

THE ASSESSMENT OF NEW SOUTH WALES ROAD FREIGHT DEFICITS

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ABSTRACT: *In recent years, as the volume of freight hauled by road has increased, more attention has been paid to cost recovery from the road freight industry. This paper employs methodology, used by the recent NSW Commission of Enquiry into Road Freight Industry to establish revised attributable costs for NSW heavy trucks operating on public roads. These estimates are compared with those based on current New Zealand road user charges for trucks.*

The paper suggests that a more useful indicator than percentage of cost recovery would be the actual hidden subsidies enjoyed by the road freight industry. These subsidies are termed 'road freight deficits' and are then compared with widely publicized rail deficits.

Some general remarks about freight rationalization are also included.

INTRODUCTION

We are all aware of the fact that the larger rail systems in Australia now incur deficits in the order of hundreds of millions of dollars each year. Past railway deficits have been subject to much detailed analysis, present ones are frequently quoted in the newspapers, and there is general acceptance of the need to reduce, or at least contain in real terms, future rail deficits. However, it is very difficult to ascertain attributable costs to the road freight industry for the public roads they use in the course of their business. These costs less certain revenues to Government, will be called 'road freight deficits' in this paper.

In the first instance, precise figures for these road freight deficits are unobtainable. There is no statutory requirement for, or even attempts at, annual reporting of attributable costs to the road freight industry of the roads they use. There are also difficulties in obtaining relevant figures that are accurate and measure clearly defined quantities. Added to this is the major problem of how to apportion all costs to the various categories of road users. Another problem is whether to assign certain revenues from truck owners as general taxes or contributions to road maintenance. A major problem is how to assign costs to factors such as incidence of heavy vehicles in road accidents and fatalities, road congestion, loss of residential amenity, noise, vibration and air pollution. Despite all of these problems, it is suggested that it is possible to make some estimates of the costs externalized by the road freight industry, and that these 'hidden subsidies' can be regarded as road freight deficits.

In the absence of such road freight deficits published on an annual basis, and with increasing pressures on our road system and financing road works, there has been increasing attention paid by both researchers and Governments alike in cost recovery from the road freight industry. In Australia, studies at Government level include those of a Board of Inquiry into the Victorian Land Transport System (Bland 1972), the NAASRA Economics of Road Vehicle Limit Study (ERVLS) in the mid-seventies, the ATAC Committee (ATAC 1977), and the Commission of Inquiry into the N.S.W. Road Freight Industry (McDonnell 1980). A common theme to much of this work appears to be acceptance of the results of the American Association of State Highway Officials (AASHO) road tests in the late fifties and sixties along with the so called fourth power law relating pavement damage to the fourth power of the axle loading.

The above Australian studies, together with those of Andrews and Lacey (1980) were reviewed by Robinson and Rattray (1982) who pay particular attention to the findings of McDonnell (1980) in truck costs and revenues. In addition, studies of the Bureau of Transport Economics include Cost Recovery in Australian Transport 1974-75 (1977) with a follow up Transport Pricing and cost Recovery Seminar in 1979 (proceedings, 1980). Other studies relating to road costs attributable to trucks include those of Webber et al (1978), Both (1980) and Taplin (1981). We also note that New Zealand has detailed road user charges for heavy vehicles, with two information booklets to date (1978 and 1982). Further information on the road freight industry in New Zealand may be found in a recent Ministry of Transport (1982) discussion paper 'Land Transport Licensing and Regulation'.

The motivation for Government and public interest in trucking operations generally, and now cost recovery in particular is many fold. Accounts of past Government action may be found, for example (McDonell, 1980) and a recent BTE Information Paper (No 6, 1982) indicating how, in New South Wales, road transport was regulated for some 40 years by the State Transport (Co-ordination) Act, 1931 to protect the railways (and incidentally, the roads as well), and, following the 1954 British Privy Council decision on State Co-ordination charges in relation to interstate hauliers, the introduction of the Road Maintenance (Contribution) Act, 1958. The charge levied under the 1931 Act was 2.5 cents per tonne of aggregate weight and was phased out in the early seventies. The Road Maintenance charges were 0.17 cents per tonne kilometre of assessed weight, were not indexed for inflation, increasingly widely evaded and finally abolished in 1979.

