ 93 %)
I	CH	327	CH	I	520	CH	I	193	(+ 59 %)
NL	B	2 072	B	NL	587	NL	B	1 486	(+ 253 %)
NL	L	10	L	NL	11	L	NL	1	(+ 5 %)
NL	GB	358	GB	NL	132	NL	GB	226	(+ 171 %)
NL	IRL	2	IRL	NL	12	IRL	NL	11	(+ 623 %)
NL	DK	288	DK	NL	91	NL	DK	197	(+ 217 %)
NL	A	222	A	NL	71	NL	A	151	(+ 214 %)
NL	CH	50	CH	NL	9	NL	CH	40	(+ 440 %)
B	L	33	L	B	184	L	B	151	(+ 462 %)
B	GB	58	GB	B	288	GB	B	230	(+ 395 %)
B	IRL	0	IRL	B	21	IRL	B	21	
B	DK	21	DK	B	31	DK	B	11	(+ 52 %)
B	A	84	A	B	97	A	B	13	(+ 16 %)
B	CH	17	CH	B	31	CH	B	15	(+ 87 %)
L	GB	2	GB	L	1	L	GB	1	(+ 193 %)
L	IRL	0	IRL	L	0	IRL	L	0	
L	DK	0	DK	L	0	DK	L	0	
L	A	3	A	L	1	L	A	2	(+ 193 %)
L	CH	1	CH	L	3	CH	L	2	(+ 161 %)
GB	IRL	8	IRL	GB	304	IRL	GB	296	(+ 3 821 %)
GB	DK	7	DK	GB	155	DK	GB	147	(+ 1 991 %)
GB	A	83	A	GB	42	GB	A	41	(+ 97 %)
GB	CH	14	CH	GB	12	GB	CH	2	(+ 16 %)
IRL	DK	0	DK	IRL	1	DK	IRL	1	
IRL	A	6	A	IRL	0	IRL	A	6	
IRL	CH	1	CH	IRL	0	IRL	CH	0	
DK	A	107	A	DK	13	DK	A	93	(+ 709 %)
DK	CH	10	CH	DK	28	CH	DK	18	(+ 191 %)
A	CH	107	CH	A	198	CH	A	92	(+ 86 %)

Table 7

INTERNATIONAL TRANSPORT VOLUME BALANCES (EXCHANGE AND THIRD COUNTRY TRAFFIC) -- 1982 (million tkm)

Transport output (Mtkm)		Transport output (Mtkm)		Transport output surplus of own trucks on foreign roads (Mtkm)	Surplus ranking
Of trucks registered in	On the roads of other 10 countries	On the roads of	Of trucks registered in the other 10 countries		
D	11 558	D	19 943	D - 8 385	10
F	5 318	F	14 981	F - 9 663	11
I	6 695	I	9 419	I - 2 724	9
NL	11 999	NL	2 122	NL + 9 877	1
B	7 509	B	4 877	B + 2 632	3
L	690	L	120	L + 570	6
GB	1 821	GB	1 882	GB - 61	8
IRL	454	IRL	16	IRL + 438	7
DK	3 267	DK	779	DK + 2 488	4
A	5 750	A	2 769	A + 2 981	2
CH	2 697	CH	850	CH + 1 847	5

6. OUTLOOK

This report is intended to help clear the air and introduce more objectivity into the emotion-charged field of European transport policy. At the same time we are well aware that individual figures produced sometimes on the basis of questionable basic data (in particular in the case of Italy) may be disputed. However, rather than this leading those countries who consider themselves disadvantaged by the findings starting to attack all the figures indiscriminately, it would be much more appropriate to improve the data situation for the future, to co-ordinate statistical work on the international level and in this way reduce sources of difference from the outset.

The main difficulty lies in collecting, sifting, making comparable and checking the input data, in which there were considerable discrepancies in some cases. Reliable original data from Italy was sorely missed. The Eurostat statistics (Source 1 in Section 3) absolutely must contain data from Italy in the future.

The extremely short time available for producing this report, caused by the prolonged process of collecting the data, meant that in determining transport distances a rather crude procedure had to be used, and this could be further refined in future work.

Future studies should include Yugoslavia and Greece. Data for Greece are already available, but this country was not included because without Yugoslavia the survey area would not be a continuous whole and this would cause methodological problems. However, it will not be possible to include Yugoslavia until comparable data are available from that country.

A conversion of the transport output balances from tonne-kilometres to truck-kilometres, which has often been put forward as a more appropriate unit for determining the fair imputation of infrastructure charges, will still be extremely difficult even in the future because of the different definitions and classificiations of trucks in individual countries, which will be very difficult to reconcile. (An average load per truck trip uniform for all countries also seems to be quite impractical.)

It is hoped that this report will help to reduce the mistrust and suspicion in European transport policy. All countries can make a significant contribution in this respect by improving and making available their own basic data and by contributing to international co-operation in the exchange of data.

