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Freight transport industry in New Zealand

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FREIGHT TRANSPORT INDUSTRY IN NEW ZEALAND

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ABSTRACT

This paper focuses on the domestic freight industry in New Zealand. It reviews the geographical basis and historical development of freight transport. The supply and demand factors of the freight industry are then discussed. The individual rail, road, coastal shipping, and domestic air modes are also reviewed. Competition between these modes is covered. The paper concludes with an overview of some of the major policy issues facing the freight transport industry in New Zealand. These policy issues relate to the environment, safety, road pricing, marine transport taxation and labour relations.

Keywords: New Zealand freight industry, rail, road, coastal shipping, domestic air freight, transport economics, transport policy issues

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1. INTRODUCTION

1.1 Geographical Considerations

New Zealand comprises two elongated main islands oriented north/south bisected by Cook Strait, a sea passage that is not amenable to bridging or tunnelling to provide land connections. A few hardy souls have managed to swim between the islands, but for most mortals reliance is placed upon shipping and air services to integrate North Island and South Island activities into one national economy (Kissling and Sinclair, 1973). Vehicular ferries (for rail and road freight and passengers) join Wellington with Picton in the Marlborough Sounds. Other ports are also connected by inter island coastal shipping services. (see Figure 1)

Land transport by rail and road links most major centres of population. The State Highway system of 10,453kms out of a total 91,800kms, although mostly two lane sealed highway, is certainly not engineered to United States Interstate Highway standards. A determined tourist could drive the length of both islands in 24 hours in favourable weather without breaking the 100kph speed limit. A freight truck driver would exceed allowable driving hours before completing such a journey.

The nature of the topography of the North and South Islands dictates that both the rail and road networks feature many sinuous and hilly sections that would have appalled a Roman road builder, but gladdened the heart of tunnelling engineers. The rail network is built to narrow gauge specifications reflecting the compromise of tight radii and relatively steep gradients which the pioneer rail constructors, funded by the Vogel government, had to accept if they were to avoid even more costly tunnels and major earthworks (McQueen, 1988). Maximum rail length (5,689kms) was attained in 1953 (Leitch and Stott, 1988), but uneconomic branch line closures have seen that figure reduced significantly to 3,913km (Tranz Rail, 1996).

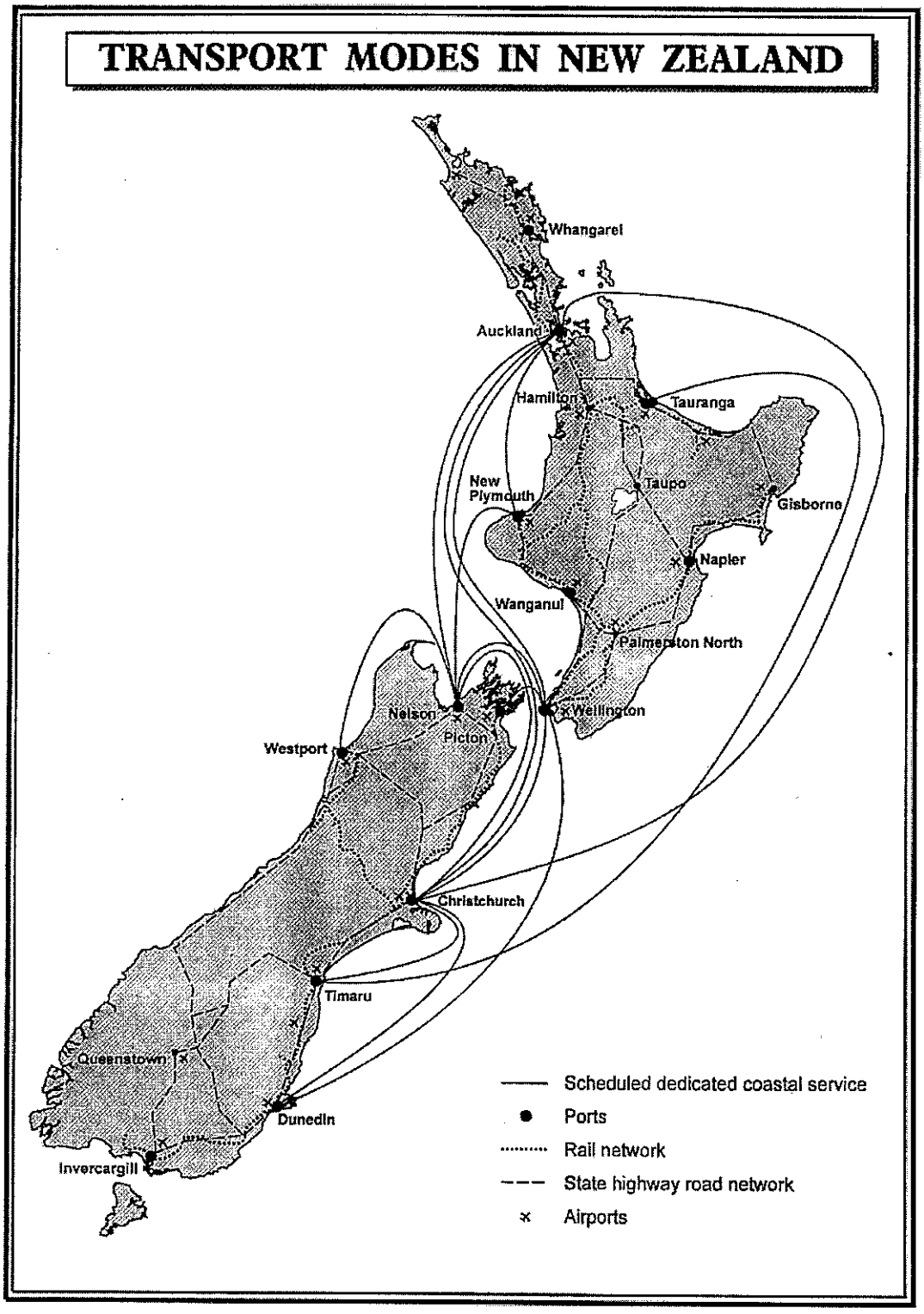
1.2 Historical Development

The pattern of historical settlement development and transport evolution in New Zealand closely approximated the four phase model for transport expansion in underdeveloped countries espoused by Taaffe *et al.* (1963) and shown for New Zealand by Rimmer (1967 & 1973).

Initial European settlements were based on scattered coastal ports. Each port served a small hinterland. In the second phase of growth, some port towns developed superior lines of penetration inland to capture larger hinterlands and invariably, those settlements boasted superior harbour facilities capable of handling increasing tonnage.

Inland transport routes by road and rail gradually tied the main port settlements together in the third phase of transport development. Trunk rail and road networks emerged in the fourth phase, spelling the demise of lesser ports. Today, a multimodally competitive transport network structure has emerged wherein all urban settlements are connected by road, the major ones by rail and coastal shipping, as well as, by direct air transport links (see Figure 1).

FIGURE 1



Source: New Zealand Shipping Federation, Wellington, 1997.