Whilst it may be argued that transport efficiency is well served by deregulation of the road freight industry as is the case in N.S.W., there are a number of reasons for Governments to be concerned about both cost recovery from, and other aspects of, this industry. These reasons include:

1. Economic efficiency so as to ensure that the road freight industry is doing the transport task best suited to it and not performing tasks better done by other modes of transport.
2. Energy considerations so as to reduce our dependence on imported liquid fuels.
3. Environmental factors including the road safety of other road users and the amenity of people who live near roads used by heavy vehicles, and,
4. Equity arguments so that taxpayers in general and private motorists in particular do not continue to unduly subsidize the road freight industry.

All of these four factors are related, and we shall briefly examine these after giving further consideration to the figures obtained by the Commission of Inquiry into the N.S.W. Road Freight Industry (McDonell 1980). More up to date estimates of N.S.W. 'road freight deficits' will also be made and then compared with N.S.W. rail deficits.

ESTIMATES OF N.S.W. TRUCK ROAD COSTS

One of the terms of reference of the Commission of Enquiry into the N.S.W. Road Freight Industry was to enquire into 'the equity or otherwise of the contribution made by the (road freight) industry towards the cost of road construction and maintenance'.

We now examine the methodology employed by the Commission of Enquiry as outlined in its report (McDonell, 1980, Vol IV). Following this, the same method will be used with updated figures from the ABS 1979 Surveys of Motor Vehicle Usage, and Census, using ERVLS annual average truck distances.

ROAD FREIGHT DEFICITS

Before giving the actual figures, it is well worthwhile noting reservations about the data available. As McDonell (1980, Vol IV, p 3/21) notes ...

'the problems of data and the serious effects this has had for policy and industry development generally'.

In the first Report, the Commission (McDonell, Vol I, p 3/3) expands as follows ...

"On the other hand, the hard fact is that much of the data upon which detailed investigations must rely simply does not exist. Transport in Australia in general fares badly for statistics, for example, but rail and road freight fare worst. In New South Wales, information on road freight is patchy and uncertain: this will be discussed in more detail later in this Report. Statistics of road freight flows have to depend largely on the periodic (about every five years) Surveys of Motor Vehicle Usage by the Australian Bureau of Statistics which are highly aggregated and, apart from covering such large intervals, also have scope and sampling problems."

We shall have more to say about the adequacy of available data later, and turn now to the steps adopted by McDonell (Vol. IV, p3/41) to estimate truck road costs for N.S.W. during the 1977-78 financial year. In order to obtain the overall costs, and as the basic unit costs per truck kilometre are assumed the same for all roads, no differentiation is made in our summary between minor and major functional class roads.

Step 1. Obtain the total road system costs including construction, reconstruction, maintenance, and administration by both State and Local Government, and also including (Vol. IV Appendix 3.2) an allowance for hospitals and ambulances as resulting from road accidents, plus road research, Traffic Authority, and Police. This figure is called T and includes the figure R for construction and reconstruction.

Step 2. Calculate the separable pavement costs P of small rigid, large rigid and articulated trucks, called P_S , P_L and P_A respectively. These are found for each category of truck on number of axles, and are based on unit costs per truck km. from ERVLS data and the annual distances of trucks (from numbers of vehicles times the average annual distances). Two sets of results are given, one based on ABS averages and the other on ERVLS averages.

Step 3. Assign other separable costs Q of trucks including larger roads, passing lanes, grade easement, and bridges. The D.M.R. considered this as 21% of the figure R from Step 1. and the Commission accepted 15% on the basis of a British model. The figure Q is dissected into categories Q_S , Q_L , Q_A for small rigid, large rigid and articulated trucks on the basis

of truck numbers weighted by respective average gross vehicle weights of 4.5, 13.3 and 24.3 tonnes.

