

DO SOUTH AFRICAN ROAD USERS RECEIVE A FAIR DEAL?

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1. INTRODUCTION

Governments manage countries on behalf of the population that entrusted them with that responsibility. Whilst governments can have many objectives (social, political, etc.), ultimately they have to operate in a business-like fashion, as there are limits to the revenue that they can collect and therefore also on the money that they can spend. This business of managing countries is more complex than ever before, with numerous internal and external influences on the interacting sectors of the economy. The transportation sector, and more specifically road transportation forms a considerable part of the South African economy. As a large part of the economically active population uses road transport every day, the quality of road transport as well as the charges and costs related to road use are a concern for many. Furthermore, the cost of road transport is reflected in the prices of consumer goods and it is therefore important to society as a whole.

In recent years there has been an emphasis on the negative externalities caused by road users, with the notion (Moving South Africa project) that they have reached such enormous proportions that they are “making the transport system inherently unsustainable” (1). This point was also made at the 1999 South African Transport Conference, when it was stated that “even the most conservative estimate of externalities seems sure to put them higher than the amounts that are currently being recovered from the users of private motor vehicles” (2). This led to the conclusion that (further) “user charges on private motor vehicle use in urban areas should be implemented as an earmarked fund for urban land transport”.

On the other hand, the opinion has also been expressed that road users are used as “milk cows” by government as far as imposing taxes and levies are concerned, and that this revenue is used to subsidise other sectors of the economy. As it is true that the fuel levy already forms a noticeable portion of the state’s total revenue, the question arises whether road users are paying their share or not. The objectives of this paper therefore are:

- (i) To estimate the contribution that road users make to the state’s revenue.
- (ii) To estimate the current cost of building and maintaining roads, and the value of negative externalities that road users impose on society and the state.

It should be noted that the road system and road users are also causing enormous positive externalities to society. These include, inter alia, access to economic activities, health services, education, retail facilities, etc. The road network has considerable strategic value

and is a great asset to South Africa. The positive externalities that come about due to road users are not addressed here.

While the authors take responsibility for the approach and principles presented, some figures should be considered order of magnitude only as they are not based on extensive data collection.

2. WHAT DO ROAD USERS PAY?

Admittedly the government has the right to tax its subjects in any manner which it deems effective. Therefore the road user, being a subject of government, cannot claim that all or any of the general taxes (such as income tax and VAT) he pays should be devoted to the defrayal of his total road cost and external cost responsibility. The authors do, however, believe that the amount that he pays to the fiscus in his capacity as road user exceeds his total cost responsibility for road usage and for the negative externalities he imposes on society (i.e. the non-user). In fact, the road user might be justified in expecting society to also accept some road cost responsibility in exchange for the substantial non-road user benefits caused in the form of positive externalities by the road transport system.

Road users pay a variety of taxes and levies to the state, which can be summarised as follows:

- fuel tax, plus customs and excise levy on fuel, as well as a contribution to the Road Accident Fund
- VAT on vehicle sales
- VAT on vehicle part sales/car repair services
- import duties on vehicles/parts
- licence fees
- fines
- toll fees.

In addition the state also collects income tax from the road transport industry (passengers and freight), the vehicle manufacturers and those who are granted private use of a vehicle as a fringe benefit.

2.1 Fuel levy

The taxation of fuel is a world-wide fiscal practice. The components of the fuel price (95 octane unleaded at the coast is shown as example) currently (May 2000) are as follows (3):

	<u>c/ℓ</u>	<u>%</u>
Basic Price	147,823	47,4
Fuel Tax	89,4	28,6
Retail Margin	25,2	8,1
Wholesale Margin	17,777	5,7
Transport Cost	0,2	0,1
Delivery Cost	5,1	1,6
Slate levy	8,0	2,6
Road Accident Fund	14,5	4,6
Customs & Excise	4,0	1,3
	<u>312,0</u>	<u>100,0</u>

The total taxes and levies (fuel tax, customs and excise, and the Road Accident Fund) constitute $\pm 34,5\%$ of the fuel price, which, with the current fuel price of R3-00+ and an annual consumption of petrol and diesel of ± 17 billion litres (65% petrol, 35% diesel), amount to an annual revenue for the state of $\pm R18$ billion. Note that the Minister of Finance (4) has budgeted only R15,3 billion for the fuel levy, but that (presumably) excludes the Road Accident Fund levy as well as customs and excise. This amount constitutes over 8% of total budgeted revenue (R215,7 billion) for the 2000/2001 financial year; which indicates what an important source of revenue fuel taxation has become.

2.2 VAT on vehicle sales

More than 300 000 new vehicles are sold annually in South Africa. Should the average selling price be taken as R60 000 per vehicle, then the total value of sales would be R18 billion and the VAT (at 14%) on this amount is R2,5 billion. If it is further assumed that 180 000 second hand vehicles are sold by dealers at an average price of R30 000, then the total VAT on vehicle sales is R3,25 billion.