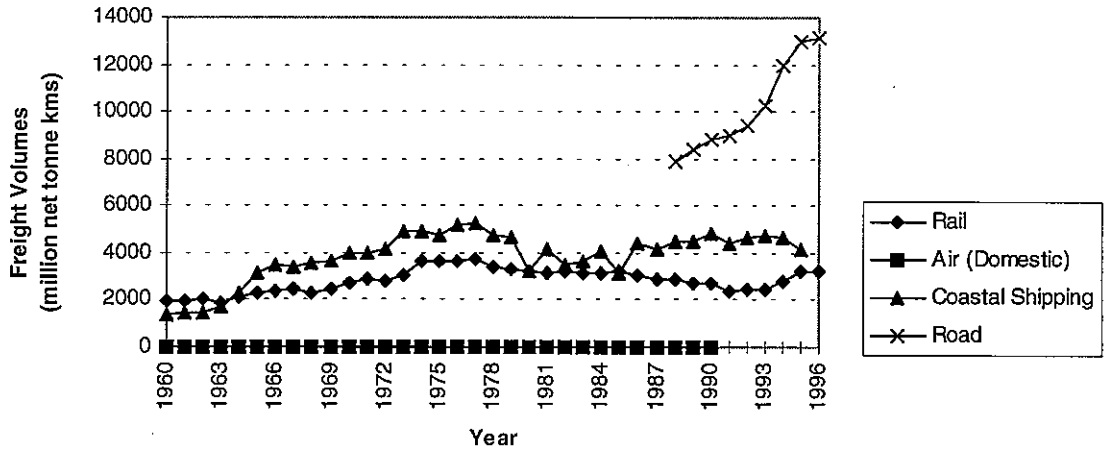
There is also a significant distribution network that uses pipelines. In the North Island, natural gas is piped from the gas fields off the Taranaki coast (near New Plymouth) to main urban centres, providing an alternative to electricity and completely replacing former coal-gas production. There is also pipeline distribution of aviation fuels from the Marsden Point refinery (Whangarei) to Auckland International Airport. This method of distribution removes the need for road tanker traffic contesting congested road space in the Auckland Metropolitan area, bringing safety benefits in the process.

Transport integration has mirrored economic integration within New Zealand. It is also very apparent that integration in the global economy is exerting continuing pressure on the way transport is provided in New Zealand and for the conduct of New Zealand's external trade. The total volume of trade involving New Zealand is relatively insignificant in world terms even if vital to New Zealand. New Zealand is in a peripheral position with respect to world markets, even the fast expanding Asian markets. It is therefore, most likely that New Zealand will become increasingly reliant on feeder services to Asian superports. Those superports are closely bound into fast, efficient, effective, timetabled round-the-world services. Shipping companies needing to replace ageing tonnage that currently provides specialised refrigerated cargo handling for New Zealand exports, may look for more consolidation for the economies needed to sustain that trade in a few larger feeder vessels.

The number of seaports with direct international shipping services is still comparatively high when considered in relation to total population, but the trend has been inexorably moving towards reduction in that number. Conceivably, New Zealand could be served by one or two main container ports for most items of overseas trade (e.g., Auckland and Lyttelton), with collection and distribution handled by a combination of coastal vessels, rail and road transport. Only the very specialist nature of some commodity trades (horticulture and forest products) may ensure that particular regional ports like Nelson (without rail links), Napier and Tauranga will continue to receive direct overseas shipping.

The estimated freight volumes carried by the domestic freight transport modes in New Zealand from 1960 to 1996 are shown in Figure 2. A more detailed breakdown of these volumes is provided in Table 1 for 1989/90. This is the most recent year for which data is available for all the modes. As can be seen, road transport is the major mode carrying about 54 percent of New Zealand's domestic freight measured in terms of net tonne kilometres (i.e., tonnage multiplied by distance transported). Rail carries about 17 percent of the domestic freight and the remaining 29 percent is carried by coastal ships (including the rail ferries between the North and South Islands). Air freight is less than 1 percent. Since deregulation in 1986, the proportion of freight by road has increased markedly.

FIGURE 2
Domestic Freight Volumes by Transport Mode, 1960-96



Sources: NZ Road Transport Association, 1996, Freight volumes by mode of transport (unpublished, derived from NZ Official Yearbooks, NZ Rail Annual Reports, & road industry estimates). No comparable road freight value data is available before 1988.

TABLE 1
Estimated Freight Volumes in New Zealand by Transport Mode, 1989-90

	Tonnes	Net Tonne Kms		Average Distance
	(000)	(million)	(%)	(km)
Rail	8,800	2,735	*16.7*	311
Road	na	8,854	*53.9*	na
Sea (coastal)	7,384	4,800	*29.2*	650
Air (domestic)	48	29	*0.2*	597
Total		*16,418*	*100.0*	

Sources: NZ Road Transport Association, 1996, Freight volumes by mode of transport (unpublished).

2. MARKET STRUCTURE

2.1 Demand Factors

New Zealand's population distribution is an important determinant of demand for freight transport. This is particularly so when it comes to decisions on logistics and distribution channels for meeting the needs of service industries. New Zealand has a highly urbanised population and it is far from evenly distributed. In 1995, Statistics New Zealand (1996, Table 2.04) estimated that 69 per cent of the population lived in the 15 main urban areas and 26 percent lived in Auckland, with a further 7 percent of the population living in the 15 secondary urban areas. Growth is not uniform. Urban areas in the south of each island have experienced little or negative growth, whereas urban areas between Auckland and Rotorua in the North Island and Nelson to Christchurch in the South Island have continued to grow.

The sheer dominance of Auckland attracts many secondary processing industries that are not closely tied to local input materials (Table 2). Most manufactured imports enter New Zealand through Auckland. Firms that seek to supply the whole national market tend to locate in the Auckland area close to the principal market, causing an imbalance of freight flows between that region and others further south. This fact makes the search for backhaul business an important management task.

It is possible for goods to reach Christchurch within 24 hours by rail-rail ferry-rail links from Auckland. This "24 hour reach" from Auckland will likely extend further south of Christchurch, if the construction of a new South Island terminus at Clifford Bay for Rail Ferry operations becomes a reality (Baines *et al.* 1996). Likewise, coastal shipping operations with roll-on-roll-off capacity link Auckland directly and effectively to southern markets.

One factor that mitigates the attractiveness of Auckland as a manufacturing and supply base is the higher cost of land and infrastructure. Also, electricity costs in the South Island have historically been lower than in the North Island reflecting the cheaper production associated with hydro electric power schemes in the south compared with coal and gas in the north. This differential may not continue under new electricity supply regimes.

Other factors which are highly relevant to the demand for freight transport services include the general income levels related to growth in the economy, export and import levels, and prices and characteristics of the different transport modes. For example, freight transport in New Zealand has been growing at a rate of about 6 percent per annum in recent years, between 1991 to 1995 (New Zealand Road Transport Association, 1996). This has been driven by average growth rates of 3.2 percent per annum in Gross Domestic Product, 6.6 percent per annum in export volumes and 7.6 percent per annum in import volumes over the same period (New Zealand Institute for Economic Research, 1996). Historically, changes in the demand for freight transport have closely followed changes in the domestic and external sectors of the New Zealand economy. Unfortunately, accurate estimates of price and income elasticities for freight demand are not available.

