

Motor Vehicle Taxation as Pricing for Highway Services: Some Theoretical Notes

Taxes on motor vehicles, on their accessories and on related economic activities can be regarded within certain limits as charges for the use of roads. From this approach the present article sets out to review taxes on motor vehicles — as well as any alternative or additional tolls — *in so far as they can be said to be charges for highway services.*

1. — These taxes may be roughly divided into four main classes:

A) *General taxation with a higher rate for road users, e.g. a steeper rate of ad valorem sales tax or customs duty in respect of gasoline, diesel oil, lubricants, or motor vehicles; a higher charge for the grant or renewal of driving licences than the usual small fee for administrative services.*

B) *Particular taxes on goods needed by road users which neither look like nor are levied like a road charge but are regarded as indirect taxes in the light of present-day financial practice, e.g. manufacturers' specific excise duties on gasoline, diesel oil, lubricants, tyres, accessories (such as sparking plugs and the like).*

C) *Taxes which do not technically constitute a charge levied for the purpose of covering a Government outlay, but which none the less are typical of the charges on motor vehicles. These include the motor vehicle licensing duty; the ton-mile tax; the tax on gross weight carried; that on net weight carried; the tax on mileage; that on the weight of the vehicle as multiplied by mileage; on the number of seats per mile; on the number of occupied seats per mile; on the gross proceeds of tonnage per mile or on the gross proceeds of passengers carried per mile; the tax on the freight contract; etc.*

D) *Finally, there are duties which can be shown to be genuine charges for certain benefits provided by the roads. Examples include the taxes paid by owners of real estate in a given area for the building and maintenance of local roads; taxes on vehicles which cause a special wear and tear of the roads; betterment taxes imposed on landowners who have profited in various degrees from public road-building programs; and charges (payable by owners of property) by local authorities to meet the current cost of lighting and cleaning the roads.*

1. - The fuel tax and the motor vehicle licensing duty.

2. — The easiest way to obtain payment for highway services is to make motor vehicle users pay a combination of the *fuel tax* and *licensing duty* (1). These two taxes both have great advantages, and are, at least to some extent, complementary.

(1) In Italy there is a tax on the production of mineral oils, at a rate of L. 11,200 per 100 kg. on gasoline, L. 6,000 per 100 kg. on diesel oil, and L. 9,000 per 100 kg. on lubricating oils. In the financial year 1953-54 gasoline yielded L. 106,500 million, which was 62% of the total proceeds of taxation on mineral oils. During the same year diesel oil yielded L. 44,500 million, or 26% of the total takings. The ratio of the gasoline tax to the overall expenditure on gasoline in that year was 58.7%; the corresponding ratio for diesel oil was 54.3%, and that for the two together was 57.3%.

The vehicle licensing duty is much less important. During 1953-54 it produced L. 18,800 million. The number of vehicles on the roads in Italy during 1954 was as follows: 744,000 cars, 9,000 buses, 330,000 trucks, 33,000 trailers and 343,000 motor cycles, making a total of roughly 1½ million. The rates of licence duty on motor cycles and cars are based on horse-power. For trucks, cycle trucks and vans as well as trailers used with trucks, this tax is based on the pay-load, while for buses it is based on horse-power and, for trailers drawn by buses, on the number of seats. As to these two taxes in Italy, see the full study, containing much historical material of value, by Scorro, *L'ordinamento fiscale dell'automobilismo*, in « *Automobilismo Industriale* », 1953, No. 1, pages 9-40.

The fuel tax usually covers gasoline and diesel oil at different rates. If it be assumed that it is shifted to the consumer (2), it is roughly proportionate to the use of the roads, since, clearly, as between vehicles of the same type, the greater the mileage, the higher the fuel consumed.