2.3 VAT on parts sales/car repair services

The extent of vehicle part sales/car repair services is estimated as follows: there are ± 5 million vehicles on South African roads – at a total cost (capital plus operating) of R20 000 per vehicle, it means that the private vehicle industry's turnover amounts to R100 billion per year. Should 20% be allocated to parts and car repair services, then the VAT on parts amounts to R2,8 billion per year.

2.4 Import duties on vehicles/parts

The import duties on vehicles and parts are estimated to amount to R0,5 billion per annum. The Minister of Finance allows for a total revenue of R15,74 billion from customs and excise duties for 2000/1.

2.5 Licence fees

The total licence fees collected by the provinces from the owners of the 5 million vehicles is estimated to be the best part of R1,00 billion (i.e. on average R200 per vehicle).

2.6 Fines

For the purposes of this paper the value of fines is omitted.

2.7 Toll fees

The tolling of roads has escalated substantially in the past 15 years in South Africa. The total amount of toll fees paid by road users on the ± 900 km of toll road amounts to $\pm R600$ million per annum. Although a large portion of toll fees is paid to private toll operators, they all operate with contracts concluded with the state, and in reality can be considered an extension of the state.

2.8 **Total revenue from road users**

The total amount of taxes and levies paid to the state by private road vehicle users amounts to ±R26,15 billion per year. The fuel levy is the largest component of this, forming ± 70% of the total. The revenue from direct taxes and levies that road users pay constitutes approximately 12% of the state's total budgeted revenue.

3. **ROAD CONSTRUCTION AND MAINTENANCE EXPENDITURE**

The cost borne by the fiscus for building and maintaining national and provincial roads as well as for making contributions to the cost of some local (metropolitan and municipal) roads was estimated in 1998 to be R6,0 billion (9). The total spending on national, provincial and local roads was quoted (1) as R8,6 billion in 1997 (note that this supposedly includes the contributions from local authorities from their tax base, which is largely property tax). The shortfall between the current spending and the spending required to maintain prevailing levels of service on all roads was quoted to be R3,3 billion (1). A part of the estimated total funding requirement of R11,9 billion (1997 – maintenance of prevailing levels of service) is caused by overloaded heavy vehicles. Their contribution to road damage was estimated by Slavik (10) to be R581 million in 1995 prices, which is estimated to be less than the total licence fees paid by them, let alone fuel levies, toll fees and other taxes paid by heavy vehicles.

4. **EXTERNALITIES CAUSED BY ROAD USERS**

The externalities caused by road users have been highlighted in the Moving South Africa project (1) and by Stanway et al. (2). The extent of the externalities as well as who has to bear their costs, seems to be unclear to many. The National Department of Transport is apparently busy determining the former, and an attempt to address both issues is provided below. In this process a clear distinction needs to be made between (i) society at large, (ii) road users (a subset of (i)) and (iii) the state.

The external cost of road use constitutes that part of social cost arising from road vehicle operation that the market mechanism fails to recover from road users – nothing more, nothing less. These include some of the consequences of accidents, traffic congestion, pollution. The external cost component of accidents represents resource wastage that cannot be recovered from the perpetrators of accidents and are therefore borne by society. These are: (a) loss of output, the subsidised share of rescue services, hospitalisation and medical services, police investigations, free (*pro deo*) legal assistance and non-chargeable court costs, and (b) a non-quantifiable disutility: pain, suffering and discomfort. Cost of congestion includes wastage of time, additional vehicle operating cost and a non-quantifiable disutility: frustration, stress, and so on. Pollution includes disutilities such as noise, visual intrusion and toxic fumes.

(i) **Accidents**

South Africa has a poor road accident record. The total costs associated with these are often quoted as being in the order of R12 billion annually. The table below shows the number of casualties and accidents in 1998 in South Africa, according to Minister Dullah Omar (5).

	<u>South Africa - 1998</u>
Road deaths (persons)	9 068
Serious injuries (persons)	36 246
Minor injuries (persons)	84 358
Fatal collisions	7 260
Serious injury collisions	21 265
Minor injury collisions	53 097
Damage only collisions	430 983

By applying the costs per accident as proposed by the CSIR (Fatal accident – R340 336, Serious injury accident – R89 331, Slight injury accident – R25 434 and Damage only accident – R17 982 (6)), the social costs of accidents for South Africa for 1998 would be:

	<u>R million</u>
Fatal	2 470
Serious injury	1 900
Slight injury	1 350
Damage only	7 750
	<u>13 470</u>

From this it is concluded that the cost of damage-only accidents, which is fully for the account of the road user, amounts to at least 58% of the total accident cost. Note that the fatal, serious and slight injury collision costs include damage to vehicles and the total damage to vehicles should therefore be even higher than the figure quoted here.