NOTES AND REFERENCES

1. These "exterritorial domestic traffics" are included here insofar as they result from Community agreements. (There is no information available about exterritorial domestic traffics resulting from ECMT authorisations, but they are probably of very minor importance when it is considered that the number of ECMT authorisations amounts to only about 14 per cent of the number of Community authorisations.)

2. This shortcoming was admittedly made good when the new law on goods transport statistics came into force on 1st January 1984, but the statistics for 1984 are still not complete.

3. This includes Iraq and Iran as countries of origin or destination, while Albania can be disregarded as its involvement in international road transport is negligible.

4. This also includes Poland and the Soviet Union as countries of origin or destination.

5. Thanks are due to Herr Diplom-Volkswirt Horst Renk of the Bundesanstalt für den Güterfernverkehr, Köln, who not only made these tables available but also provided other valuable information.

6. In exchange traffic between France and Switzerland the small volume of frontier traffic (approximately 0.5 million tonnes despatched from France) is not included because using average transport distances it would falsify the overall balance and because the very short transport distance makes it of little importance anyway.

7. Ignoring the main diagonals, which are in any case negligible.

8. For example the distance Luxembourg-Netherlands was given as 1 220 km!

9. For the "exterritorial domestic traffic" in the case of D the average transport distance for inland road haulage was taken (150 km in round figures), while for the other countries this value was proportional to the square root of the land area.

10. By "areas" we mean the eleven central countries and the seven outside areas.

11. This was done using the road map and a measuring wheel.

12. In this context, routes transiting different countries.

13. This figure includes transit traffic, otherwise shown separately in the statistics, from and to the GDR.

14. This figure needs further correction, however, since French border crossing seaport-hinterland traffic (for example from the port of Marseille to München) is counted as transit through France and not as a French consignment to Germany whereas in Germany it is classified as a consignment from France. It is estimated that approximately 1.2 million tonnes should be subtracted from this figure.

15. In no case should these volume balances be used to define or justify a system for fair imputation of charges, however, as they give no information about the intensity of use of infrastructures.

16. In the case of international traffic with outside areas the transport volume in the outside area itself is not recorded as this is not part of the desired balance.

17. "Winners" and "losers" are countries with positive and negative transport output balances as shown in Table 7.

FINANCIAL IMBALANCES

BETWEEN NATIONAL TAX SYSTEMS

AND INTERNATIONAL TRANSPORT SERVICES

[Supplementary note by the Secretariat]

SUMMARY

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The reports drawn up by PROGNOS provide information on:

-- Disparities in tax systems;

-- Imbalances in traffic between countries.

As regards that part of national tax systems concerning vehicles operating in international traffic, disparities in taxation lead to differences in competitiveness which contribute to the development of imbalances in traffic. As a result of these imbalances, the costs of infrastructure use are not covered on a uniform basis as between countries if foreign vehicles are not taxed in proportion to the distance they travel on the territory of a given country. The fact that infrastructure costs are not covered can increase the differences in competitiveness if the deficit in this respect is offset by taxation of the activity of national carriers. Specific information is therefore required on three points:

-- The effect of tax systems on the competitiveness of hauliers;

-- The scale of uncovered costs relevant to infrastructure use;

-- The impact of these costs on taxation specific to transport.

The estimates made in the following analyses are based on the case of heavy lorries and on the assumption that this type of vehicle is used in international traffic. While distorting reality to some extent, such an assumption is essential as a basis for completing the calculations set out in this note, given the statistical data at present available.

The analyses are based on the situations in France, Germany and the Netherlands. The statistical data given are of course subject to the usual difficulties experienced when collecting information, so the values are approximate.

1. EFFECT OF TAXATION ON THE COMPETITIVENESS OF HAULIERS

Table 1 gives the annual fixed-rate taxes (in French francs, 1984) for heavy lorries (see the Rommerskirchen report).

	D	F	NL
Annual taxes	28 250	5 200	11 000
Taxes/insurance	1 350	7 600	780
Technical inspections	750		
	30 350	12 800	11 780

The price of the tonne/kilometre in international traffic is approximately FF 0.36 (Source: Institut National de la Statistique/France). If the average load per vehicle is taken to be 18 tonnes (load factor of 0.75, the same as for a domestic transport service in France, which is the only figure available. Source: Ministère des Transports/France), the selling price of international transport services is FF 6.5 per kilometre. Accordingly, a German lorry must travel nearly 5 000 kms in order to obtain income equal to the fixed-rate taxes (about 2 000 kms in France and in the Netherlands).

Assuming that a lorry clocks up 100 000 kms per year, the cost of fixed-rate taxes per kilometre is:

D	F	NL	
0.30	0.128	0.12	FF

In view of the fact that vehicles provide some domestic services (or that only some of an undertaking's vehicles are assigned to international transport), national taxes (fixed-rate and use-related) have an effect on competitiveness.