TABLE 2
Activity Units and Full-time Equivalent Persons Engaged
by Regional Council and Industrial Classification

Regional Council	Agricultural Services, Hunting, Forestry, Fishing	Mining & Quarrying	Manufact-uring	Electricity, Gas, & Water	Construc-tion	Wholesale, & Retail Trade Restaurants & Hotels	Transport, Storage & Communi-cation	Business & Financial Services	Community, Social & Personal Services	Total
Northland										
Number of Enterprises	732	44	630	26	959	2,081	498	1,000	1,425	7,395
Full-time Equivalent Employees	1,748	193	5,677	376	2,685	8,653	2,067	2,984	9,366	33,747
Auckland										
Number of Enterprises	1,245	94	8,123	78	10,080	19,744	5,001	19,303	10,849	74,517
Full-time Equivalent Employees	2,980	445	90,713	1,904	27,019	108,146	31,761	66,139	88,544	417,649
Waikato										
Number of Enterprises	1,279	96	1,830	81	2,604	5,353	1,264	3,159	3,545	19,211
Full-time Equivalent Employees	4,626	1,221	20,507	1,500	8,429	24,314	5,573	10,230	29,127	105,526
Bay of Plenty										
Number of Enterprises	859	12	1,164	31	1,794	3,544	897	2,100	2,162	12,563
Full-time Equivalent Employees	3,750	87	12,231	471	5,631	16,351	4,035	6,064	16,549	65,149
Gisborne										
Number of Enterprises	256	9	170	6	265	999	125	265	452	2,147
Full-time Equivalent Employees	995	30	1,967	136	993	2,869	653	1,105	3,646	12,393
Hawke's Bay										
Number of Enterprises	492	12	683	20	946	2,171	514	1,159	1,447	7,444
Full-time Equivalent Employees	1,666	62	10,558	420	3,047	10,333	2,195	3,738	11,407	43,425
Taranaki										
Number of Enterprises	270	48	557	36	716	1,603	353	898	1,091	5,572
Full-time Equivalent Employees	702	973	8,150	629	2,649	7,188	1,827	2,934	7,958	33,007
Manawtu										
Number of Enterprises	681	22	1,125	45	1,497	3,611	761	1,729	2,316	11,787
Full-time Equivalent Employees	2,280	112	13,896	637	4,949	16,769	3,285	5,674	25,503	73,102
Wellington										
Number of Enterprises	612	90	2,048	48	3,368	6,624	1,828	7,875	4,576	27,069
Full-time Equivalent Employees	1,630	139	22,344	1,456	9,803	35,762	11,449	34,062	53,354	169,998
North Island										
Number of Enterprises	*6,426*	*427*	*16,330*	*371*	*22,229*	*45,330*	*11,241*	*37,488*	*27,863*	*167,705*
Full-time Equivalent Employees	*20,376*	*3,261*	*186,040*	*7,526*	*65,184*	*230,383*	*62,845*	*132,928*	*245,453*	*953,994*
Tasman										
Number of Enterprises	285	17	199	8	362	548	135	274	329	2,157
Full-time Equivalent Employees	785	45	1,846	162	974	2,240	486	591	1,762	8,889
Nelson										
Number of Enterprises	152	2	277	5	365	794	213	529	447	2,784
Full-time Equivalent Employees	1,017	3	3,476	58	1,081	3,783	1,205	1,583	4,145	16,349
Marlborough										
Number of Enterprises	261	88	183	18	226	602	153	205	401	2,137
Full-time Equivalent Employees	673	702	1,515	149	782	2,689	781	564	2,581	10,434
Canterbury										
Number of Enterprises	997	50	3,044	49	3,548	8,093	1,803	5,096	4,662	27,342
Full-time Equivalent Employees	2,865	167	37,249	1,305	11,564	40,156	11,359	16,473	44,162	165,298
Otago										
Number of Enterprises	528	41	844	44	1,348	3,159	706	1,758	2,114	10,542
Full-time Equivalent Employees	1,798	240	11,543	536	4,627	15,575	3,580	5,641	18,511	62,050
Southland										
Number of Enterprises	518	22	440	38	642	1,534	375	751	968	5,288
Full-time Equivalent Employees	1,889	225	8,438	312	2,478	7,627	1,994	2,607	7,458	33,025
South Island										
Number of Enterprises	*3,130*	*225*	*5,245*	*175*	*6,803*	*15,392*	*3,569*	*8,935*	*9,285*	*52,759*
Full-time Equivalent Employees	*10,095*	*1,448*	*66,722*	*2,634*	*22,463*	*74,924*	*20,152*	*28,340*	*81,882*	*308,658*
Extra County Islands and Shipping										
Number of Enterprises	81	0	10	2	8	11	5	9	21	147
Full-time Equivalent Employees	159	0	52	2	10	36	10	13	40	321
New Zealand Total										
Number of Enterprises	9,637	652	21,585	548	29,040	60,733	14,815	46,432	37,169	220,611
Full-time Equivalent Employees	30,629	4,708	252,813	10,162	87,657	305,343	83,007	161,281	327,375	1,262,973

Source: Statistics New Zealand, 1996, Business Activity Statistics 1995, Wellington, Table 1.4a.

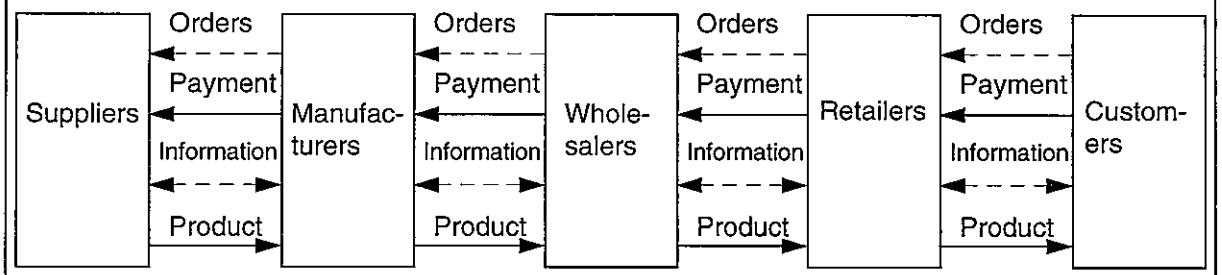
2.2 Supply Factors

The demand for freight movement results from the fact that moving a good from one place to another increases its value. Figure 3 shows the flow of material and information between the supplier, manufacturer, wholesaler, retailer and customer. As the good is moved between each of these entities, its worth increases.

The type of transport used, depends on the value of the product, its weight and volume, and the time required to transport the good. Coastal shipping and rail carry much of the bulk cargo in New Zealand. Containerisation and the use of roll-on-roll-off ships have allowed more high value cargo to also be carried by ship and rail. Coastal shipping and rail have regularly scheduled services between major urban centers in New Zealand. Trucking generally carries higher value cargo that may be time sensitive or products that are not in large enough volume to be moved by ship or rail. The major advantage of trucking is that it can provide door-to-door service, whereas freight shipped by coastal ship or rail usually needs to be transferred to truck for pick up and final delivery. Truck rates are relatively higher than those of coastal shipping and rail because of the lower volumes of freight that are carried by an individual truck (see Table 10). Air freight provides the quickest service for moving freight. Goods moved by air freight are usually light weight high value items. The cost for air freight is the highest of the four modes of freight movement (see Table 10). All of the commercial air carriers and New Zealand Post have air freight operations. There is currently a trend toward increased intermodal shipping of freight (see Section 5.2).

FIGURE 3

Material and Information Flows in the Transport Distribution Chain



Source: Adapted from Lambert and Stock, 1993, Strategic Logistics Management, p 106.