The fuel tax, however, does not differentiate very effectively between different categories of vehicles. Thus, the fuel consumption does not increase in proportion to the weight and size of the vehicle. In addition there are certain features of motor vehicles on which there might to be a differential charge but which are not accessible to the fuel tax at all, namely whether vehicles are of de luxe or utility type, and whether they run on regular routes, for account of the owner or for that of another contracting party; and whether they carry passengers or goods. This tax is particularly inadequate for dealing with vehicles which have a trailer and which, although they take up twice as much road-space, do not use twice as much fuel.

The fuel tax, too, hits users of the worst roads hardest since such roads involve a higher rate of consumption of fuel. This may be especially unfortunate in countries where there is marked economic and social inequality as between one area and another, as in Italy. It frequently happens that in the poorer regions not much is spent on the roads because the budgets of the provincial and local authorities will not stand it, so that the roads are antiquated and badly kept. Far from promoting use of the roads in such districts, the fuel tax penalises road users, placing on them a burden which many cannot carry. Moreover, the fuel tax may have a

(2) A certain number of American authors who base their statements partly on inductive enquiry, say that the tax on mineral oils is borne by the consumer.

This question however is not so simple as some people think. In particular, mineral oils are produced on a basis of joint costs and are *only partly* used, as in the case of gasoline and diesel oil, for driving motor vehicles. In part, they are substitutes for other sources of power. Fuel oil, for example, competes with natural gas, coal and electricity.

As regards the effects of taxes where there are possible substitutes see FANNO, *Contributo alla teoria dell'offerta a costi congiunti*, in « *Scritti vari di Economia e Finanza* », CEDAM, Padova, 1954.

bad effect on car design by driving the makers to produce vehicles with a low fuel consumption solely for fiscal reasons. On the other hand, the tax is easy to assess, and it can be collected at the refineries which are usually few in number.

If, however, the fuel tax is regarded as a charge for road service, a distinction must be drawn between gasoline and diesel oil used in automobiles and that used for instance on farms, for inland or other shipping, aircraft and the like. *Prime facie* the best (3) method is to refund, on production of appropriate evidence, to people who consume gasoline and diesel oil for specified purposes other than in motor vehicles, tax at the rate previously paid by the producer. This method, however, suffers from a serious defect. It is based on the assumption that the fuel tax which is refunded to the consumer has been shifted to him in full by the manufacturer, through the price increases passed on by the latter to retailer and by the retailer to the consumer. That assumption is however open to doubt, both because every tax may have to be borne in part by the taxpayer legally liable, and also because the production costs of mineral oils are joint, so that it does not follow that each individual product will bear the legal rate of tax on it.

For these reasons, and for others which we shall consider in a moment, it is better to charge less fuel tax but to make up the difference by means of a vehicle licence duty. On the assumption that the taxpayer legally liable in fact pays the duty, the latter can be used to discriminate between the various types of vehicle such as cars, trucks, trailer-trucks, buses and motor cycles, in the light of traffic

(3) In Italy on the other hand the system is to exempt from tax these fuels which are intended for specified uses. Mineral oils, for example, are exempt when used for driving farm machinery; for driving rail cars and bogie trucks on the state railways; when used in merchant shipping and in Government-owned harbours, and so forth. It is well known that this system tends to encourage fraud, since fuel exempt from tax is diverted to other illegitimate uses. According to CRAWFORD, *Motor Fuel Taxation in the United States*, the method of refunding tax has given on the whole better results than that of exemptions, although it would seem that the results in question have not in all cases come up to expectations. Crawford says that the problem of how to grant relief from fuel tax where the fuel is not used in motor vehicles is « the most perplexing problem in the administration of gasoline tax ».

policy and financial policy in general. The licence duty however takes no account of the *actual* use made of the roads by individual owners. On the one hand this may seem to be a point in its favour since it will tend to cause more use of the capital sunk in motor vehicles and in the roads, and since it makes allowance not only for actual use of the roads but for their *potential* use.