Example: a vehicle consumes 40 litre/100 km on average and clocks up 25 000 km per year in domestic transport and 75 000 km per year abroad. The taxes (fixed-rate and on diesel, in FF 1984), paid in the country of registration are:

	D	F	NL
Fixed-rate taxes	30 350	12 800	11 780
Diesel taxes	13 300	14 600	5 300
10 000 litres (Excluding the VAT rebate)			
	43 650	27 400	17 080

The imbalance in the terms of competition is increased. If the taxes paid are to be passed solely on in the selling price of kilometres clocked up abroad (75 000 in our assumption), the taxes per kilometre included in this price will be:

0.582	0.36	0.23	FF

In this example, the difference between the German and Netherlands taxation amounts to some 5 per cent of the selling price per kilometre (FF 6.5) in an international transport service.

2. INFRASTRUCTURE COSTS THAT ARE NOT COVERED

The PROGNOS Report estimates the scale of the imbalances in services between countries.

A monetary value can be placed on these imbalances if the cost of using the road infrastructures is known.

The assumptions below simplify the reality in examining the case of France which has opted for motorway tolls:

-- The tolls are established with a view to achieving a balanced budget (theoretically the case in France). In principle, the cost of construction, financing, operating and maintenance are covered;

-- On a section of the motorway network such as that of North-Eastern France the toll in 1985 is FF 0.511 per kilometer for a road train of 38 tonnes actual total weight. The operating deficit for the network in North-Eastern France is some 25 per cent of the revenue. Leaving aside the question of the effect on the volume of demand, a balanced budget toll would have to be 25 per cent higher, i.e. some FF 0.64/km;

-- The level of toll for a lorry is twice that for a private car. Is this proportional breakdown warranted by the cost differential? It is probably to the advantage of the lorries where maintenance and construction costs are concerned. A ratio of 1 to 3 would more accurately reflect the actual conditions. Strictly speaking, account should in fact be taken of the marginal costs generated by the movement of the different types of vehicle. Since this data is not available, we shall adopt the above ratio of 1 to 3 which gives a rate of FF 0.96/km;

-- The volume of transport output provided by a 38-tonne vehicle for a kilometric cost at this level may be considered in terms of the average load carried in France for a long-distance domestic haul. In principle, such hauls are the only ones that can be compared with international transport. The data available give a load factor of 0.75, or about 18 tonnes for the largest vehicles;

-- The cost of using motorway infrastructure in France for each tonne/km of output is therefore FF 0.96/18 or FF 0.053.

Assuming that the costs of constructing, operating and maintaining a motorway differ little from one country to the next (the levels of productivity are comparable) and that foreign vehicles travel on this type of infrastructure, the imbalances in monetary terms (infrastructure use costs that are not covered) are as follows:

	D	F	NL
Imbalance in volume (millions t/km)	- 8 385	- 9 663	+ 9 877
Imbalance in FF millions	- 477	- 512 (1)	+ 523

1. If there were no tolls in France.

The estimate put forward clearly depends on the assumptions adopted:

-- equal costs for the use of motorway infrastructures in all countries;

-- foreign vehicles travel solely on motorways;

-- heavy lorries are used in international traffic, since insufficient data are available for a breakdown of such traffic into different categories of lorry;

-- the average load is 18 tonnes. If a smaller average load is taken, the infrastructure use cost per tonne/km increases accordingly together with the financial estimate of the imbalances in services. Thus, for an average load of 12 tonnes, the cost of using a motorway infrastructure per tonne/km becomes FF.096/12 = FF.0.080. With an imbalance in volume of 8.385 billion tonne/kms, the uncovered costs in the case of Germany are equal to (8.38 x 0.080) = FF.670 million.

-- It is not the purpose of these assumptions to provide an accurate picture of the economic data relevant to international transport but, given the present situation as regards the data available, the assumptions are needed in order to make an estimate of uncovered costs.

It should be noted that another approach, based on the proportion of overall road costs attributable to lorries, provides results of the same order of magnitude.

Germany has been taken as the example for this approach which is based on the following data (1983):

-- total traffic of 217 billion vehicle/kms, of which 23 billion by lorries;

-- total road costs of DM.19.7 billion;

-- output of 125 billion tonne/kms.

The proportion of road costs attributable to lorries can be calculated by applying a correction factor to adjust the vehicle/kms by type of vehicle. It will be assumed that a lorry is equivalent to three cars from the standpoint of the road costs generated per kilometer travelled, so the corrected figures for vehicle/kms are:

Cars:	294
Lorries: 23 x 3 =	69
	363 billion vehicle/kms (corr.)

Lorries account for 19 per cent of the total vehicle/kms and so the same proportion of road costs, i.e., 19 per cent of DM 19.7 billion or DM 3.75 billion. The excess output of foreign vehicles in Germany is 8.4 billion tonne/kms or 6.7 per cent of the total of 125 billion tonne/kms in the country. The road costs corresponding to this output of foreign vehicles is therefore 6.7 per cent of the costs attributable to lorries, i.e. (6.7 per cent x 3.75) = DM 251 million or FF 750 million.

This figure is close to that of FF 670 million obtained with the first method proposed with an assumed load of 12 tonnes.

The above figures take no account of the contribution towards road cost coverage made by taxes paid by foreign carriers when buying diesel.