The cost of transportation is a factor in the location of some types of economic activities. Those that have a substantial weight loss in processing tend to be located near their raw material source. Thus, much of the ore processing in the mining industry takes place near the mine and lumber milling occurs near the forest regions. Those industries that have substantial weight or volume gain tend to be oriented toward market regions. For instance, soft drink production and the baking industry are found near their markets. Other industries that do not have substantial weight loss or gain, such as the clothing trade, are termed "footloose" industries and have more options in their location. They may choose to locate where labour costs are low or near the market to keep up with changes in customer demands.

No matter where these industries choose to locate, transport plays a major role in their operations. Transport moves the raw materials from the suppliers to the manufacturer. Once the good has been produced by the manufacturer, it is moved to the wholesaler or retailer. If it is sold to a wholesaler, the wholesaler then delivers smaller quantities of the product to each of the retail establishments served by the wholesaler. The customer then purchases the product from the retailer and either takes it from the retailer in their own vehicle or has it delivered. Transportation is involved in each of these transfer steps.

Transport Operator's Cost Structures

The supply of freight transport is heavily influenced by the costs involved. There is a wide range of costs involved in supplying transport services (Button 1993). These costs vary by type of transport operation, distance covered, size of operations, nature of goods carried and technology used. They also vary over the short and long term. Railway costs will be discussed briefly to illustrate the underlying structure of transport operators costs.

The railway system is characterised by a high proportion of fixed costs, which generally do not vary with the volume of business. These costs include expenses related to the track infrastructure (including bridges, tunnels, overhead traction, signalling, track and permanent way), marshalling yards and terminals, general administration and maintenance expenses caused by weathering and age, but not based on usage. In the short run, these costs are constant, and they are generally the same regardless of the volume of traffic the railway carries. For most railways, the fixed costs are believed to be between 40-50 percent of the total cost structure (Wood & Johnson, 1989, p124).

The remaining 50-60 percent of the railway costs are variable costs. These vary directly with the volume of traffic. Examples of railway variable costs include maintenance of equipment (e.g., locomotives, rolling stock and freight handling equipment), maintenance of track infrastructure based on usage, labour, fuel, power and lubricants.

Because of the relatively high fixed cost structure associated with railways, they are subject to significant increasing economies of scale. As volume increases, the total cost of production decreases on a per unit basis (illustrated in Figure 4). However, it is important to note that economies of scale result, in the long run, from being able to do a number of things more economically at higher output levels, including producing, managing and marketing, not just from the ability to spread fixed costs over a larger number of units. Also, in the long run, many of the short term fixed costs can become variable, as illustrated by the restructuring of the New Zealand Railways Corporation (see Section 3.1).

Figure 4 illustrates the cost structure for all transport modes. There are fixed and variable cost components for each mode. The fix costs vary by mode. As discussed above, rail has a high fixed cost because of the greater amount of infrastructure required, while trucking has a much lower fixed cost component with the major cost being the tractor and trailer units and any depot facilities used for storage, transfers, and maintenance. Rail must maintain its own right-of-way, while other modes of trucking, coastal shipping, and air use right-of-ways maintained and supervised with the use of public funds. Of course, there are costs for each mode to maintain this infrastructure, including fuel taxes, docking fees for ships and landing fees for aircraft. Variable costs also differ by mode. The larger tonnage that coastal shipping and rail carry result in lower variable costs than that of trucks and air. Similarly, the cost in Figure 4 can also be considered in terms of distance, rather than weight.

Until the mid 1980s, the New Zealand government had implemented measures that distorted the freight transportation market. Long-haul trucking was not allowed. Trucks could only be used for local deliveries and to transport goods to and from the government owned railroad depots. The railroads and coastal shipping were used in all long distance freight movement. In addition, only New Zealand registered ships could provide coastal shipping services. International ships calling at a number of New Zealand ports, could not carry domestic cargo between these ports. Deregulation has allowed market forces and competition to determine the transport mix, and reduced the monetary and non-monetary cost of using transport services. Now, the customer is free to choose from any of the modes or a combination of these modes.

Freight Service Providers

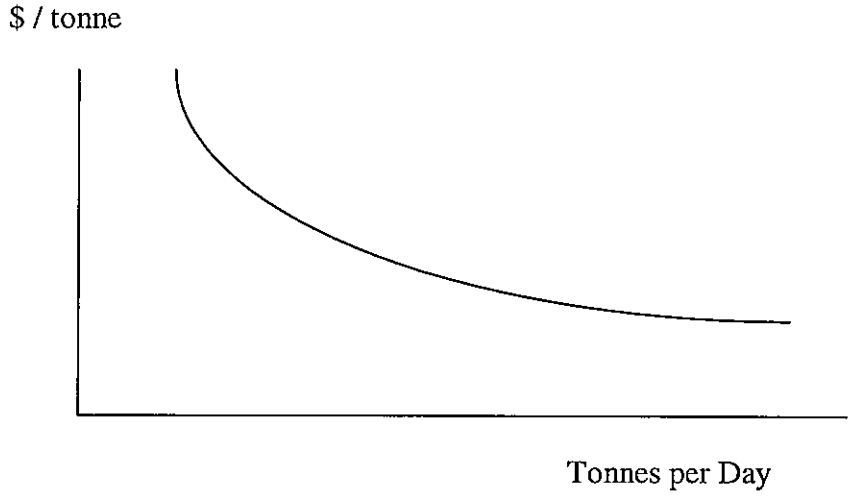
To meet the needs for freight transportation within New Zealand, there are a great many and variety of freight service providers. These include the railways, truck companies, pipelines, sea vessels and air transport carriers. In addition, there is a wide variety of organisations and people that provide support services to these freight carriers. These include air and sea ports and related activities, such as hire cars and waste incinerators, storage and warehousing facilities, freight agents, insurance and other transport services.

A summary of the activity (operating) units and full-time equivalent employees in the New Zealand freight transport industry is provided in Table 3. Only "economically significant enterprises" are included, i.e., those that meet the criteria defined by Statistics New Zealand (1996b, p24) including those businesses with "greater than $30,000 annual Goods and Services Tax (GST) expenses or sales" or with "more than two full-time equivalent paid employees".

It should also be noted that this table includes some operating units that provide both freight and passenger transport services (e.g., railway transport, air transport carriers). In addition, other operating units and people providing essential support services to transport, e.g., the maintenance and construction of railway tracks, are classified under other New Zealand Standard Industrial Classification (NZSIC) industry groupings, e.g., construction. However, the table does indicate the general numbers involved in freight transportation in New Zealand. Overall, the transport sector (including all freight and passenger activities) employed about 4.8 percent of New Zealand's full-time equivalent employees and contributed about 5 percent to Gross Domestic Product in 1995 (derived from Statistics New Zealand, 1996a and 1996b). By comparison, the transport sector in Australia employed 4.7 percent of the total employment in 1994/95 and contributed 5.7 percent of the Gross Domestic Product (Abelson, 1996, Table A.1, p14).