Step 4. Assign separable costs S of all other vehicles on the basis of a Finnish model (McDonnell, 1980, Vol. 4, Appendix 3.3) with non-truck vehicles' separable costs as 11% of the figure T in Step 1.

Step 5. Determine common costs C from $C = T - P - Q - S$.

Step 6. Allocate these common costs C to small rigid trucks C_S , large rigid trucks C_L , articulated trucks C_A and other vehicles C_O , on the basis of vehicle numbers times passenger car equivalents (1 for a car, 2 for a rigid truck and 3 for an articulated truck) times average annual kilometres travelled. Set $C_T = C_S + C_L + C_A$.

Step 7. The total attributable truck costs are $X = P + Q + C_T$ with $X_S = P_S + Q_S + C_S$, etc.

It will be seen from the above description, that because of Steps 2, 5 and 6, the final results are heavily dependent on the annual average distances travelled by each category of truck. Some of the figures used by the Commission appear in Tables 1, 2, and 3, and others are set out above, along with the amounts of $T = \$776$ million and $R = \$408$ million.

The calculation of the 1978-79 figures, using data also given in Tables 1, 2 and 3 is outlined in Table 4. This used the steps above, 1979 data based on ERVLS averages, with $T = \$853$ million (McDonnell, 1980, Vol. IV, p. 3/66) and inferring that $R = \$450$ million. The modified results are due to taking Q as 21% of R as assessed by the N.S.W. Department of Main Roads in place of Q as 15% of R as used by the Commission. The final 1977-78 figures obtained by McDonnell for both ABS and ERVLS average annual truck distances are also shown in Table 4.

COMPARISON OF TRUCK COSTS 1977-78 AND 1978-79.

The report of the Commission of Enquiry into the N.S.W. Road Freight Industry suggests that its estimates for its road costs due to truck use are conservative and gives some reasons for this. These included the facts (vol IV, p. 3/21) that from 1976 to 1977, the number of trucks in N.S.W. increased by about 10,000, and that the annual average truck distance figures, particularly the ABS figures for larger vehicles, were likely to be considerably under estimated.

Another factor explaining the significantly higher 1978-79 estimates is that of the pavement costs measured in cents/truck kilometre for the different categories of trucks. Accepting the figures of Webber et al (1978) as the initial ERVLS figures, it would appear that an error has been made in that some of McDonnell's 1977-78 figures are 10% lower rather than 10% higher than the 1976-77 figures.

The assessment given of the 1978-79 total of truck costs is about \$340 million, or if modified as explained above, \$355 million. This is about 40% of the total road system cost of \$853 million for that year. As such, this compared with the level for 1977-78 found by applying the 'Finnish model' to New South Wales (Vol. IV, Appendix 3.3).

ROAD FREIGHT DEFICITS

TABLE 1.

RIGID TRUCKS IN N.S.W.

	2 axle small	2 axle large	2 axle combined	3 axle	4 axle or more	Total
A. Maximum Gross Weight (tonnes)	-	13.9	-	20.4	28.9	-
B. Truck numbers (000)						
1. McDonell 1976	63.3	40.2	103.5	6.6	4.1	114.2
2. ABS 1979	-	-	106.2	7.4	2.8	119.2
3. Inferred 1979	74	50	124	8	4.6	136.6
C. Average Annual Truck (000 km)						
1. McDonell ABS	-	-	10.2	14.7	18.5	-
2. McDonell ERVLS	15.3	30	-	40	50	-
D. Total Truck km (millions km.)						
1. McDonell ABS	968.5	615	1583.5	145.2	112.8	1841.5
2. McDonell ERVLS	968.5	1206	2174.5	264	205	2643.5
3. ERVLS 1979	1132	1500	2632	320	230	3182
E. Pavement Costs (cents/truck km)						
1. Webber et al 76/77			1.9	2.6	3.6	-
2. McDonell 77/78	0.2	1.7	-	2.4	4.0	-
3. Assumed 78/79	0.3	2.4	-	3.3	4.5	-
F. Total Pavement Costs 78/79 (million dollars)	3.4	3.6	-	10.6	10.4	60.4
G. All costs (cents/truck km)						
1. Taplin 1981	1.0	4.03	-	8.86	-	-
2. New Zealand 1982	0.92	8.58	-	9.33	15.56	-
H. Total costs (million dollars)	10.4	128.7 (60.5)	-	29.8	35.8	204.7 (136.5)
I. Total Tonne km 1979 (millions)	-	-	3075	948	494	4564

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TABLE 1.