As against this, however, the fixed character of the licence duty may entail considerable drawbacks. In the first place it is rather doubtful whether this kind of duty effectively « rations » the traffic. It may in fact only limit the use of the roads by driving marginal vehicles off them, while not inducing the remaining cars to use the roads less (4). Again if the whole of the charge for roads had to be met out of the licence duty, people who do not often use motor vehicles would tend to avoid buying them, or, having bought them, might not use them in a particular year; on the other hand, people who adjusted themselves to this state of affairs would be unfairly penalised. Finally such a duty would discriminate against conveyance of goods for the owner's own account, and would favour hauliers who make a more intensive use of vehicles.

3. — From the point of view of obtaining payment for road service, the arguments in favour of fuel tax as against licensing duty seem on the whole to carry more weight in a country where average income is low than in one where it is high.

The first reason is that in poor countries the collection of taxes is, as a rule, rather inefficient. A somewhat complicated licensing duty offers plenty of loopholes; much more in fact than a tax on mineral oils. If the scale of duty varies with the use made of vehicles, for instance to carry goods for account of the owner or for account of others, or as between rural areas, towns and so forth, detailed administrative arrangements are required; and these will not always work well

(4) The restriction of traffic does not necessarily hit mainly those users who are poorest in absolute terms, but only those who are in the least favourable position in each class.

in a country where administrative machinery is not very efficient.

Moreover, where motor traffic is not yet heavy, the tax which is the most burdensome, and which is most likely to hamper its growth, is precisely the licensing duty. It amounts to a fixed burden which every owner of a motor vehicle has to pay even if he makes limited use of it. This burden of course becomes less important when possession of a motor vehicle is regarded as a *necessity*. In that case the owner is mainly concerned with running costs. If they are high, owners may tend not to use their vehicle for long journeys or for purposes that are not strictly necessary. The fuel tax will then, in its turn, become the greatest obstacle to the expansion of motor traffic.

One advantage which is claimed for the fuel tax is that the cost of collection is low both for the collecting department and for taxpayers, while complicated work is entailed by assessment and collection in the case of the licensing duty (5). It should however be observed that the cost of collecting the licence duty, expressed as a percentage of the yield, becomes much smaller as the number of vehicles becomes greater; this is due to the large proportion of fixed overhead expenses. The relative cost also declines as the sum collected from each vehicle user rises. The result is that the cost of collection is a great deal lower in a country where there is heavy automobile traffic, whereas it may be quite prohibitive in an unmechanised country (6). Finally where people are generally wealthier it is less difficult to collect from them a large

(5) According to Crawford, for example (*loc. cit.*, page 32) the costs of collecting fuel tax in the United States in 1937 were on the average 0.70%, varying in different states from 0.11% to 3.50%. In 27 states they were less than 0.50%. In 1947-48-49, according to the Bureau of Public Roads, *Highway Statistics* (1947, page 24; 1948, page 38; 1949, page 34), the costs of collecting the Federal tax on fuel ranged from 0.81% to 0.85%. According to the same source (1947, page 25; 1948, page 39; 1949, page 35) the cost of collecting the Federal vehicle licensing duty was in the three years 9.5%, 9.2% and 9.7% respectively.

(6) As against this the administrative work connected with exemption from the licence duty is of great value for control of the traffic and for the taking of censuses connected with motor vehicles. Great value must be attached to such data in the present age, when the use of motor vehicles is so widespread.

sum as licence duty each time. Where people are poor it may be more advisable to charge higher prices for the fuel, thereby including the many small taxes. The argument for this arrangement is both psychological and financial.

The respective advantages of the two forms of tax are also affected by a number of factors independent of the number of vehicles in use and of the growth in average incomes. On the one hand there is the average size of the amount which it is desired to collect on each vehicle; and on the other, there is the percentage ratio of fixed overheads to the total cost of the vehicle. If in fact the fixed charge is kept within moderate limits in relation to the total cost of running the vehicle, the adverse effects may be negligible, whereas, if the charge is very high, it may have deterrent effects. On the other hand, if vehicle total costs already include a high proportion of fixed overheads, any increase in them due to the licence duty may prove especially burdensome.

