

THE ECONOMIC COSTS AND INSURANCE IMPLICATIONS
OF ROAD ACCIDENTS TO THE NATION (NIGERIA)

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ABSTRACT OF THE PAPER

Road accidents have continued to claim lives on our highways with consequent drain on both human and material resources. In what follows in this paper, the author has delineated the variables that are adequate in arriving at the costs of road accidents and has gone further with the help of proxies and simplifying assumptions to make some cost estimates of such accidents to the nation. The private costs to the citizens would be alleviated by resort to insurance contracts, but certain sociological practices militate against this possibility with the result that the private costs as discerned remain largely unindemnified.

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1. ROAD ACCIDENTS IN THE NATION

Road accidents have become a major source of death on our highways. They now occur with such increasing frequency as to astound the average onlooker or investigator. All over the Nigerian highways motor scraps litter the landscape as evidence of past physical and human destruction.

The rate of these accidents are alarming. The accident data below (Table 1) shows that each year thousands of people are either killed or injured on our highways. An average accident growth rate of 12% have been recorded and according to an investigator this is higher than the rates attained in many developed countries (Bassey, 1981).

ROAD ACCIDENT DATA

TABLE 1

<u>YEAR</u>	<u>TOTAL REPORTED CASES</u>	<u>TOTAL KILLED</u>	<u>NO. INJURED</u>
1971	17,564	3,271	14,778
1972	23,287	3,921	16,161
1973	24,844	4,537	18,154
1974	28,893	4,922	18,660
1975	32,649	5,486	20,097
1976	40,881	6,762	28,163
1977	35,551	8,000	30,023
1978	36,117	9,252	28,854
1979	29,274	8,022	25,133
1980	31,661	8,909	25,559
1981	33,777	10,202	26,337

SOURCE: Nigerian Police Public Relations Dept.

Some of the identified causes of accidents on Nigerian highways are: careless and reckless driving, excessive speeding, drunkenness, non-maintenance of vehicles, bad roads, unqualified persons in possession of driving licenses, illiteracy and non-perception of road signs etc. Efforts to minimise the incidence of these accidents must start from the causes which are in all cases related to the socio-economic environment of the nation.

2. PRIVATE AND SOCIAL COSTS

No doubt, road accidents do constitute costs to the nation. The costs have many dimensions and are not exclusive to the economic agents that are directly involved in the accidents. There are direct material and human costs. These can be estimated. The next dimension of costs relate to tangible and intangible components of negative externalities, these are costs that are indirectly imposed on the economic system or more exactly on third parties, and for which the offending parties are not made to compensate for their actions.

In economic parlance private and social costs are distinct entities not likely to converge in the real world. In a perfectly competitive world where all externalities are being internalized, that is a Pareto* optimal situation, private and social costs would converge. Social costs includes private costs and all other costs both tangible and intangible that have not been compensated for by the source or creators of such costs,

* Economic terminology deriving from Vilfredo Pareto, an Italian economist. Best possible situation, divergence from which leads to an inferior solution.

as exposted by Johnson (1972), Demsetz (1967), Coase (1961) and Knight (1924).

Since Pareto optimality is more likely to be an exception rather than the rule in the real world situation social costs are more likely to be greater than directly measurable private costs. Social costs as defined are a composite of all costs that bear on the society as a result of an economic activity. It is the sum total of all costs and the negative externalities produced.

An example is in order. When accidents occur there are congestions on the streets with consequent traffic holdups. These constitute costs on the society which although not directly measurable have impact on reducing the output and productivity in the system. Hours of wasted time as a result of such holdups can be used in producing output in the economic unit affected. Also there are direct costs in petrol or gasoline wasted in such holdups and go-slows that constitute resources that have alternative positive uses in the economic system.

Thus the total cost to the nation of road accidents is an aggregate of direct and indirect costs and as such should reflect the exact magnitude of the social costs as defined. Such costs can be broadly categorised as material costs, human resource costs and the costs consequent on uncompensated negative externalities to third parties.