ARTICULATED TRUCKS IN N.S.W.

	3 axle	4 axle	3/4 axle	5 axle	6 axle	Total
A. Maximum Gross Weight (Tonnes)	20.4	28.9		35.4	38	-
B. Truck Numbers (000)						
1. McDonell	-	-	7.2	3.4	2.5	13.1
2,3 ABS 1979	3.6	3.8	7.4	3.6	4.2	15.4
C. Average Annual Truck km. (000 km)						
1. McDonell ABS	-	-	41.2	56.1	80.5	-
2. McDonell ERVLS	-	-	60	90	100	-
D. Truck km. (million)						
1. McDonell ABS	-	-	296	190.7	201.3	688
2. McDonell ERVLS	-	-	432	306	250	988
3. 1979 ERVLS	216	228	444	324	420	1188
E. Pavement Costs (cents/truck km)						
1. Webber et al 76/77	4.0	5.2	-	6.0	7.5	-
2. McDonell 77/78	3.6	4.5	-	5.6	7.2	-
3. Assumed 78/79	5.0	6.5	-	7.5	9.4	-
F. Total Pavement Costs 78/79 (million dollars)	10.8	14.8	-	24.3	39.5	89.4
G. All costs (cents/truck km)						
1. Taplin (1981)	13.7	14.85	-	17	-	-
2. New Zealand (1982)	9.33	15.56	-	17.61	22.4	-
H. Total costs (million dollars)	20.2	35.5	-	57	94.1	206.8
I. Total tonne km. 1979 (millions)	-	-	2616	2828	5687	11,278

ROAD FREIGHT DEFICITS

TABLE 1.

Notes for both rigid and articulated trucks

Small rigid trucks are 4 tonnes or less carrying capacity.

ABS = Australian Bureau of Statistics.
ERVLS = Economics of Road Vehicle Limits Study.

- A1. Maximum gross weights for vehicles, Dept. of Main Roads, N.S.W.
- B1, C1, C2, D1, D2, E2. As per McDonell (1980), Vol IV, p. 3/47.
- B2. ABS 1979 Survey of Motor Vehicle Use, supplement, Table 54. Some 2867 rigid trucks do not have number of axles stated.
- B3. ABS 1979 Motor Vehicle Census, N.S.W., distribution between number of axles estimated from Tables 18 and 19 of trucks on register along with B1.
- D3. Obtained from B3 and ERVLS Average Annual Truck Km.
- E1. From Webber et al (1978), Table II, Australia wide separable pavement costs in 1976-77 prices.
- E2. McDonell, Vol. IV, p. 3/47.
- E3. Based on E1 increased by 25% to bring to 1978-79 prices.
- F. From multiplying D3 and E3.
- G1. From Taplin (1981), Table 6.1, page 62 for Tasmanian Roads.
- G2. From New Zealand Road User Charges (1982) converted at \$1NZ = \$A0.74.
- H. Estimates based on G2 charges and 1979 ERVLS distances: using for larger rigid 2 axle trucks Taplin's figure.
- I. From ABS 1979 Survey of Commercial Vehicle Usage, Table 11.

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TABLE 2.