FIGURE 4
Example of a Transport Operator's Cost Structure

(a) Unit Cost per Tonne Carried



(b) Total Costs

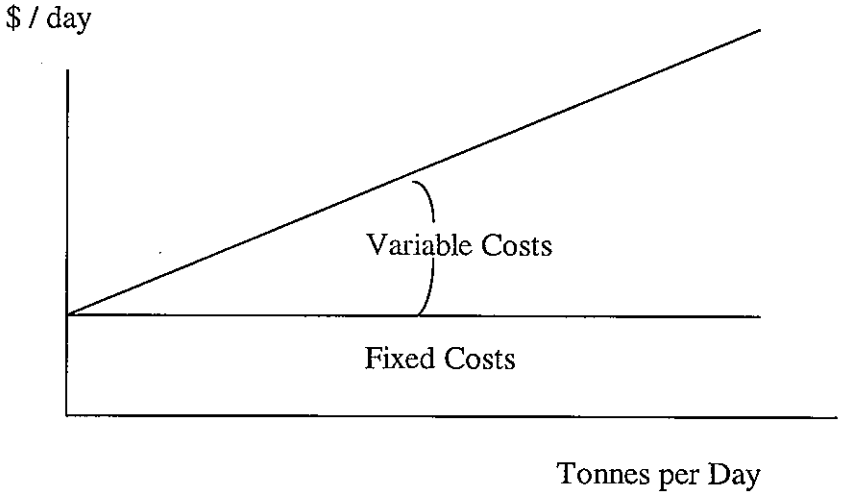


TABLE 3
Activity Units & Full-time Equivalent Persons Engaged in the New Zealand Freight Transport Industry, 1995

NZSIC (1)	Industry		Activity Units (2)	Full-time Equivalent Employees
71110	Railway Transport	(3)	206	1,936
71141	Logging Haulage		235	1,325
71142	Stock Haulage		207	1,184
71143	Refrigerated Haulage		86	658
71146	Furniture Removal		186	1,203
71149	General Freight Carriage		4,460	16,545
71150	Pipeline Transport		1	1
71210	Ocean & Coastal Water Transport		67	1,838
71220	Inland Water Transport		35	272
71231	Harbour Operations		85	2,163
71232	Maritime Safety Operations		3	12
71233	Stevedoring		48	1,417
71239	Other Water Transport Services		93	254
71310	Air Transport Carriers		257	7,908
71322	Airport Operations		79	568
71920	Storage & Warehousing	(4)	350	1,728
71931	Freight Agents		500	4,097
71939	Other Transport Services		180	703
	Total Transport Sector	(5)	*11,745*	*61,206*
	New Zealand Total		*220,611*	*1,262,973*

Notes:

(1) New Zealand Standard Industrial Classification.

(2) An activity unit is a separate operating unit engaged in NZ in one, or predominantly one, kind of economic activity from a single physical location or base.

(3) Transportation of freight and passengers by rail. Excludes railways workshop activity, intermediary activity by firms arranging rail freight, and the construction and maintenance of track.

(4) This activity is included because many larger transport companies are now incorporating storage and warehousing into their business.

(5) The Total Transport Sector corresponds to NZSIC group 71. However, the table only shows transport activities that have a major freight component.

Source: Statistics New Zealand, 1996, Business Activity Statistics 1995, Wellington.

Table 4 summarises the rankings, number of employees, and annual sales or turnover of the largest companies operating in the New Zealand freight industry. These were derived from Goulter's (1995) review of New Zealand's top 500 corporates, co-operatives, overseas subsidiaries and financial institutions. The rankings were based on turnover or sales - representing total sales or revenue, dividends and interest received from the last complete reporting period during 1994/95.

However, motor carrier industry has a substantial portion of its enterprises (over 99%) and its employees (88.4%) in companies of less than 100 employees (see Table 7). Therefore, much of the trucking industry is not reflected in Table 4. There are only a few large general trucking firms with nationwide coverage, such as Owens Road, Mainfreight and Tranz Link, the latter incorporating the road transport division of Tranz Rail (see Table 7). Specialist firms, such as Halls (refrigerated) and Fulton Hogan (contracting), also have comprehensive coverage. One attempt in the late 1980's to merge several regional truck companies into a single national entity (Transpac) failed and only some of the components such as TNL Freighting, based in the Nelson region, were resuscitated.

Similarly, most of the freight companies shown in Table 4 were operating a decade ago and servicing New Zealand's "land-based industries". However, many of the organisations shown in Table 4 were operating in the state sector with substantially more employees. Following the state sector reforms, many of these former state owned enterprises have now been fully or partially privatised (e.g., Air New Zealand, Tranz Rail, Ports of Auckland, Southport New Zealand, Northland Port Corporation New Zealand, Lyttelton Port Company, and Port of Tauranga). It should also be noted that many of the transport companies shown in this table are involved with both passenger, freight and other activities. Nevertheless, the enormous size differences of the transport companies are apparent ranging from Air New Zealand with about 9,000 employees compared with an owner/driver truck operator employing only one person.

More details of the separate freight transport modes are discussed in Section 3.

TABLE 4
Largest Companies Operating in the New Zealand Freight Industry, 1994/95

Rank (1)	Company Name		Line of Business	No. of Employees	Sales/Turnover ($ millions)	
3	Air New Zealand	(2)	Airline Operator	9,039	2,888	
34	NZ Post		Postal Services	9,105	644	
43	Tranz Rail	(2)	Transport	4,600	558	
69	Owens Group	(2)	Int Freight, Ind Serv, Road Transport	1,209	381	
85	Freightways		Holding Company	3,600	280	(3)
97	Ansett New Zealand	(4)	Domestic Airline Services	1,050	241	
135	Milburn NZ	(2, 5)	Prod, Distr & Mktg of Cement	583	153	
146	Ports of Auckland	(2)	Port Operation & Management	539	140	
149	Union Shipping Group		Holding Company	433	137	
163	Mainfreight Transport		Freight Forwarders	370	120	(3)
164	Auckland International Airport		Airport Owners & Operator	260	120	
185	Owens Cooltainer/Coolair		Refrigerated Shipping & Air Transport	84	101	
218	Liquigas		Distribution of LPG	50	85	(3)
231	Air Nelson	(6)	Scheduled Air Services & Charters	300	80	(3)
282	Eastern Equities Corp	(2)	Transport, Logistics & Horticulture	350	60	
288	Ansett NZ Air Freight		Domest & Int Air Freight	300	60	(3)
298	P & O New Zealand		Shipping Agents	340	58	(3)
299	Southport NZ	(2)	Port Company	285	57	
311	Northland Port Corp NZ	(2)	Port Operators & Marine Engineers	250	55	
355	Lyttleton Port Co	(7)	Port Operating Company	264	46	
359	MSAS Cargo International		Freight Forwarding Customs Agents	60	45	(3)
385	Mike Lambert		Transport Co & Holding Company	231	42	
395	Pacifica Shipping Co		Interisland Freight Specialists	181	40	
397	Pengelly's		Int. Freight Forwarder/Customs Agent	120	40	
399	Computer Transport Services NZ		Freight Forwarders	240	40	
401	Christchurch Intnl Airport		Airport Operator	175	40	
407	TNL Group		Transport Services	260	39	
417	Port of Tauranga	(2)	Port Company	128	37	(3)
436	Port of Wellington		Port Operation & Management	125	33	
466	Jenners Customs & Freight		Customs Agents, Air/Sea Freight	25	28	
482	United Carriers		Transport Operators & Civil Engineers	235	25	(3)
488	Port Otago		Port Operators	165	25	
498	Tradeair (AFFCO Holdings)	(2)	International Airfreight	34	20	

Notes:

(1) The rank refers to the listing in NZ's first 500 companies ranked by turnover or total sales.