It should be pointed out in this connection that the regulations allow a maximum of 200 litres in fuel tanks when crossing frontiers. Accordingly, a lorry can travel 400 kilometers abroad while keeping a reserve of 40 litres in the tank (40 litres per 100 kms on average), quite a long way as compared with the average haul calculated by PROGNOS (240 kms by the Netherlands' carriers whose runs enter Germany). A substantial proportion of transport services are therefore over short distances which do not call for purchases of diesel. Given the comparative prices of diesel it can be assumed that foreign drivers buy the maximum they are allowed to import before they leave the countries in which the price is lowest. For example, in August 1985 the price of diesel including VAT was lower in the Netherlands than the price exluding VAT in Germany.

	D	NL
Pump price	FF.3.84	3.34
Price (VAT rebate)	3.37	2.83

Accordingly, since the countries with a deficit on services are also those in which the fuels are more expensive (Germany, France), it may be assumed that there is little or no compensation for the imbalances in services by means of the taxes on fuels.

3. THE IMPACT OF UNCOVERED COSTS ON TAXATION SPECIFIC TO TRANSPORT

In the preceding section, estimates were given of the costs to the three countries of imbalances in the volume of services. For any given country, the cost for which there is no compensation by means of an equivalent activity by its carriers abroad can be regarded as a transfer of resources to

the other countries. For the three countries under consideration these transfers can be calculated in terms of the taxation specific to transport.

France must be excluded insofar as a proportion of the deficit on services is in principle recovered by means of the tolls. The situation for the other two countries on the basis of the initial estimate of uncovered costs attributable to imbalances in traffic is:

-- In the case of Germany, the outgoing transfer is equivalent to the fixed-rate taxes for nearly 17 000 38-tonne road trains;

-- In the case of the Netherlands' carriers, the incoming transfer is equivalent to the fixed-rate taxes on some 44 000 lorries.

SUMMARY OF THE DISCUSSION

1. INTRODUCTION

In European transport policy, the debate on harmonization and liberalisation is nothing new. For almost 25 years it has been coming up again and again and the problem is now aggravated by the fact that the present economic situation is reducing the margins of competing enterprises.

Circumstances are now such that something concrete has to be done and the policy in question must tackle this complex problem from a practical standpoint. However, this obviously presupposes an adequate knowledge of the problem to be solved.

It has therefore become essential to base the debate not on assumptions, but on concrete facts.

There are at present a number of weaknesses in this policy area which, in the longer term, could become sources of failure or at least serious doubts.

In the first place, harmonization of the conditions of competition is not to be confused with a levelling out of costs, and even less with free service. The fact is that removing the price leads to elimination of the market.

Second, we are confronted with tax systems that are very much marked by past history. Having independent national systems based mainly on fixed charges would seem to imply that road transport is a luxury activity and that frontier crossings are the exception.

Third, the present system can function only if international traffic flows are more or less in balance. It is thus assumed that the effects of vehicles taxed in their country of registration and operating abroad cancel one another out. But this is only an assumption and if it turns out to be wrong a vital pillar of the system collapses.

It is therefore necessary to clarify the assumptions and make good any gaps in the data existing in this area.

Participants in the 71st Round Table unanimously considered that the information provided by the rapporteurs constituted a major contribution in a subject area that had hitherto remained somewhat obscure.

However, being aware that the findings of these reports were necessarily based on somewhat scanty statistics, participants deemed it essential to continue the work of clarification in two directions. First,

certain countries needed to make very substantial improvements in their transport data. In the absence of reliable data it was impossible to develop a proper policy, since a correct framework could not be established for activities that are poorly understood.

Second, the present Round Table, whatever its merits, could but be considered a first step. Participants considered it necessary to continue the research so as to cover the whole of Europe and consolidate the findings on the basis of much more complete statistics. It was thus a matter of both extending the coverage and improving the quality of the information provided.

2. TAX AND CHARGING SYSTEMS

One of the background reports showed the complexity of the tax and charging systems and how much they varied from one country to another. Their harmonization involved two main aspects: one was of a practical nature and consisted of eliminating the distortions of competition resulting from the present systems, the other was more fundamental and involved a system designed as a function of the objectives -- this implied a lasting concensus with regard to several policy components.

A distinction can be made between three major policy components in the tax and charging systems affecting road haulage:

-- The first is of a fiscal nature and is concerned above all with achieving equilibrium between national income and expenditure;

-- The second is concerned with transport infrastructures and the relationship between infrastructure use and the costs caused by each user;

-- The third relates to competition between transport enterprises and is aimed at eliminating any obstacles to fair competition in the economic sense.

It can be seen that the second component is virtually covered by the first, to the extent that governments are responsible for the construction and maintenance of road infrastructures. The fact is that since the enterprises that build and repair roads are generally private companies working for the government, it is difficult to imagine a situation other than one in which the authorities pay for this work. As a result, the cost of infrastructure use is necessarily covered out of taxation if the companies concerned are not to be condemned to bankruptcy.