Vehicle Numbers in N.S.W.
(in thousands)

Ref.	Cars and Station Wagons		Motor Cycles	Utilities and Panel Vans	Trucks		Other	Total
	Small	Large			Rigid	Articulated		
1. 1971	1393.5		60.6	166.7	125	11.1	10.5	1767.4
1. 1976	1712.9		95.5	239.8	115.7	13.1	19.0	2196
1. 1979	1906.5		93.2	276.3	136.6	15.4	23.2	2451.3
2. 1979	1812.9		89.4	279.7	119.2	15.3	9.3	2345.8
3. 1979	1893.1		90.8	292.8	121.6	15.7	9.1	2423.2
	Rigid Trucks			Articulated trucks	Other Vehicles	Total		
	Small	Large	Combined					
4. 1976	63.3	50.9	114.2	13.1	2050.0	2177.3		
5. 1979	74	62.6	136.6	15.4	2299.3	2451.3		

- Notes
1. From ABS 1979 Motor Vehicle Census, N.S.W., Table 1.
 2. From ABS 1978 Survey of Motor Vehicle Use; Supplement, Table 54, which unlike 1, excludes buses.
 3. From ABS 1979 Survey of Motor Vehicle Use, buses excluded, Table 23.
 4. From McDowell (1980), Vol. IV, p. 3/47.
 5. From Table 1 and ABS 1979 Motor Vehicle Census.

ROAD FREIGHT DEFICITS

TABLE 3.

Average Annual Distances in N.S.W.
(thousands of vehicle km)

	Rigid Trucks		Articulated trucks	Other Vehicle	All
	Small	Large			
1. McDone11 ABS	15.3	17.2	52.2	52.2	-
2. McDone11 ERVLS	15.3	32.9	75.4	15.5	-
3. 1979 ABS	16.1	18	59	-	15.2
4. 1979 "ERVLS"	16	33	75	15	-

Notes 1. and 2. From McDone11, Vol. IV, p. 3/42.

3. From ABS 1979 Motor Vehicle Usage Survey, Table 9. with small rigid figure less than 3 tonnes tare weight rather than 4 tonne carrying capacity.

4. Based on 2. and 3. above, and cars with station wagons annual average 14,800 km.

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TABLE 4.

Attributable truck road costs, N.S.W. 1978-79
(millions of dollars)

		Rigid Trucks Small	Trucks Large	Articulated trucks	All trucks	Other Vehicles	Total
Step 1.		-	-	-	-	-	T = 853 R = 450
Step 2.	P	3.4	57	89.4	149.8	-	-
Step 3.	Q	14.6	36.5	16.4	67.5	-	-
Step 4.	S	-	-	-	-	S = 93.8	C = 542
Step 5.	C	28.9	50.4	42.3	121.6	420.5	542
Step 7.	X	46.9	143.9	148.1	338.9	-	-
Modified with Q as 21% of R.							
Step 3.	Q	20.4	51.1	23	94.5	-	-
Step 5.		-	-	-	-	-	C = 495
Step 6.	C	26.2	46	38.6	110.8	384.1	495
Step 7.	X	50	154.1	151	355.1	-	-
1977-78 McDonell final costs (Step 7)							
ABS		44.7	77.8	83.5	206.0		
ERVLS		41.4	112.7	107.8	261.9		

TABLE 5.

SUMMARY FIGURES N.S.W.
(millions of dollars; based on 'ERVLS' figures)

	Truck Costs	Truck Revenues	Road Freight Deficit	Rail Freight Deficit
1977-78	300	96.3	203.7	144.5
1978-79	377	122.5	254.5	154

(ref. Text plus McDonell, Vol I, p.9/11 for 1977-78 rail freight deficit).

ROAD FREIGHT DEFICITS

OTHER COSTS

The Commission (McDonell, Vol IV) considered the effects of heavy vehicles in N.S.W. on road accidents, road congestion, noise, vibration, air pollution and so on. Although these costs to people and the environment are in many cases significant and invidious, they are usually very difficult to quantify. An estimate was made for costs of road accidents involving heavy vehicles (Vol. IV p 5/26 and Vol. V, Annex 9) amounting in 1979 to \$38 million dollars. Adding this to the road costs of \$262 million gives \$300 million for 1977-78 and to \$339 million gives \$377 million for 1978-79.