(2) Public companies (ie listed on the New Zealand Stock Exchange).

(3) Publisher's estimate.

(4) Although Ansett New Zealand is a passenger airline, it is provided with Ansett NZ Air Freight, for comparative purposes with Air New Zealand.

(5) Many other companies (eg oil, manufacturing & food companies, importers, exporters, etc) also own or operate their own trucks or vessels to distribute their products. However there are too many to be all listed in this table.

(6) Trading as Air NZ Link.

(7) Lyttleton Port Company became a listed public company on 5 July 1996.

Source: John Goulter, 1995 First 500 New Zealand Companies, NZ Business, November 1995, pp. 22-34.

3. MARKET STRUCTURE AND REFORM

3.1 Rail Freight Transport

Rail Deregulation and Restructuring

In 1936, the government introduced legislation to protect certain features of the railways business. This was based on the premise of protection of public investment in rail transport from free market competition, particularly in response to the "unfair" competition from the rapid development of the trucking industry following the introduction of motor vehicles with internal combustion engines in the 1920's (Cavana, 1995a, p119). Regulation in transport was strong for nearly five decades, but pressure mounted against the regulatory structure from technology and a change in market forces.

Prior to 1961, to protect the operation of railways, trucks were only allowed to move freight up to 30 miles (50km). In 1961, the 30 mile (50km) rail protection limit was raised to 40 miles (67km). At this time, several commodities were exempt including livestock. The 40 mile (67km) limit was further increased to 94 miles (150km) in 1977, and the exemptions increased.

For more than a century, the railway system in New Zealand was run as a government department (New Zealand Railways Department). The railway system was frequently used as an instrument of the government's social and economic policies, e.g., by absorbing staff under various employment creation scheme. Changes were necessary due to the severe financial problems being encountered. Roger Douglas voiced this need for change in a 1980 speech; "It is absolutely ludicrous that over the past four and a half years railways have increased their freight charges by more than 200 percent, and yet their losses are still climbing. It seems to me there are some basic factors that need to be reorganised by all parties." (Douglas, 1980, p10)

In 1982, Railways became a statutory corporation (New Zealand Railways Corporation) with a commercial mandate, and began a programme of "total restructuring" (see details provided in Cavana, 1995a; King, 1995a & 1996; Small, 1995a). By the end of 1986, railway freight movement protection had been phased out, thus completely opening long distance rail shipments of freight to competition from road transport operators.

By 1989, the Railways Corporation, with the assistance of international consultants, particularly the United States consultants Booz Allen Hamilton, had made considerable improvements in terms of reductions in staff numbers, rationalising assets, introducing new technology and computer systems, improving utilisation of trains and wagons, lowering real freight rates and increasing labour productivity. However, the Corporation was on the verge of "technical bankruptcy" as a result of the increasingly competitive environment in which Railways operated and the costs associated with restructuring and downsizing the Corporation (Cavana, 1995a, p126). This resulted in a substantial restructuring of the Railways Corporation balance sheet on 1 January 1990. The government injected additional equity of $360 million, took over about $1,087 million of Rail debt and wrote down the Rail assets by $856 million. "These changes stemmed from an intention to restructure the balance sheet in a form that reflected the economic value of the on-going core business" (New Zealand Railways Corporation, 1990, p3).

Following this financial restructuring, in October 1990, the government established New Zealand Rail Ltd as a limited liability company. The restructuring continued and profitability was restored to rail. Overall, the numbers employed in the railway system in New Zealand were reduced from 21,600 in 1982 to 5,200 in 1993; freight carried by distance declined by 25 percent;

wagon fleet numbers were reduced by 65 percent and labour productivity increased by over 200 percent. However, offsetting this, total severance payments amounted to $337 million and fixed asset purchases cost $1,111 million (Cavana, 1995a, p131).

On 20 July 1993, the government announced the sale of New Zealand Rail Ltd to a private sector consortium comprising Wisconsin Central Transportation Corporation and Berkshire partners (with a 54.4% holding); Fay, Richwhite & Co. Ltd (31.8%) and other New Zealand groups (13.6%). Wisconsin Central Transport is the largest regional railroad in the United States of America. On 30 September 1993, the sale was completed and in 1995, New Zealand Rail Ltd was renamed Tranz Rail Ltd.

Tranz Rail

Tranz Rail now comprises five groups: Tranz Link (formerly Railfreight), Passenger Group, Operations, Interisland Line (operating the three conventional Cook Strait ferries and the seasonal fast ferry) and the Corporate Office (Tranz Rail, 1996, p6).

Tranz Link markets and manages all aspects of Tranz Rail's freight transport and generates about 70 percent ($400 million in 1995/96) of the company's total revenue. A summary of Tranz Rail's freight tonnages and revenues by commodity group for 1995/96 is provided in Table 5. The agricultural and food products group contributed about 37 percent of Tranz Rail's freight revenue, forestry products and manufactured products each contributed about 18 percent, with the transport of coal contributing the next highest share of 12 percent to freight revenues.

TABLE 5
Tranz Rail Freight Tonnages and Revenue
(Year Ended 30 June 1996)

Commodity Group	Revenue ($ millions)	Revenue Tonne Kilometres (million)	Revenue Tonnes Carried (000)	Freight Revenue per Revenue Tonne Kilometre (cents)
Agricultural and Food Products	150	1,046	2,988	14.3
Forestry Products	71	661	3,111	10.7
Manufactured Products	73	465	963	15.7
Coal	47	594	2,160	7.9
Fertilisers, Minerals and Aggregates	18	170	525	10.8
Other Freight	42	324	559	12.8
Total	*401*	*3,261*	*10,305*	*12.3*

Source: Tranz Rail, 1996, Annual Report 1996, Tranz Rail Holdings Ltd, Wellington, p18.

Richard Prebble (1996, p34) cites Tranz Rail as being one of the great success stories in the transition from a government dominated transport sector to a market driven one. "Today, Railways carry the same amount of freight as they ever did but with a quarter of the staff. Delivery times have been massively improved, freight losses almost totally eliminated and rail freight charges are half what they were. The World Bank has described Tranzrail as the world's

most efficient railway. Managing Director Dr Francis Small and his colleague Dr Murray King are recognised worldwide as innovative leaders in the industry. What's interesting is that they worked for Railways when the department was one of the world's worst railways. Even the most brilliant people cannot perform in a poor structure and an organisation whose values are wrong".

Tranz Rail has now been reorganised to be a competitive player in the transport industry. For example, ten years ago, it took seven to ten days to ship goods from Auckland to Christchurch. On the same route, Tranz Rail now offers a door-to-door service in less than 24 hours (Burkhardt, 1995, p3). "Today Tranz Rail is a multi-modal transport and distribution company offering an integrated network of rail, road and sea services as well as distribution and logistics management." (Tranz Rail, 1996, p6)

3.2 Road Freight Transport

The road transport industry has undergone major changes since it was largely deregulated by the end of 1986. The deregulation allowed truck freight to compete with other modes over long haul routes. It also encouraged entry into the industry by anyone with access to capital resources. There are no regulatory restrictions on service areas or types of services provided by motor carriers. This has led to a rapid growth in the volume of cargo carried by the trucking industry. For example, it has been estimated that freight volumes transported by road were approximately 7,500 million net tonne kilometres (ntks) in 1972. This figure had only increased to an estimated 7,930 million ntks by 1988. However, since full deregulation, road freight volumes have increased to estimated 13,134 million ntks by the year ended 30 June 1996 (i.e., an average increase of 6.5 percent per annum between 1988 to 1996). There are no official statistics on road freight volumes and these estimates have been provided by the New Zealand Road Transport Association (1996) based on Road User Charges. Historical comparisons of freight volumes with other transport modes are provided in Figure 2.