As far as the budget is concerned, however, payment for such work is by annual amounts. In the longer term these may vary according to the budget situation, i.e the government has some scope for increasing or reducing appropriations according to what is allowed by budget policy but such adjustments can only be made in advance and within certain limits. Any adjustment after the event would automatically constitute a breach of contract between principal and agent.

The upshot is that the problem of payment for infrastructure use cannot

fundamentally differ from that of taxation, since it is necessarily integrated with it. Only in very exceptional cases have there been situations where governments have significantly delayed the satisfaction of the infrastructure needs of existing traffics.

Conversely, taxes and charges can sometimes greatly exceed the sums required to cover infrastructure costs. Within any individual country this is a situation that goes beyond the framework of transport economics, but it can seriously affect the competitive situation of enterprises in different countries, thus leading to the third policy component.

In the final analysis, taxation is a matter of expediency and tradition. If a given country chooses to tax its road transport heavily in order help pay for a comprehensive social security system, it has every right to do so. We can only note the fact that road hauliers in that country will be penalised as compared with foreign competitors who are not taxed so heavily.

In concrete terms, the practices described above mean that governments have to pay through annual budget appropriations. The logical consequence is that payment for use should also be through annual amounts. However, this could create problems to the extent that interest rates applicable to the year of construction vary widely over time. Similarly, and more generally, problems could arise with respect to the degree to which a road has been amortized or needs to be renewed.

In addition to the system of annual construction and maintenance budgets, there are two other systems. The first is the situation where governments hand responsibility for super-infrastructures to private enterprise, leaving motorway construction to private consortia. In this case, the programme of payment for infrastructure use becomes a function of the financing system.

In this context it should be noted that the abrogation of use charges in the longer term is more or less illusory, since the maintenance charges for the infrastructures in question are likely to rise very rapidly. This at any rate is the finding of research carried out on this subject, which foresees a huge increase in such costs in the years to come.

Between the government paying the total cost of infrastrutures and users paying the total cost, there is a third situation resulting from a compromise between two objectives. First, toll charges covering the total cost of motorways guarantees a relationship between construction costs and use. However, if this relationship is enforced too strictly, it threatens to reinforce transport links that are already privileged at the expense of those located in regions that need to be developed.

An intermediate system thus consists of introducing a degree of cross-subsidy between two types of infrastructure: Those that are obviously profitable, and those that are not profitable but are desirable for other reasons, in particular regional policy considerations.

On top of all this it must be borne in mind that levelling out European infrastructure costs with the idea of making competitive conditions equal would be mistaken. The topography and degree of urbanisation of the countries concerned means that a uniform infrastructure charge would not correspond to economic reality.

The problem thus arises of knowing for what reasons and to what extent cross subsidisation at European level may be desirable. Whatever the principle adopted, it has to maintain a balance between two objectives that are difficult to reconcile: first, payment by the user for the costs he causes and, second, adequate provision for the less heavily trafficked regions, though taking care to avoid any kind of infrastructural demagogy.

The complexity of the problem is aggravated by the fact that at present the interactions between taxation, payment for use and conditions of competition are by no means obvious. In particular, the cost transparency of enterprises leaves much to be desired.

The correct evaluation of the impact of taxes and charges on the competitive position of enterprises would require better statistics than we have at present. These would need to give more details of types of vehicle, the composition of national vehicle stocks, trips, domestic and international services and the size of enterprises.

In addition, the most appropriate criterion for measurement seems to be the ratio of charges to profit margins.

Total charges as a percentage of road haulage costs vary from one country to another, with an average of something in the order of 15 to 20 per cent. The fixed charge share also varies greatly: in some countries it is relatively low, representing only 1 or 2 per cent of total costs.

As for international traffic, this represents a far from negligible share of road traffic income. In France, for example, it accounts for almost 20 per cent of motorway tolls, in Yugoslavia it accounts for 13 per cent of total revenue from road taxes. Since international traffic is growing faster than domestic traffic, these percentages are continually rising.

Variable charges affect all users equally over a given link and thus do not cause any distortion of competition. This is not the case with fixed charges, which cause uneven burdens.

One possible way of avoiding the unfavourable effects on competition would be to reimburse a percentage of fixed charges corresponding to the proportion of activity carried out abroad.

Certain participants considered that other charges had the same effect as taxes or charges specifically on road haulage. This applied in particular to taxes on enterprises and social insurance contributions, differences in which could advantage or penalise a given country's enterprises in international competition.

Some countries, for example Norway and Sweden, have developed systems that establish a closer relationship between infrastructure use and charges. The latter are fixed according to overall weight, axle weight and distance covered.

Generally considered to be an advance on earlier charging systems, they are subject to modification in the light of restrospective surveys of their impact.

In international transport, 85 per cent of the market is governed by bilateral agreements. The overall result is a lack of homogeneity and problems with regard to transit traffic. However, these disadvantages are offset by a number of advantages which make this type of agreement the backbone of international road haulage. An important consideration is that bilateral agreements allow relatively frequent and rapid adjustments, and in addition they may include reciprocal exemption from charges.