TRUCK REVENUES TO GOVERNMENT

The McDonell Report also considers revenues to both the State Government of New South Wales and the Commonwealth. Both sets of revenue include fixed charges, and variable charges according to the distances travelled. Estimates for revenues from all N.S.W. trucks were given as \$171 million for ABS figures and \$195 million for ERVLS figures (Vol. IV, p. 3/17). The Commission also considered that taxes such as company and payroll, and stamp duties should be considered as general taxes. However, Commonwealth Sales Taxes and Custom Duties relating to trucks (\$56.9 million), and fuel taxes (\$74.6 to \$98.9 million) were accepted as 'truck revenue' along with State Motor Vehicle Taxation and Registration fees, (\$39.3 million) and the former Road Maintenance charge (\$19 million).

It is argued by Robinson and Rattray (1982) that in estimating revenue contributed by the road freight industry, the crude oil levy should be treated as part of the resource cost of oil rather than a contribution to road costs. A similar view is held by Shaw (1981) since the oil levy is to ensure that the price of oil in Australia reflects the world opportunity cost. We accept this, and also treat Commonwealth Sales Taxes and Customs Duties from trucks, (as it is with cars) as general taxes. There is also a good case for including as 'truck revenue' only that fraction of the fuel taxes returned by the Commonwealth to the N.S.W. State Government by way of road grants. This is identified by McDonell (Vol. IV, p. 3/44) in dollar values and as 47.6% of the fuel taxes collected.

A further concern about McDonell's treatment of truck revenues is the basis of calculating the fuel taxes. Reference is made in the Report to two schedules (Vol. IV, p. 3/48/49) as the basis for the fuel tax figures. However, the vehicle numbers and estimates for annual truck distances in these schedules are considerably higher than the quoted ABS or ERVLS data.

Accepting only the 'State' revenues of Motor Vehicle taxation and Registration, the former Road Maintenance charge and the above 47.6% of the fuel taxes, the maximum combined truck revenue for 1977-78 is \$96.3 million.

A rough estimate of the comparable 1978-79 figure is \$122.5 million and is derived as follows. The number of trucks over one year increased from 127.3 to 152 thousand or by 19.4%, indicating a rise in State Registration fees for N.S.W. trucks from \$39.3 million to \$46.9 million. The 'ERVLS' estimates of total truck distances rose from 3671 to 4370 million kilometres or 19% so fuel taxes to N.S.W. from trucks increased to about \$56 million. The Road Maintenance collections showed practically no increase and was about \$19.6 million (D.M.R. Annual Report 1978-79). It should be noted that this tax was removed in 1979.

DEFICITS

The estimates of the costs attributable to the N.S.W. road freight industry for 1977-78 and 1978-79, less the estimates of the revenue from trucks to the N.S.W. Government as above, give the 'road freight deficits'. They are shown in Table 5. These deficits, however, do not include allowances for road congestion, noise, air pollution, and property depreciation.

It may be noted that the N.S.W. road freight deficit of over \$250 million for 1978-79 far exceeded the N.S.W. rail freight deficit for that year of \$154 million (as shown as a contribution by the State towards rail freight services: 1979 Annual Report of the N.S.W. Public Transport Commission).

Another estimate of the N.S.W. road freight deficit may be gained from the New Zealand Road User Charges. These charges were introduced under the Road Users Charges Act, 1977, and provide a user-pays system so that 'vehicles will be charged according to the actual costs incurred in maintaining and improving the roading system'. The charges depend on 'the weight of the vehicle, its payload; the distance it travels on the road, and, the types and numbers of axles and their spacing'. By again using estimates of the total annual truck distances for the various categories of trucks by numbers of axles, and maximum allowable gross vehicle weights in N.S.W. for the various axle configurations, it is possible to get broad N.S.W. estimates with the New Zealand charges. These unit charges are given in Table 1 along with the total N.S.W. estimates costs. It will be noticed that, with the exception of the larger 2 axle rigid trucks, that the 1982 New Zealand unit costs are comparable with recent Tasmanian estimates (Taplin, 1981). The total costs range from \$343 million to \$411 million in 1981-82 dollars. The lower estimate (using the Tasmanian figure for 2 axle trucks) of \$343 million would also be another contender for the N.S.W. road freight deficit for 1978-79.