Current restrictions on trucking are a weight limit of 44 tonnes and an equipment height limit of 4.2 meters. These limits are set because of the physical strength of road pavements and the nature of bridge overpasses and power and telephone cable reticulation. Within these constraints, the trucking industry and trailer manufacturers have maximised the space available for carrying cargo. One innovation has been the stepped-down trailer units with low profile tyres that have increased the capacity of the trailer. Trailers have also been designed for diversified use that include both bulk (wood chips, grain, etc) or freight. This allows greater use of the trailers and fewer empty backhauls (Thornton, 1996). There is also a trend toward greater fuel efficiency through better engine and vehicle design. This results in lower operating costs (Goodwin, 1996).

Table 6 shows the major commodities that are moved by truck. Much of this movement reflects the export oriented basic agricultural, forestry, and minerals economy of New Zealand. However, this table only contains estimates of the major commodities moved by truck and it does not contain estimates of the general freight carried, furniture removals, etc., because these are not available (see Table 3 for scope of road transport).

Some large line-haul trucking companies are adopting a hub and spoke strategy for their operations between major urban centres. These companies are providing overnight line-haul services between major urban centres. Some trucking companies have adopted a round the clock operations strategy to allow customers to load a container or provide the cargo to the transport company during the day. In the late afternoon or evening, the cargo is loaded and driven between

major urban centres (i.e., Auckland-Wellington or Christchurch-Dunedin). The use of curtainsider trucks allows for stops at some larger delivery points along the route, such as Palmerston North and Hamilton on the route between Auckland and Wellington. This maximises the use of the capital invested in the tractor and trailer by using them to carry the largest volume the longest distances. By making the line haul runs at night, the carrier also avoids daytime congestion. From the major urban hubs, deliveries are made within the city and to nearby regional centres using smaller vehicles and parcel vans owned by the transport company or subcontractors. (Goodwin, 1996; Arnold, 1996)

TABLE 6
Major Commodities Moved by Truck
(Estimated for 1994/95)

Commodity	Net tonne kilometres (million)
Logs	996
Bulk Wood Products	370
Milk	465
Bulk Petroleum Products	219
Sand, Rock, Gravel, etc	479
Coal	163
Livestock	312
Wool	30
Grain	40
Lime and Fertiliser	219
Meat	11
Kiwi fruit	11
Apples and Pears	4
Dairy Products	20
Inwards Containers	3

Note: This table explains less than half the volume shown in FIGURE 2.

Source: McInnes Group, Improving Heavy Vehicle Productivity, November 1994, pp. 4-5.

In recent years, an over capacity in the trucking industry has led to smaller profit margins. This over capacity is due mainly to the ease of entry into the trucking industry. Capital and equipment are readily available. As a result, the industry has undergone some changes. The trucking industry in New Zealand is comprised of a large number of small operators and a few larger firms. The trend in recent years has been a slight decline in the smaller companies and a rise in the larger long haul firms (see Table 7). This increase in the size of larger companies has been due to a number of consolidations in recent years. These larger firms have a number of advantages. They can have greater purchasing power for fleet replacement, arrange back loading,

establish warehouse facilities, implement modern technology, respond to a diverse set of customer needs and develop business relationships at an international level. (Lunny, 1990, p14)

Employment in the trucking industry is divided between firms that use wage drivers and those that use owner-operators. Firms have different philosophies about service and employment. Owner-operators provide advantages to larger companies because they can focus their capital investment in other areas beside truck acquisition and maintenance, and they provide more flexible employment alternatives. Firms employing wage drivers feel that they have more control in the management of their drivers. With the implementation of the Employment Contracts Act, some of the advantages of the owner-operator have diminished, but many of the larger trucking firms in New Zealand still use them. (Lunny, 1990, p14; Poole, 1991, p10)

The future of the trucking industry in New Zealand, like other transport modes, is tied closely to the economy. The amount of freight movement by truck follows the business cycle and responds to volatility in export and import volumes, as well as in operational costs for fuel, equipment and interest rates. The consolidation of the trucking industry will also continue in the future with larger companies dominating the long haul movements. The larger companies will also continue to diversify into providing warehousing and distribution services. Trucking companies will continue to use other modes when it proves to be cost effective. Thus, motor carriers may use the services of rail and coastal shipping companies to move containers or trailers over the long haul and then use their tractors to make the pick up and delivery of the goods at each end of the journey. Other competing modes of transport, rail and coastal shipping, have established trucking components within their organisations. This allows them to provide the total door-to-door services for their customers. So, the trend in the future, will be more inter-modal freight services.

TABLE 7
Enterprises and Full-time Equivalent Persons Engaged in the NZ Trucking Industry
(1987 to 1995)

	Enterprise Size					
	0 - 5	6 - 9	10 - 49	50 - 99	100+	Total
Feb-87						
No. of Enterprises	4,330	316	387	21	4	5,058
Full-time Equivalent Employees	7,904	2,274	7,085	1,328	566	19,157
Feb-90						
No. of Enterprises	4,334	300	385	12	4	5,035
Full-time Equivalent Employees	7,877	2,135	6,686	718	491	17,907
Feb-92						
No. of Enterprises	4,568	231	255	26	9	5,089
Full-time Equivalent Employees	8,240	1,680	4,746	1,924	1,278	17,868
Feb-95						
No. of Enterprises	4,189	303	323	26	19	4,860
Full-time Equivalent Employees	7,345	2,105	6,021	1,735	3,157	20,363

Source: Kerry Arnold, New Zealand Road Transport Association, 1996 &
Statistics New Zealand, 1996, Business Activity Statistics 1995, Table 1.2a.

3.3 Coastal Shipping

Port Reforms

Prior to the port reforms in New Zealand, the harbour boards ran the ports within a "bureaucratic and non-commercial structure" (Bureau of Industry Economics, 1995, p112), with the New Zealand Ports Authority controlling the harbour board's capital expenditures on plant and equipment. Labour on the waterfront was obtained from a pool of people controlled by a government body (Waterfront Industry Commission). This body was then paid by employers (National Levy System). However, there were no direct links between employee and employer, and restricted practices inhibited labour productivity improvements.

Reform of the ports began in 1984 with a review of the costs of onshore transport and handling cargoes. A new port policy was proposed in 1986 by the Port Industry Review Committee. Subsequently, the government adopted a two stage approach to waterfront reform, consisting of (Bureau of Industry Economics, 1995, p112):

- commercialising port authorities; and
- changing attitude and structure of the labour force to promote competition within and between ports.

Thirteen port companies were established to operate commercial ports under the Port Companies Act 1988. The companies were previously predominantly owned by local government harbour boards, and now they are all corporatised with a direct focus on commercial operations. The initial port company owners (generally local government bodies) were permitted to sell 49 percent of the shareholding at their discretion. Subsequently, the 1990 Port Companies Amendment Act allowed full private ownership of port companies. Shares in five port companies are now available on the New Zealand share market (see Table 4).