This exemption may thus constitute a new source of inequality, to the extent that trucks from certain countries do not benefit from it. It should be noted, however, that bilateral agreements are often negociated in a framework that goes beyond transport alone and exemptions may be given in exchange for other advantages.

In general it is necessary to throw more light on tax and charging systems and their effects, which implies obtaining more information from enterprises, though these latter seem to fear cost transparency. The problem becomes even more complex in international transport. The way in which fixed charges are imposed on different types of traffic may become a source of distortion in international traffic.

Since the objectives of charging systems vary greatly from one country to another, views on harmonization necessarily vary too. The charging system is the fruit of long and continuous evolution, but it is also an exercise in policy equilibrium. A certain reluctance to adjust, in particular an aversion to variable road charges, is explained by a reluctance to introduce any uncertainty into tax revenues. The revenue on something known in advance (for example the vehicle stock) is easier to estimate than the revenue on a use charge because the latter can vary, notably as a reaction to the charge itself. Ease of collection may be another reason for maintaining existing taxes and charges.

The charging system can act as an economic regulator only if it is perceived as a price, i.e. only if it is linked to infrastructure use. It is only in this case that charges can influence the allocation of transport tasks in the direction of economic efficiency. It can then also contribute to environmental protection and energy conservation.

By contrast, a fixed charge cannot reflect the specific use cost because it is a global payment and cannot be adjusted to the actual costs generated. The Round Table wished to emphasize that simply levelling charges in order to equalise the conditions of competition would be to disregard a basic economic fact, i.e. that the real costs of road use differ according to topography, the degree of modernisation of the network, the degree of concentration of certain types of pollution and the capacity utilisation of the available infrastructure. Even if only the average cost of using national road networks is considered, the figures for ECMT countries can vary by as much as a factor of 4.

What is more, a fixed charge is levied regardless of any infrastructure use and generally before any such use. The result is that, far from influencing vehicle use in the direction of the economic optimum, fixed charges tend to maximise vehicle use. Covering kilometres is the only way to get any value for the money spent at kilometre zero.

For this reason the Round Table recommends that charges should be made

variable and be based on the territorial principle, this system being the only one that works correctly in the transport economy and that can take account of external costs.

The Round Table also felt that it was no good trying to standardize what was not uniform in the name of harmonization and at the risk of eliminating the very basis of the market, which was price. Instead it recommended concentration on tackling the major distortions, in particular taxes on vehicles, rather than trying to be too perfectionist. There was fear that the latter approach could introduce too much red tape to a measure intended to bring about fair treatment and simplification.

What has happened in practice is that international transport policy has proved unable to harmonize payment for the use of infrastructures and this situation has been aggravated by the reaction of certain countries who consider that transit traffic on the roads causes them financial loss.

The recent Decision of the European Court defines possible future action. It is now necessary to find a practicable alternative among several possible solutions. One possibility would be to take the average of the present systems, though such an average would not eliminate the disadvantages discussed above.

A second solution, preferable in principle but more difficult to put into practice, would be to move more towards charging on the territoriality principle. This solution, however, carries the risk of more protracted formalities at frontiers, unless computerised charging systems are used. In practice there is in fact a large and growing gap between the possibilities opened up by modern technologies and the methods used by the authorities.

An income and expenditure pool does not appear feasible for the moment because it would imply that contrtibutions should be fixed in advance, a principle that many finance ministers decline to accept. What is more, such a pool would require international administration and no suitable structure exists at present.

The Round Table put forward the following conclusions on the subject of tax and charging systems:

1. It is necessary to quantify the impact of taxes and charges in the transport economy;

2. Better statistics on prices, costs and non-monetary factors are essential;

3. Harmonization of taxes and charges is difficult but vital because a solution has to be found to the problem of paying for infrastructure costs;

4. As regards international traffic, it seems reasonable to aim at a limited objective based on variable charges applied on the territoriality principle.

3. TRANSPORT BALANCES

This part of the Round Table brought an important and new dimension to the debate. The fact is that the choice of one charging system rather than another can be sound only if this choice is based on a sufficiently precise knowledge of the activity to be subject to the charging system.

Because this knowledge was lacking it had hitherto been assumed that maintaining different national charging systems created no serious distortions so long as the haulage operations carried out abroad by trucks registered in the different countries more or less cancelled one another out.

It was therefore necessary to carry out research to test the validity of this assumption. The results were as follows:

INTERNATIONAL ROAD HAULAGE OUTPUT: 1982 (billion t/tkm)

Country	(1) Of trucks registered in the country operating at home	(2) By trucks registered in the country operating abroad	(3) By foreign trucks operating within the country	(4) Difference between 2 and 3
Netherlands	4.5	12.0	2.1	+ 9.9
Austria	2.3	5.7	2.7	+ 3.0
Belgium	2.7	7.5	4.9	+ 2.6
Denmark	1.2	3.3	0.8	+ 2.5
Switzerland	0.7	2.7	0.9	+ 1.8
Luxembourg	0.1	0.7	0.1	+ 0.6
Ireland	0.1	0.5	0.1	+ 0.4
United Kingdom	1.4	1.8	1.9	- 0.1
Italy	7.2	6.7	9.4	- 2.7
Germany	9.6	11.6	20.0	- 8.4
France	9.4	5.3	15.0	- 9.7

It must be said right at the outset that the above figures can only be very approximate because of the gaps in the statistics of certain countries. In addition, the table does not include certain traffics that would no doubt further increase the disparities already apparent. This essentially concerns four groups of countries: Spain-Portugal, Greece-Turkey-Yugoslavia, Finland-Norway-Sweden and the East European countries.