The variables that are subsets of these broad sets, as itemised above, are: vehicles involved in road accidents, number

of those injured on highways, average value for vehicles that ply the highways, scrap value of vehicles after accidents, average expected working life of a Nigerian worker, average wage rate for a fully employed Nigerian worker, actual expenses incurred in treating the injured in accidents and a monetary equivalent for the sum total of external diseconomies involved in the accidents. The above variables can be summarised in an equation or identity as follows:

$$T.C. = N_A (A - B) + N_B.W (D - C) + N_C.E + F$$

Where T.C. = Total cost to the nation of road accidents; the social cost.

- N_A = number of vehicles involved in accidents
 A = value of vehicles before accidents
 B = scrap value of vehicles after accidents
 N_B = number of deaths on highways as a result of accidents
 D = average expected working life for a Nigerian worker
 C = average age of those who die in accidents
 W = average wage rate for a fully employed working adult in Nigeria.
 N_C = number of injured in road accidents
 E = average charge per injured in hospitals
 F = an estimate of external diseconomies.

3. THE MATERIAL COSTS

In order to estimate the total material costs to the economy, the following variables were used: number of accidents, and value of vehicles before and after accidents.

As shown in the above equation, the product of the difference in value of vehicles before and after accidents, $N_A (A - B)$, ^{and the number of such vehicles,} is a rough linear approximation of the material costs involved in such accidents to the economy. They reduce the gross national product of the economy by that amount. The estimate for 1971 is ₦60.4 million and for 1981 this is ₦241.6 million for the material component of costs.

4. HUMAN RESOURCE COSTS

The variables that are determinant in assessing the magnitude of the human resource costs are the following: average working life of Nigerian worker, the average age of those who die on highways, the number of deaths on highways, and the average wage of the Nigerian worker. The average wage of the Nigerian worker is an estimate of the opportunity cost of labour lost to the economy while the difference in the working life and the average age at death on highways is an index of the average working life lost to the economy. The product of these two variables and the number of deaths i.e. $N_B \cdot W (D - C)$, is an indication of the human resource cost to the economy as a result of the accidents. The estimate for 1971 is ₦80.7 million and for 1981 is ₦484.2 million.

To this must be added the actual cost of medication and hospitalization for the injured components. Since 14,778 were

injured in 1971 and 26,337 in 1981, the estimate of hospitalization charge using average charges is ₦365,022 for 1971 and ₦1,460,088 for 1981 respectively. Thus the total human resource costs with this as component are respectively ₦81,065,022 and ₦485,660,088 for 1971 and 1981.

5. EXTERNAL COSTS

External costs as defined are not directly measurable except by imputation and the application of simplifying assumptions. Such costs are imposed on the economic system without the economic agents directly responsible for them being held accountable. In such a situation, the costs are the residual of the total costs to the economy after deducting for the costs that apply specifically to the inter-acting agents in the said accidents. Such indirect costs can be illustrated by the traffic holdups and go-slows that accompany accidents, the tangible components of these being the time and money for petrol used up in such situations, the intangible component of which is reflected by the inconvenience to the driver and passengers. Also the fear of highways as a result of past accidents is an intangible component of these negative externalities for this reduces the volume of road vehicular transactions that would have gone towards increasing the output of the economic system concerned.

It is not now possible to estimate the monetary equivalent of such costs, as such it is better to comprehend the rationale for their presence than to hazard a misleading guess in the absence of proxies that would guide an estimate.

6. SUMMARY OF COSTS (in ₦ m)

TABLE II

	1971	1981
Materials Costs	₦ 60.4m.	₦241.6m
Human resources costs	81.06	485.66
External Costs	-	-
Total Costs	₦141.46m	₦ 727.26m

The 1971 costs were calculated using 1971 prices. Also 1981 costs were calculated using 1981 prices. Since the composite price index has increased by about 100% between 1971 and 1981, for purpose of comparison the 1981 costs would have to be deflated by 100%. The costs as estimated are thus nominal magnitudes with inflation. For 1971 as shown in Table II above the cost of road accidents to the nation is estimated at ₦141.46 million (one hundred and forty one million four hundred and sixty thousand naira). For 1981 the cost estimated is ₦727.26 million (seven hundred and twenty seven million two hundred and sixty thousand naira).