4. — No judgment on the two kinds of tax can, however, be complete unless it is made clear what type of licensing duty is to be adopted. Especially in the case of marginal users, it is important to know whether the rates have been graded in relation to the presumable cost of running the various types of vehicle and/or to their carrying capacity. For automobiles and motor cycles the criterion adopted is often that of cylinder capacity in cubic centimetres or of horse-power. For trucks and trailer-trucks it is more usual to take the gross weight, or else the pay-load, which appear on the whole to be fairer. It is true that the more highly powered automobiles usually run at a higher speed, with greater ease and the possibility of doing longer journeys, and so on. Besides, it is not unreasonable to assume that the presence of high-speed vehicles obliges the public authorities to build dearer roads, since the overall risk of accidents would otherwise be greater.

There are however a number of possible objections to the criterion of cylinder capacity and of horse-power. We have already mentioned the distorting effect on motor design.

Nor is it always the most expensive vehicles that are the most powerful. They often have a medium cylinder capacity, but a specially well built engine, a high quality coachwork, and are remarkable for their elegance and modern design. Finally where a rate of tax based on horse-power does not decrease with age and wear, the owner will try to get rid of the vehicle far sooner than would otherwise be the case.

For passenger cars a sounder criterion is probably that of the purchase price of the vehicles, weighted by a factor taking account of its age so as to approximate to the current value, since it is probable that the price of the vehicle is a better guide to the value attached by the owner to the use of the roads than the power of the engine. It is true that this criterion takes no account of the other elements in running costs; but the major expense item, i.e. fuel, is already covered by the fuel tax.

Maximum fully loaded weight offers an inferior criterion for passenger cars. After all, it is not always the heaviest vehicle that travels fastest, while on the other hand the vehicle which is exceptionally slow and holds up the traffic may be relatively light. In addition this criterion neglects the age and hence the decline in value of the vehicle.

Similar remarks apply to the criterion of carrying capacity, expressed as the weight of the passengers and luggage that the car can carry, and to that of the net weight of the vehicle. The latter, moreover, has not even the advantage offered by the former (carrying capacity), namely of taking account of the number of people who can obtain service from the vehicle.

For trucks and trailer-trucks, on the other hand, the criteria of gross weight and of pay-load seem on the whole satisfactory (7). Maxi-

(7) The criterion of pay-load is a better indication, than that of gross weight, of the advantage derived in the process of the conveyance of goods. It is in fact fair to assume that a vehicle with a larger capacity carries a greater quantity of goods, and therefore that the total value of its load is greater. As regards the conveyance of goods by motor vehicles, however, this criterion is open to much greater criticism than in the case of the railways, because in the latter case goods of small value are more frequently carried, where the weight represents an important element in the value of the transport service for an equal distance run.

mum loaded weight in fact reflects fairly accurately wear on the road, and also the road-space taken up, which is greater for heavier vehicles which have a larger volume and a lower speed. In view of the great divergence of maximum loaded weight as between various goods-carrying vehicles, it is clearly desirable to differentiate between them, as regards taxation, in proportion to road costs. This consideration may, however, not be so relevant in the case of passenger cars, which do not as a rule vary greatly in weight.

For buses the number of seats may provide a particularly useful criterion, because this, while directly related to the value of the roads to operators is also in some degree related to the size of the vehicle and hence to the wear on the roads, measured by its weight and the road-space which it occupies (8).

II. - Other taxes on motor vehicles.

5. — The other taxes relating to motor vehicles are in general much less important than the fuel tax and the licensing duty. Yet, as charges for highway services, they have many advantages, which are probably under-valued because the people who frame tax legislation are hardly aware of this economic aspect of the subject. On the other hand application on a large scale of these taxes is subject to technical objections which are hard to overcome even with a good civil service.