The Round Table therefore deemed it essential to continue this research in order to build a matrix for the whole of Europe.

The vital question with regard to the figures presented by the rapporteur is to know how reliable they are. The report explains the inevitable simplifications that were necessary, e.g. concerning the symmetry of transport links, alternative routes and the determination of average distances. However, comparing these results with those from other statistical

sources indicates a satisfactory degree of reliability, in particular for those countries for which more detailed statistics are available. It so happens that these are precisely the countries with the most marked imbalances.

International road haulage practice can complicate the issue as regards statistics. This was particularly the case for combined transport, accompanied semi-trailers, operations where the tractor and trailer are registered in different countries, unaccompanied trailers carried by sea, illegal coastal shipping and enterprises using foreign vehicles. In this respect it should be noted that coastal shipping will soon be authorised and that foreign vehicles are at any rate registered in one country or another.

The author of the report rightly pointed out that the imperfections in the available statistics ought to stimulate countries to improve and complete the data rather than criticise the shortcomings. In the final analysis this affects the credibility of international transport policy.

The Round Table considered that the information in the report made a very positive contribution and, in particular, came at the right time to stave off any dispute that might have developed in the absence of concrete data.

As regards the scientific aspects, it was stressed that gross tkm would be a more appropriate yardstick than net tkm since gross tkm describes better what causes infrastructure costs. It would therefore be desirable to start from this basis in order to be able to embark on realistic discussion. Although such data do not exist at present, it would not seem impossible to obtain them within a reasonable time.

The differences noted between countries are partly explained by the size of the country, the topography and the concentration of major links. The situation needs to be qualified in the light of the real cost of infrastructures and the external costs. Thus a country with a very positive international transport balance may nevertheless suffer a very heavy cost burden at home if its roads cost much more than the average and if traffic pollution is concentrated in certain areas.

The fact is that carriers' competitiveness does not depend solely on regulations. Just as important are geographical location and the generation of freight as compared with other countries.

In the light of the figures presented in the report, and in particular Table 7, it would appear fairly clearly that the most strictly regulated countries were the least competitive. As to the question whether liberalisation could re-establish the balance, it might be objected that the removal of protection could have quite the reverse effect.

Being in possession of data on taxes and charges and on the balance of international road haulage output, the Round Table could then go on to consider the financial impact of any distortions of competition stemming from these two factors.

4. EVALUATION OF THE FINANCIAL IMPACT

On the basis of the data provided by the two reports discussed above, it was possible to make a rough evaluation of the financial impact of the imbalances in international road haulage.

This undoubtedly constitutes simply a first step indicating orders of magnitude and will need to be further refined in the future.

At present we do not know to what extent a truck operating abroad pays taxes. In some countries it pays tolls if it uses motorways. But it is not known to what extent it also pays fuel tax. 200 litres of diesel is at present allowed across frontiers free, this allowance having been agreed by the finance ministers. The EEC proposes that there should be no limit, since in practice there is no longer any strict control. Tighter control would appear undesirable since it would inevitably cause annoyance to drivers and generally be more trouble than it was worth. A logical counterpart to the removal of limits would be harmonization of fuel tax levels.

However, even if fuel taxes were harmonized, there would remain an element of distortion. In practice, a driver does not want to bother with more foreign currencies than absolutely necessary when on an international trip. He therefore obtains currency only for those countries where he needs to fill up, sleep or eat. In other words he will drive straight through countries where the distance is relatively short without spending anything at all. A solution that might be effective would be to oblige vehicles to fill up before leaving a country, but this too would be seen as a nuisance and would constitute another control scarcely compatible with the objective of liberalisation.

The calculations discussed below were therefore made using the assumption that a foreign truck pays no taxes or charges, an assumption that is incorrect to the extent that the truck concerned buys fuel and uses toll motorways.

Two possible methods of quantifying the cost of the imbalances concerned are presented. The first is based on the operating account of a toll motorway, with some correction being needed for certain construction and maintenance costs. Basing the calculations on the data provided by the background reports, this approach leads to the conclusion that international road haulage results in a theoretical deficit of FF 500 million for France and slightly less for Germany and a profit of a little over FF 500 million for the Netherlands.

The second method is based on overall road expenditure, which was subsequently broken down for the different classes of user, the figure finally retained being that for trucks registered abroad. The resulting figures are very similar to those obtained by the first method for France, while Germany's deficit becomes much greater at almost FF 750 million. The discrepancy between the two results for Germany is due to the fact that the first method took the case of France as the basis, while the second used German figures. It is explained mainly by differences in average charges and in empty back hauls. The specific costs of infrastructures, influenced in particular by topography, also help to explain this difference.