7. INSURANCE IMPLICATIONS

In order to completely indemnify the loss consequent on motor accidents to the nation, Insurance institutions should generate minimum gross premium income of ₦141.5 million in 1971 and ₦727.26 million in 1981. This is because insurance should be seen as an art of transferring the risks of economic loss from the insured who otherwise would have borne the risk, to an insurer in return for a premium (Irukwa, 1977). The premium income should be high enough to completely indemnify the losses and leave a surplus as profit to the industry.

Further, there should be a high awareness on the part of the insured of his entitlements and obligations in an insurance contract. There should be a reasonably high propensity on the part of potential victims of such accidents to enter into insurance contracts in order to indemnify their losses in case such accidents occur. There should also be prompt willingness on the part of the insurer to meet claims of the insured. Thus the insurer should have high credibility to meet claims promptly to both serve as incentive for the insured to part with his premium and to reduce the frequent resort to other competing social institutions by potential insured.

In the Nigerian situation there is evidence of very high premium incomes generated by the myriad insurance institutions. For instance in 1976 alone accumulated gross premium income as high as #300 million was generated (Achikeh, 1981). Further since the Insurance Act of 1976, with the rationalization of the insurance industry, the weeding out of mushroom companies and fakes, and the high responsiveness of the industry to claims by the insured, gross premium incomes have grown astronomically

(Yinka Lijadu, 1981). *The realised gross premium incomes of #26.7 m in 1971 (Nwankwo 1980) and #705.5 m in 1982 still fall short of the estimated costs of road accidents to the nation for the same period. (See table II below for gross premium incomes 1975-82).*

The insured in Nigeria do not seem to have reasonably high awareness of his rights and obligations in the system. The insurers do have a duty to inform their market of the nature and quality of service they provide. It is felt that the average member of the public may not quite be aware that his insurance policy evidences a legally binding contract. Insurance companies do have a duty to foster this awareness as is the practice by all marketers of service. The insurers can afford to remind every insured to read his policy at the time the insured collects his policy especially as this policy is nothing more than a statement of the insured rights, obligations and expectations. A reading and understanding of the policy will reduce the false hopes and unattainable dreams of claimants and help mitigate consumer - producer conflicts when claim settlements arise.

Table III.

Gross Premium Incomes of Insurance Companies in Nigeria
By Classes of Business 1975 - 1982 (In ₦)

Class	1975	1976	1977	1978	1979	1980	1981	1982
Fire	(16.8) 29,700,043	(14.5) 26,546,799	(10.5) 30,555,457	(11.8) 43,824,941	(15.1) 54,773,627	(12.9) 58,877,534	(12.3) 70,340,599	79,484,000
Motor	(40.2) 49,583,724	(40.2) 75,854,231	(35.7) 103,874,049	(30.6) 113,687,078	(28.8) 104,656,534	(34.0) 109,665,706	(23.6) 135,500,687	151,760,700
General Accident	(13.0) 15,931,901	(17.2) 32,386,163	(18.0) 52,211,656	(17.9) 66,457,614	(19.4) 70,553,222	(23.5) 107,588,349	(25.0) 143,346,109	193,517,000
Marine Aviation	(9.2) 11,406,869	(10.3) 19,382,459	(18.3) 53,255,449	(22.1) 82,093,065	(18.0) 65,366,562	(18.6) 85,206,716	(17.9) 102,710,737	128,388,000
Life	(20.6) 25,689,948	(18.3) 34,490,982	(17.6) 50,899,688	(17.6) 65,250,502	(18.7) 69,102,609	(21.0) 95,886,721	(21.2) 121,861,852	152,327,000
Total	(100) 123,792,488	(100) 188,660,634	(100) 290,796,299	(100) 371,312,200	(100) 364,452,554	(100) 457,219,026	(100) 573,767,903	705,488,000

Source: Insurance Dept, Federal Ministry of Finance, Ikeja, Lagos.