A) Of all these minor taxes the most important one is the *ton-mileage tax*. It has the advantage of applying to trucks and trailer-trucks in proportion to the amount of highway services which they require each year, since this is fairly well expressed by the ton-mileage. The effect is thus to cover the gap left by the fuel tax, which, it will be remembered, does not obtain payment for

(8) Many other types of vehicle licence duty are conceivable and have in fact been applied, based on other criteria or on the combined use of two or more of the main criteria. Among the countries which have and are likely to continue to have especially complex scales of vehicle licence duty are the United States.

the greater road costs entailed by heavy vehicles, since the fuel consumption increases less than in proportion to the weight.

The ton-mileage tax represents in a certain sense an amalgamation of the tax on distance run (through the fuel tax) and that on weight (which can be applied through the licence duty). It is better than the licence duty because it is capable of discriminating in favour of small mileages — reflecting a more modest use of the roads. It would in fact be perfectly possible to have a progressive ton-mileage tax, with exemption below a certain minimum. The ton-mileage tax has the further advantage of differentiating between operating areas, the kinds of goods carried and the extent to which vehicles are used. This tax applies to the actual use and not to the maximum use possible. In this it differs from the licensing duty, which, even where the mileage is equal, weighs more heavily on vehicles that make less use of their maximum pay-load. Even where the ton-mileage tax is assessed by rule of thumb, the average assessments are more closely adjustable to individual cases than the standard levels of the licence duty, which are inherently inelastic.

In spite of these advantages, the ton-mileage tax seems unlikely to be widely adopted owing to its technical inferiority to the two basic motor vehicle taxes, especially when the rates charged are very high. In the first place, the ton-mileage tax entails assessment in each individual case according to the distances run and the loads carried, which involves tax collectors in a great deal of work, while irritating checks have to be applied to the carriers; and in the second place it offers plenty of chances for evasion. If, with a view to preventing evasion, the tax department resorts to the use of averages and general indications of the type of vehicle, the ton-mileage tax assumes the character of a lump-sum charge, which of course destroys its natural function.

B) *Tax on the weight carried on each journey*. This tax differs from that on ton-mileage in that it applies not to the weight of the vehicle but only to that of the goods,

and that it does not vary uniformly with the distance run but relates only to the number of journeys completed. It is therefore less logical as a yardstick for measuring the greater road costs entailed by the heavier vehicles. As against this, a tax on these lines is more effective as a means of reducing competition with the railways, particularly in the case of short journeys, where the costs of loading and unloading, of collection and of delivery at destination are higher for the railways than for road transport (9).

There are two possible variants of this tax, with technical applications diverging in different degrees from that of the licence duty. One is charged on each individual journey by stamp duty or through direct payment; the other is levied periodically on the total weight of goods carried on all the journeys during a certain period of time, estimated by way of a forfait assessment.

C) *The tax on the load-mileage* differs from the ton-mileage tax in that it takes no account of the weight of the vehicle, so that return journeys empty are free of tax; and it differs from the tax on the weight of goods carried on each journey because it does take account of the distance run on every journey, and thus avoids penalising vehicles used for short runs (10).

D) *The tax on freight contracts according to the value of the contract* (11) sets out to make the total tax charged on the vehicle operator approximate to the *value* of the service which he receives; and it thus takes

(9) The penalising of short motor vehicle journeys is however the least desirable result from the point of view of coordinating the various means of transport.

(10) This tax has also been applied in Italy. It was first imposed in 1935 and remained in force until 1942. It seems to have been chiefly intended to reduce the competition of motor trucks with the railways. The chief criticisms levelled against it were that it obliged carriers of goods in motor vehicles to complete complicated questionnaires and that it fell on large and small trucks without distinction.