DATA PROBLEMS

With the completion of the 1982 ABS Motor Vehicle Census and Survey of Motor Vehicle Usage, more up to date figures should be obtainable. However, many problems have presented themselves in the past with this data.

The first is the difficulty in ascertaining the total road system costs. There are problems in reconciling the figures used by McDonnell with those given in N.S.W. State Government Annual Reports, and those cited in the ABS publication, State and Local Government Finance, Australia. A similar problem exists with rail figures; for example, the 1978-79 N.S.W. Rail Deficit is shown as \$301 million (ABS, 9201.0, Table 14) whilst the 1979 Annual Report of the P.T.C. of N.S.W. shows contributions by the State to the cost of rail services as \$452 million.

The second problem is with the 1979 ABS Motor Vehicle Studies, many figures are given for rigid and articulated trucks by tare weight. However, the standard methodology quotes unit costs per truck kilometre by number of axles rather than tare weight. Better estimates of average annual truck distances are much needed. There also should be more information readily obtainable on fuel consumption.

A major problem with the data is that of accuracy. In a 1979 ABS Survey of Motor Vehicle Usage supplement, Table 54, of a total of some 119195 rigid trucks, 2867 had number of axles 'not stated'. As shown in Table 2, there are three different ABS estimates of the number of rigid trucks for 1979 from the above to 136,600.

FREIGHT RATIONALIZATION

We have already observed that for some forty years in N.S.W., varying degrees of regulation were applied under the State Transport (Co-ordination) Act, 1931, to protect the railways (and the roads) from unrestrained competition from the growing road freight industry. Following the High Court decision in 1954, a Commonwealth Parliamentary Committee (Wentworth, 1956) in its report 'Standardization of Trunk Line Railways' considered a part in the section 'The Ruin of the Roads' as follows.

"The economic advantages of interstate standardisation have been rendered more attractive by the recent legal decisions in regard to the interpretation of Section 92 of the Constitution. The requirement that 'trade, commerce and intercourse among the States shall be absolutely free' has apparently been interpreted by the Courts to mean that no Government, State or Federal, has the power to tax or effectively control interstate road transport.

"This means, it would seem that heavy road transport, operating interstate, cannot even be made to pay normal registration fees and thus avoids a fair charge for the use of the State highways which it is congesting and destroying.

"In these circumstances, it is nonsense to speak of fair competition between road and rail as regards interstate transport. A great part of railway costs relates to the construction and maintenance of the permanent way, whereas the heavy interstate road trailer not only gets its road free, but destroys it and puts the burden of its repair upon the rest of the community."

Elsewhere in the report, it was noted how the Hume Highway was then rapidly deteriorating, with an estimated 800,000 tonnes per annum moving between Sydney and Melbourne by heavy road trailer. It was considered that interconnection of the mainland State Capitals by standard gauge railway would (p.11) 'save large imports of oil, rubber and motor vehicles'. As well, the report noted diesel electric locomotives burn only about one quarter the quantity per net ton-mile that the diesel road vehicle does.

This factor of rails relative energy efficiency over road of four to one was noted in the recent 'Transport and Energy Overview' (ATAC, 1979, p. 82-85) where it is noted that 'rail is relatively energy efficient compared to road for long distance freight; for example 540 KJ/tonne km. as against 2590 KJ/tonne km. for truck'. It was also noted that 'rail does have fuel substitute options, such as coal-oil slurries or electrification'.