This point is further illustrated in the work of De Haan (7), which showed that for all collisions the cost components are as follows:

	<u>%</u>
Vehicle damage	59
Lost output	23
Pain and suffering	5
Medical	3
Administrative	5
Legal	3
Miscellaneous	2
	<u>100%</u>

This seems to confirm that at least two-thirds of the accident costs are borne by the road users themselves and the portion that can be allocated to society or the state is relatively small. In fact, based on the above it is concluded that, should the cost of accidents have to be allocated to the three groups mentioned above, it could be shared as follows:

Road users (vehicle damage, pain/suffering, 50% medical/legal)	%
	67
Society as a whole (lost output) – includes road users	23
State (50% medical/legal, admin, miscellaneous)	10
	<hr style="width: 100%; border: 0.5px solid black;"/>
	100

Therefore, although the total social cost of accidents may amount to R13,5 billion annually, the majority of this cost is borne by the road users themselves. At most R3,1 billion can be allocated to society as a whole, which includes the road users, and approximately R1,35 billion can be allocated to the state. Note that these estimates are conservative and based on the generally used accident cost figures of the CSIR. The portion of the total social cost that could be considered an externality, is estimated to be R3,375 billion.

The authors are of the opinion that thorough investigation would indicate that the road user contributes in excess of a two-thirds proportion of the total cost of accidents. The reasons for this belief are as follows:

- Through the market the vast majority of road users provide for an insurance industry where they voluntarily pool their accident cost risk of vehicle damage, hospitalisation, medical treatment, disablement, loss of life, etc.
- An accident victim's loss of output is not always a corresponding loss to the nation. Developing countries (such as South Africa) usually experience rife unemployment. This implies that the opportunity cost of an individual's disablement might be negligible for the nation. Although an accident victim or his dependents might suffer hardship in the absence of insurance providence, the previously unemployed employee who replaces him gains approximately correspondingly.

(ii) Congestion

The value of time, fuel and increased operating cost due to congestion is substantial. In the United States (with considerable congestion) one study (8) puts the congestion costs at 6% of the total cost of transportation. Should this figure be applied to the estimated total road transportation cost in South Africa (refer to sections 2.3, 4(i) and total state investment in road transport – R6 billion currently), then the total congestion cost would be R7 billion annually (assuming similar conditions to the USA, which is unlikely but conservative).

Again, however, the majority of this cost is borne collectively on an average cost basis by road users themselves – congestion occurs in the bigger urban areas in the morning and evening peak periods of (mostly) weekdays, outside working time and the impact on the state or society as a whole is considered small. Based on cursory investigation for the purposes of this paper a cost to society of R1 billion is assumed. This cost to society is accepted to represent the external cost caused by road users.

(iii) Air pollution

To estimate the social cost of air pollution is difficult – the main contributors are considered to be industry, motor vehicles and open fires/wood or coal-burning stoves. In the absence of instruments to accurately measure an external cost, such as pollution, it can be approximated by what society is willing to pay to avoid the harm or disutility caused by it. These groups have never been held responsible for the costs caused by them, nor has local society demonstrated noticeable willingness to abate (or to pay for the abatement of) air pollution. To illustrate the point, society has not demonstrated much will to promote the sale of lead-free petrol, nor is government urging vehicle manufacturers to equip vehicles with catalytic exhaust systems. However, it has to be accepted that there are costs (largely health costs) related to air pollution. The USA study (8) allocated 7,5% of total transportation costs to the environment. If it is taken into account that there are fewer cars in Africa south of the equator than in Los Angeles alone, it should be acknowledged that the air pollution cost in South Africa could be less. If it is assumed that 5% of total transportation cost is due to air pollution, then the total air pollution cost will be R5,6 billion annually. This cost has to be borne largely by society, which includes road users. Therefore 75% is considered to be the external cost.

A summary of the total social cost as well as the estimated cost of externalities caused by road users is provided below (R billion):

	Road user	Borne by		Total Social Cost	External Cost
		State	Society		
Accidents	9,05	1,35	3,1	13,5	3,1
Congestion	6,0	-	1,0	7,0	1,0
Air pollution	1,4	-	4,2	5,6	4,2
	16,45	1,35	8,3	26,1	8,3

5.

CONCLUSIONS

- (i) The total amount of taxes and levies paid to the state by road vehicle users amounts to ±R26,15 billion per year. The fuel levy is the largest component of this, forming ±70% of the total. The revenue from direct taxes and levies that road users pay constitutes approximately 12% of the state's total budgeted revenue.
- (ii) Although all road user classes do not at each and every occasion bear their full marginal social costs, they collectively and on average, bear substantially in excess of their total social cost responsibility.
- (iii) Road users currently bear at least 63% of the total social costs of accidents, congestion and air pollution internally among themselves. The remainder of these three cost items, i.e. the total annual external costs, are estimated to be in the order of R8 billion. This amounts to approximately 30% of the total levies and taxes paid to the state by road users. The allegation that road users are not paying for the investment in roads as well as the external costs that they cause is therefore considered not true.

- (iv) The costs that the fiscus incur as a result of road users amount to ± R7,35 billion annually, which is approximately 30% of the direct levies and taxes that the state receives from road users. Road users are indeed “milk cows” for generating additional tax revenue for the state.

5. REFERENCES

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SHORT CV

Hein Stander has 26 years of experience in road planning, transportation planning and traffic engineering. Being involved for many years in the research program of the Department of Transport, as well as the activities of the Transportation Division of the South African Institution of Civil Engineering, he developed, inter alia, a keen interest in the financing of road infrastructure. Hein has a Masters Degree in transportation engineering from the University of California and is a Director at BKS (Pty) Ltd in Bellville.