(11) This tax is still in force in Italy in two forms. First, it forms part of the registration tax on freight contracts; and secondly, in the case of certain vehicles used for carrying passengers, it also forms part of the stamp duty on traffic documents. In other cases, this last tax is proportionate to the weight of the goods carried. It should be remarked that the tax falls not only on carriage by motor vehicles but also on transport by rail, by ships on sea, lakes and rivers, and by aircraft.

the form of an *ad valorem* charge. This of course falls more heavily on vehicles which are fast and on those which carry goods of low weight and high value than on vehicles which travel slowly and/or carry heavy loads consisting of raw materials, semi-manufactured goods, farm produce, or in general any goods where the price per unit is low in relation to the weight. This tax therefore falls comparatively less heavily on large trailer-trucks than on small and speedy means of transport. Finally, it may be remarked that the tax by its nature applies only where goods are carried for account of a party other than the carrier, and leaves untouched other non-contractual forms of transport.

This tax, when not balanced by a tax of equal amount on rail freight contracts, fulfils the special function of preventing motor transport from depriving the railways of the cream of the traffic: that is to say, the goods of light weight but high value which need to be carried quickly, and for which the motor vehicle appears to possess decisive advantages (12).

E) Among motor vehicle taxes more clearly aimed at covering the cost of highway services or at providing payment for the benefits offered by the roads, those which are called « *complementary taxes on use of roads* » are of special interest. Italy had a wide experience of these between the two wars. Their main feature is that they bear on operators whose vehicles cause special wear and tear of the roads, or who derive particular benefits from the use of roads, which are measured by coefficients and indices. But it is precisely the choice of these which raises the most difficult problems in the application of the taxes in question.

(12) According to one authoritative opinion, it would be much better to adjust the taxes in such a way as to allow the railways to concentrate on goods which are cheap, heavy and bulky and are carried for long distances. The best solution of the problem of road-rail coordination would thus be to limit both road and rail to their respective fields. The railways ought not to seek to handle traffic of high value on short runs, specially suited to motor transport; and, conversely, motor transport ought not to carry the cheaper traffic on long runs suited to the railways. It is however well known that the railways frequently rely on high grade traffic, known as the « cream of the traffic », in order to clear off their deficits. This problem clearly merits special examination.

The taxes on users of local roads are of lesser importance in Italy, as are also the betterment taxes charged in respect of road works, and local taxes to cover the current cost of lighting and cleaning the roads, etc., and also the contributions in kind levied in respect of road work on owners of property in the neighbourhood (13).

III. - Tolls.

6. — Apart from *taxes*, the charge for the highway service rendered to the user of motor vehicles may and often does take the form of *tolls*. Readers will be aware that these, after having been widely used at the height of the middle ages and to some extent up till the 19th century, virtually disappeared from the tax legislation of civilised countries. It is only in very recent times that tolls have again attained great and growing importance for motor vehicle traffic, at least on certain roads. The chief objection to tolls in the 19th century was that they cost a great deal to collect, that they were a nuisance to the people who paid them, and that they hampered the free flow of traffic.

It should however be stated that as between tolls in the past and those to day, there are considerable differences which render the old objections largely irrelevant. The tolls which are nowadays collected when motor vehicles enter the main motor roads known as « *autostradas* » really cause the driver very little trouble, while the cost of collection is relatively small. On the other and such disadvantages are largely offset by economic advantages of various kinds.

The argument that tolls by their cost hinder traffic on the *autostradas* is no longer valid since they are kept at fairly moderate levels. It must be borne in mind that in this mechanised age there is a demand for

(13) The cases in which work is carried out at the cost of property owners are very few, being confined to the maintenance of embankments and bridges and certain other work in connection with the roads. The betterment taxes levied by local authorities comprise specific betterment taxes on increments in value resulting from individual public works projects, and general betterment taxes based on the value increment resulting from public works. In practice, however, both kinds of tax are applied only rarely, and the yield from them is insignificant.