Despite the so called 'energy crisis' of the early seventies, road freight significantly increased whilst freight carried by N.S.W. railways experienced relatively little growth. From estimates of freight passing through Marulan and Berowra (BTE, 1982, p. 24, 28 and 37) the combined figures with total N.S.W. rail in millions of tonnes are

	Interstate	Intrastate	Sub Total Road	N.S.W. Rail
1972-73	3.3 (1.7)	2.5	5.8	31.1
1977-78	3.7 (2.2)	4.7	8.4	33.4

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with freight between Sydney and Melbourne shown in brackets. The total N.S.W. Road and N.S.W. Rail freight figures for 1978-79 are (ref ABS 9201.0 Table 10 and 9209.0, Tables 11 and 15)

	Road Trucks			Rail
	Rigid	Articulated	Total	
Tonnes (millions)	189.3	119.6	309	33.5
Tonne-kilometres (millions)	4564	11278	15842	8777

One of the terms of reference of the Commission of Enquiry into the N.S.W. Road Freight Industry included 'the need or otherwise for rationalization of freight traffic between rail and road transport'. The report includes a brief section (vol. I, 7/1) on the modal split concentrating on the four major N.S.W. transport corridors. It also discussed rail costs and revenues, noting an increasing gap and that (Vol. I, p. 9/11) the LCL (less than container load) traffics accounted for the whole of the rail freight deficit in 1976-77. The Commission refrained from directly recommending that the railways abandon the LCL traffic, or for that matter, any specific modal shift from road to rail. It did, however recommend that the strategic role of rail system in the long haul transport of major bulk commodities and containers 'should be conserved'.

In the period 1979 to 1982, the Government of N.S.W. has unsuccessfully attempted to have its railways discontinue some of their LCL business, and to introduce a compulsory railing scheme for the transport of containers between Port Botany and depots in the Western Suburbs of Sydney as recommended by a Commission of Enquiry (Kirby, 1981). The State Government has also failed in its efforts to reduce road haulage of export coal from 5 to 2 million tonnes per annum in time for the commissioning in November 1982 of the new Port Kembla Coal Loader.

Other problems include the three year delay in the imposition of a diesel fuel tax as a replacement for the old road maintenance levy, and its lowering from 5 cents to 3.57 cents per litre after its introduction in 1982. Truck safety, overloading, and police enforcement of speeding trucks are also problems in addition, many of the recommendations of the McDonnell Commission (Second report Vol. IV) relating to quality licensing with a Hauliers' Registration Tribunal, joint State/Commonwealth consideration of a system of tonne-kilometre charges, alleviating serious data deficiencies, and, follow up surveys have not, it would seem, been taken seriously by the Government of New South Wales.

These problems cannot be ignored by the Commonwealth. If its directions given early in 1982 to Australian National Railways to cease operating at a loss by the end of the eighties, then more cost recovery from the road freight industry will be needed. As the 1981 Report on Rail (ARRDO, 1981, p. 86) notes 'better cost recovery from heavy commercial road vehicles is an important part of a strategy to obtain improved cost recovery by rail from general freight.'

ROAD FREIGHT DEFICITS

CONCLUSIONS

The paper introduces the concept of a 'road freight deficit' as costs attributable to the road freight industry for the roads it uses in the course of its business less certain revenues to Government derived from trucking operations. Using methodology directly based on that employed by the Commission of Enquiry into the N.S.W. Road Freight Industry (McDonell, 1980) along with revised data, it is shown that for each of the financial years 1977-78 and 1978-79, in N.S.W., the road freight deficits exceeded the published rail freight deficits. Moreover, the estimated road freight deficit of \$250 million for 1978-79 is conservative when compared with the amounts N.S.W. truck operators would have actually paid in New Zealand for access to public roads to perform their transport task.

After noting that problems with the ruin of the roads due to deregulation had been forecast in the fifties by a Commonwealth Parliamentary Committee, and observing the further growth in the N.S.W. road freight industry in the seventies following intrastate deregulation, it is suggested that N.S.W. has brought upon itself many problems; problems that the Commonwealth cannot remain indifferent to.

ACKNOWLEDGEMENTS

Whilst the author accepts responsibility for the contents and views of this paper, it is his pleasure to thank Mr. D. Francis, Advanced Planning Engineer and Library Staff of the N.S.W. Department of Main Roads for drawing attention to many of the references cited. In addition, I am grateful for the more positive comments of the referee.

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