Note: Figures in parentheses are respective class percentages for each year.

Insurers are also in a good position to educate and inform through their wide direct market presence via Branch Offices, brokers and agents. Through brokers and agents who are in direct contact with consumers information could be extended to the public. Also insurance mass information can be accelerated through intensive sales promotion and advertising through all media channels. This would tend to increase "consensus *ad idem*" in the industry, increasing credibility and accessibility of potential consumers to the industry.

Further, the doctrine of "*ubberimae fidei*" demands full disclosure from the part of both the insured and the insurer. Even when the insured is willing to read and understand the policy he is often in a disadvantaged position because the policy is often incomprehensible. The often high technical language is a constraint to clear understanding of his rights, obligations and expectations. This militates against the obligation of the insurer for full disclosure. Efforts should thus be made to review insurance policies towards simplicity in terminology for greater comprehension by the insurance consumers to make possible easier claims processes.

On the part of the public there should also be greater willingness to insure. As stated by an investigator only 15% to 20% of the population of Nigeria take

any form of insurance. The proportion of this number investing in life insurance is less than 10% (Odele, 1982). In the case of motor insurance, a significant proportion take third party cover only which does not indemnify their losses in case of accidents. Thus even when insurance is compulsory in the case of motor insurance, the high incidence of costs to the economy would remain uncovered because of the high incidence of third party cover. Even the third parties do not know they have to sue in order to effect their claims. Recent disclosures by insurance executives show that this third party potential claimants have a tendency not to effect their claim because of sociological and anthropological inhibitions. It is thus the duty of the insurance practitioner to step up campaign and spread the message of the benefits and invaluable functions of the various classes of insurance available to the consumer in the vast Nigerian market. This would help increase claims consciousness and reduce this aspect of imperfection in the insurance market.

There are other sociological and religious inhibitions to insurance in Nigeria. Some cultures look at life policy for instance as "trading on relations", while some traditions look down on insurance claimants as

those benefitting or trying to benefit from a disastrous situation. The muslims, a significant proportion of Nigerias population, manifest strong religious antagonism to life insurance in particular. These untoward inhibitions would attenuate with higher awareness, education and information of insurance principles and practice. This highlights the need for a more dynamic insurance practice in Nigeria in order to help alleviate the high costs of accidents to the nation and indemnify the losses consequent on human and material resources.

8. CONCLUSIONS

One can now comprehend the problems pertinent to arriving at real and thorough estimates of the costs of road accidents to the nation and their insurance implications. The cost estimates made here are though handicapped by the paucity of available data, and as such are bounded by certain degrees of error, but they go a long way to approximating the real world situation according to the accuracy and reality of assumptions brought into play. Thus the total cost of ₦141,468,000 for 1971 and ₦727,260,000 for 1981 should be seen as representing estimates which are a shade less than the real costs generated. With the costs estimates, the author has also tried to delineate the variables that are adequate, but not necessarily sufficient in arriving at the costs to the nation of such social

maladies as accidents on the nation's highways. The degree of precision of these estimates would depend on the relative statistical insignificance of possible variables left out as well as the validity of the simplifying assumptions used in the estimation.

Further the author has highlighted the insurance implications of the costs as identified. The accumulated gross premium income in the insurance industry should be high enough as to at least cover the costs to the nation of road accidents. This was shown ^{not} to be so in the Nigerian situation since gross premium incomes ~~though fairly high still fall short of estimated costs of road accidents to the~~ ~~are very high especially so since the Insurance Act of~~ ^{nation} 1976. There should also be a high awareness on the part of the insured of his rights, obligations and expectations. There should also be a high claim's awareness and a reasonable propensity ^t to buy insurance policies. These are still the outstanding problem areas in the Nigerian insurance industry which is hoped will change for the better with a more dynamic insurance practice, timed to eliminate or attenuate some sociological, anthropological and religious inhibitions as discerned in praxis.

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