A question that arises immediately is whether payment for infrastructure use should cover marginal or total cost, the latter possibly being an annual amount. Within the EEC there is a virtual consensus on the marginal concept, which no doubt better suits a long-term, evolutive process. Conversely, the budgetary practice of governments and of motorway concessionaires tend to lean more in the direction of total coverage, split into annual amounts. There then remain the problems of the amortization period and the rate of interest used.

The amounts mentioned above give rise to two types of question. The first is concerned with transport, where there seems to be some confusion between freedom and free service. This confusion is rooted in habit. In hotels and restaurants it is normal to pay the cost of an overnight stay or a meal and nobody would think of refusing to accept the bill, invoking the freedom argument or the fact that he already pays taxes and charges in his own country. Why, then, should there be any objection to paying the costs of infrastructure use in a foreign country?

The second, more concrete question is concerned with the magnitude of the sums involved in road haulage imbalances. These sums may appear ridiculously low compared with the GNP of the countries concerned or even with respect to their transport budgets. Should they, however, be regarded as negligible?

Their real importance is at the level of road transport. It is a question of the correct imputation of infrastructure use charges. In this context it must be borne in mind that road haulage already has the advantage of extremely substantial support. This comes from passenger transport which is overwhelmingly predominant in road transport and thus pays a very large share of infrastructure costs. This point cannot be overemphasised as it helps to explain the low cost and competitiveness of road haulage -- if there were no private cars, the economic viability of trucks would be quite different.

In any event, the sums involved do not appear so large as to create insuperable problems, so it should be possible to find practicable solutions.

It is at the level of road haulage and more particularly competition between enterprises that the imbalances revealed above can become important, since they are of an order of magnitude approximating that of the profit margin. It should be added that the problem is likely to get worse as international road haulage expands.

The fuel tax is only very imperfectly related to the weight of the vehicle and its cargo, which are the factors determining infrastructure use costs.

The Round Table therefore recommended toll charges for expensive major infrastructures, but was reluctant to extend this system to the whole of the network. The habits acquired in the different countries run counter to this and there are some doubts about the possibility of introducing toll charges on motorways that were not designed for this in the first place. The density of traffic and the great number of access roads are very serious obstacles to introducing tolls on such motorways.

There are other factors appearing to oppose the toll system. The first is that tolls would always be limited to a number of motorway links, though it should be pointed out that most haulage operations do use the motorways. The second is that motorway tolls tend to divert traffic onto ordinary roads, though this depends very much on the particular case. In principle it could be claimed that infrastructure policy is at fault if there are too many such possibilities. Lastly, motorway tolls are generally perceived as payment for higher quality, a little like the surcharges paid for high speed or first class travel on the railways.

More generally, it would be wrong to judge present tollway systems by the way in which the tolls are collected, in view of the fact that these systems have been overtaken by technological progress. It is now possible to design systems in which toll collection is very much accelerated. Electronics and computer techniques have taken over from the punched card systems that nowadays seem antediluvian. What is more, modern toll systems can provide statistics of considerable importance to transport policy.

Certain objectives, such as infrastructure cost coverage, an economically efficient modal split, energy conservation and environmental protection can be pursued through making the user pay appropriately. But taxation and charging systems may have other objectives, such as simplicity and maintenance of a desired level of revenue.

In the field of transport, there are certain requirements that seem to oppose any radical change that would abolish fixed charges in favour of variable charges only. This was the case with the costs associated with making the transport network available -- offering adequate accessibiliy to each inhabitant was a public service obligation not directly associated with direct use of this facility. This consideration applies above all to the basic network and to a much lesser extent to higher quality infrastructures such as motorways.

Lastly, harmonization of the conditions of competition should take account of structural differences in the cost of not only roads, but also of vehicles.

The Round Table considered that more emphasis on variable charges could be an incentive for enterprises to rationalise their services and could contribute to placing competition on a sounder economic basis.

5. CONCLUSIONS

1. The background reports provided interesting information and demonstrated the existence of a problem. They proved to be scientifically valid, despite the gaps remaining in some of the statistics.

2. Additional research is desirable in the following fields:

-- Taxation and charging systems;

-- Transport costs;

-- Transport flows;

-- The conditions of competition between countries, between modes and within the road haulage industry.

3. The imbalances revealed by the reports do not raise any insuperable problems in terms of international policy, though at enterprise level they sometimes amount to the equivalent of the profit margin. For this reason they constitute an undeniable distortion of competition.

4. Any discussion on the reform of or the applicability of taxation and charging systems should take place on a plane that associates theory and practice.

5. Among the tools that could improve the situation, the following should be borne in mind:

-- Taxes and charges;

-- Simplification of administrative procedures;

-- Measurement of transport output;

-- Efficient collection;

-- Cross-subsidisation between countries;

-- Making the user fully aware of real costs.

6. Progress remains to be made in elucidating the debate on:

-- National versus territorial charging systems;

-- Fixed versus variable charges;

-- The objectives of charging systems.

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