all sorts of highway services. On the one hand there is a demand for roads of the traditional kind, open to every kind of traffic and relatively cheap; on the other hand, the « rich » traffic travelling for medium and long distances requires high-grade roads that are completely closed off. It would be a mistake to provide both grades of road at the same price. The effect would be on the one hand to give a free bonus to vehicles using mainly high-grade roads, while one might easily attract on to the better roads vehicles which might otherwise be satisfied with existing, inferior facilities. Nor is it possible to contemplate the complete abolition of ordinary roads and the building of nothing but *autostradas*. Apart from the very high cost and the waste of existing capital in the roads which this would entail, it must be remembered that the ordinary roads, open as they are to every kind of traffic and connected to all existing side-roads, both main and secondary, perform an irreplaceable function. It follows that for a long time to come both kinds of roads will be with us, often linking the same places. Tolls may therefore be quite useful as a fiscal means of rationing the traffic by tending to ensure that highway services as a whole shall be used in the optimum manner from the economic point of view (14).

In a country like Italy which has rather poor roads and is not too strong financially, further arguments may be adduced in favour of tolls. The road system in Italy dates largely from times when there were no motor vehicles.

(14) This of course does not mean that, with a view to achieving this result, tolls ought to be made exactly proportionate to the difference between the cost of ordinary roads and that of the *autostradas*. Apart from the reasons which will be discussed later in the article, and which support the case for tolls greater than that difference, there are other motives which, according to the circumstances, may tip the scale in favour of tolls which are either higher or lower than the difference in question. The situation as regards demand may be such that a high toll will lead to the *autostrada* not being used to the maximum extent, and will cause traffic jams on the ordinary roads.

From another angle it may be taken that, given the actual state of demand, a toll equal to the difference between the cost of the ordinary road and that of the *autostrada* will cause too many people to use the *autostrada*, thereby clogging it up and leaving the ordinary road partly unused. In such cases, a different toll is justifiable as a means of achieving greater efficiency, on the assumption that the existing road facilities remain the same.

Consequently the *autostradas* are being built at a relatively slow rate owing to the lack of capital, and the new and old roads in important areas carry an abnormally large volume of traffic. Many people in Italy would pay a toll in order to have more and better facilities on the most important routes. There is the further point that the *autostradas* are built first in areas where there is heavy traffic and only later in those where there is less. If therefore there were no tolls, one would be paying bonuses precisely to those regions where there is the most traffic and which are in general also the richest. The effect would be still further to increase their lead as regards external economies over the under-developed regions.

In the case of Italy there is yet another argument in favour of tolls. The building of an *autostrada* does not mean changing the route between two given places but adding a new one. Hence, people who use highway services in that area enjoy greater benefits than people elsewhere. With a view to keeping the different regions on an equal footing it is therefore quite right to apply tolls as an extra charge on people who run motor vehicles on the *autostrada*.

There is a further argument justifying a higher level of tolls than that warranted by the difference in cost between the toll-road and the ordinary road. It is that the vehicles using the former save fuel. They are in fact able to run more smoothly and with a lower mileage, with a consequent saving on fuel and hence of fuel tax (15).

IV. - Road Funds.

7. — The tolls are in many cases used to support road funds for the upkeep of *autostradas* and servicing of loans raised to build them. But road funds are quite conceivable and do in fact exist, for ordinary roads, being fed

(15) While the argument that the toll annoys drivers and is costly to collect is not decisive in the case of the *autostradas*, it is in that of the ordinary roads. Where ordinary roads revert to toll-roads only for purposes of making money, all the criticisms about returning to the middle ages (which are sometimes wrongly levelled against the system of *tolls in general*) are fully justified.

amongst other things by motor vehicles taxes. The principle of a universal budget sometimes adduced against this practice is based on the assumption, valid in the 19th century, that the public authorities render only general services to the community and for this purpose levy on the community a non-differentiated general charge. That assumption no longer holds good to-day, when taxes on motor vehicles are extremely high and can no longer be justified as duties on consumption, but only on the ground that they represent payment for special service to users of the roads. If the roads are regarded as a public utility enterprise they obviously ought to have their own budget like any other undertaking, and so administer it as to obtain the maximum return from the point of view of the community as a whole.

Road funds are also alleged to immobilise funds needed by the financial authorities whose task is thereby complicated. But it would surely be easy for any road fund to lend its resources to the Treasury against the issue of short-term bills or bonds. It is further argued that in years of financial difficulties it may be desirable to apply to more urgent purposes the sums usually spent on the roads. But, where there is a fund, the monies could always be diverted under an appropriate law. It is true that this would complicate matters and would make the burden on users of motor vehicles much more obvious. That however would not matter, given a sound financial policy. It would also make it possible to assess more carefully the advantage of the various projects, while determining with greater accuracy whether road transport was being favoured or prejudiced by comparison with the railways. What is much more important is to prevent road funds from increasing road works in times of expansion, when funds are plentiful, and from slowing them down in a depression when the prospective receipts are diminishing. The fund should be administered in conformity with the Government's economic policy.

The setting up of a central road fund might incidentally be a useful method of coordinating the Government's expenditure on

roads with that of the local authorities. What the central road fund could do would be to give the local authorities an appropriate proportion of the yield of the fuel tax and the vehicle licensing duty (16). It might also grant them advances for the construction of local roads in backward areas. Representatives of the local authorities could of course be appointed to the management of the fund.

Conclusions.

8. — It is difficult, in a brief review, to draw definite conclusions in the field of economic policy. For that purpose one would need statistics on, and estimates of the tax burden entailed by the roads and the advantages which they confer on motor vehicles, in respect of the various kinds of road and the different regions. Researches on these lines are being conducted in a number of countries, but have come up against difficulties of method and of practical application. Until such time as thorough studies of this kind have been carried out in Italy (17) a few tentative suggestions may nevertheless be advanced.

1) The relative weight assigned in Italy to the vehicle licensing duty as compared with the fuel tax seems exceptionally slight. It therefore appears desirable, especially in view of the further growth in motor vehicle traffic, to shift the emphasis towards the licensing duty.

2) The Italian vehicle licensing duty does not appear to be based on a satisfactory criterion as regards automobiles and motor cycles. The criterion of rated horse-power for the former and cylinder capacity for the latter might be replaced by some other more appropriate measure, such as the purchase price of

the vehicle, weighted so as to allow for its age. At all events the criterion of price adjusted for age ought to be adopted as a corrective with a view to rendering the taxes of the present type less burdensome.

3) The rate of tax on diesel oil is rather low by comparison with that on gasoline. It does not seem to bear a fair relation to the use of roads by the larger trucks and by buses, especially since fuel consumption does not increase in proportion to weight, and since up to a certain point that increase gives rise to more than proportionate road costs. Certain changes, which should take account of the need for coordination between road and rail, seem called for. They should redistribute rather than increase the total burden of tax, on motor transport.

4) The toll system *as such* does not justify the criticism sometimes made that it represents a return to the middle ages. It ought however to be applied only to autostradas or their equivalent. It should not be used as an easy way to collect money on ordinary roads.

5) The present system of distributing the proceeds of motor vehicle taxes between the central Government and the local authorities does not appear satisfactory. It seems moreover not enough merely to « sink » in the Government's overall budget the sums collected from motor vehicle users. We need not try here to answer the highly controversial question whether the present burden of taxation on motor vehicle traffic is or is not fair in relation to the cost of such traffic on the roads, nor whether that burden is properly distributed between the various kinds of motor vehicle. What is important is to realise that the monies in question could be used much more efficiently for purposes connected with motor vehicles if there were in existence a central road fund for the long term economic coordination of the road policy of the central Government and the local authorities.

(16) At present in Italy the « provincie » have only a standard percentage of the motor vehicle licence duty and the other local authorities have nothing at all.

(17) For a first tentative estimate of fiscal burden of motor vehicles in Italy, see F. FORTE, *Alcuni calcoli del carico fiscale sull'automobilismo in Italia nel 1954*, in « Rivista di Diritto Finanziario e Scienza delle Finanze », 1955.