The key feature of the labour reforms was to settle the main elements of the industrial awards at the individual port level. The 1989 Waterfront Reform Act abolished the Waterfront Industry Commission, which had been responsible for administering the pool of labour on the waterfront since 1952. This allowed each port and stevedoring company to decide directly on the number of people it employed on a casual or permanent basis. The second stage of waterfront labour reform was implemented with the introduction of the Employment Contracts Act in 1991. This Act "removed work coverage, abolished manning levels and introduced enterprise bargaining while preserving a statutory minimum code of employment rights. The Act removed clauses designating specific types of work to particular organisations, opening up port labour to competition. It also established a platform for direct, enterprise-based agreements between employers and employees." (Bureau of Industry Economics, 1995, p114).

The success of the port reforms has been summarised by Milne (1994, p12): "cargo handling efficiencies increased dramatically immediately after port reform with gang sizes halved, improvement in ship turn around times of 40 - 50 percent, handling costs down between 20 and 66 percent and interface demarcation problems removed or greatly reduced".

In addition, Penn (1996) has also noted that the "commercial" aspects of the reforms at the Port of Tauranga have been highly successful, including:

- In the Port of Tauranga gang strengths have been reduced by as much as 80 percent in some areas, but on average 50 percent.

- Because of 24 hour coverage, ship turnaround has gone from an average of 5.5 days to 1.6 days.
- Tonnes per gross gang hour have increased from 71.9 tonnes to 111.5 tonnes.
- Ship departures have doubled from 4078 to 8028.

However, Penn (1996) has also expressed concerns about some of the adverse impacts of the Employment Contracts Act on waterside workers, and these are discussed in Section 6.5 on Labour Relations.

Currently, most port companies undertake stevedoring activities in competition with private companies; and all ports provide tugs, pilots and linesmen, and own cranes they operate and hire out to stevedores. Also, a considerable level of competition exists between New Zealand ports due mainly to the close proximity of a number of ports allowing substitution between them, the buying power of the relatively small number of well organised shippers that account for a large percentage of New Zealand's maritime trade, and the excess capacity at the ports due to the relatively high level of capital expenditure that has taken place in relation to the overall level of maritime trade (Bureau of Industry Economics, 1995, p116). Nevertheless, the financial returns of the port companies have increased substantially since the reforms took place, with the average return on assets increasing from 15.9 percent in 1989 to 22 percent in 1995, and margins on operating revenue increasing from 26.4 percent in 1989 to 46 percent in 1995 (Ammunsden, 1996, p17).

Shipping Industry Reform

The deregulation of the road transport industry in 1986 proved to be a strong impetus for restructuring the coastal shipping industry in New Zealand. In 1990, the Shipping Reform Task Force (Milne, 1990) convened to implement the reforms to the maritime industry., "These reforms included the removal of demarcation lines and relativities, and the introduction of integrated ships. Before these reforms, ships had been allowed to carry only designated cargo. After the reform by way of example, a cement vessel was able to use excess capacity to carry containers" (King, 1995a, p129).

Other features of these changes, based on Plowman (1992), include the shift from the corner (indirect) system of employing labour to company employment, the effects of the Employment Contracts Act on wage setting and employing non-union labour and the changed work practices including multi-skilling (e.g., deck and engine room ratings being trained to work anywhere on the ship). These changes have resulted in staff manning of coastal vessels dropping between 20-40 percent between 1989 and 1992.

As a result of these industry reforms, the coastal shipping real freight rates have dropped dramatically in recent years, thus providing reduced costs to shippers and consumers alike. For example, Pacifica Shipping's real freight rates between Auckland to Lyttelton dropped 27 percent between 1988 and 1992, and New Zealand Rail Ltd's ferry freight rates dropped by 47 percent in real terms between 1983 and 1992. These dramatic reductions reflect the improved efficiency and competitiveness of coastal shipping in New Zealand. (Plowman, 1992).

There are currently about 10 different New Zealand shipping operators involving around 23 vessels (see Table 8) transporting a range of general cargo, passengers, vehicles, petroleum products and cement along New Zealand's coasts. The Seafarers' Union secretary, Mike

Williams, estimates that the total workforce of people employed on coastal trade is still about 1,000 (Macfie, 1996).

As an alternative to the Cook Strait Ferry, some trucking companies are using multi-modal shipping to move cargo between the North and South Islands. Customer's goods are loaded on a trailer, which is then driven to a port served by coastal shipping (e.g., Auckland, Wellington, Nelson and Lyttelton) and put on to a roll-on-roll-off ship. From there, the ship makes the voyage to one or more of these other ports. Pacifica Shipping uses two of these vessels to make the 13.5 hour trip between Wellington and Lyttelton six nights a week. Two vessels also make a round trip between Auckland and Lyttelton each week. Once the ship arrives at its destination port, a tractor then delivers the trailer to its intended destination.

TABLE 8
New Zealand Coastal Shipping Operators

Ship Operator	Vessels	Cargo
Tranz Rail Ltd	*Arahura*	General / passengers
	Aratika	General / passengers
	Arahanga	General
	Lynx (seasonal fast ferry)	Passengers / cars
Pacifica Transport Group	*Spirit of Competition*	General
	Spirit of Freedom	General
	Spirit of Vision	General
	Spirit of Progress	General
Searoad	*Bass Reefer*	General
Strait Shipping	*Straitsman*	Livestock / general
	Suilven	General
Milburn New Zealand	*Milburn Carrier II*	Cement/general
	Westport	Cement
Golden Bay Cement	*Golden Bay*	Cement
Coastal Tankers Ltd	*Kotuku*	Petroleum products
	Taiko	Petroleum products
	Tarihiko	Petroleum products
Liquigas	*Toanui*	LPG
Sea Tow	*3 tugs*	Bulk
Southern Tug & Barge	*1 tug & 1 barge*	Logs / bulk

Source: Updated from Cavana, 1994, Table 1, p163.

In 1995, coastal vessels carried about 6.4 million gross tonnes of cargo. A detailed breakdown of this cargo is provided in Table 9. Petroleum products were the largest commodity loaded at New Zealand ports in 1995 (3.7 million tonnes or 57 percent of the total coastal cargo). Whangarei and Port Taranaki loaded 95 percent of this commodity. The second largest commodity handled was cement (0.7 million tonnes or 11 percent of the total) with about half of this volume being loaded at Whangarei and Westport (Statistics New Zealand, 1996a, p518). Petroleum and cement shipping reflect the localised production/importing of those commodities.

TABLE 9
New Zealand Loaded Coastal Cargo
(for year ended 30 June 1995)

Commodity	Gross tonnes (000)	(%)
Motor vehicles	580	9.0
Container goods	362	5.6
Petroleum products	3,696	57.4
Cement	685	10.6
Coal and coke	65	1.0
Sand and shingle	6	0.1
Grain	28	0.4
Other goods	1,017	15.8
Total	*6,440*	*100.0*

Source: Statistics New Zealand, 1996a, NZ Official Yearbook 1996, Table 25.39, pp. 518-9.

Coastal Shipping Deregulation

Prior to February 1995, only New Zealand registered ships were permitted to move passengers and cargoes between ports along the coast of New Zealand. This was similar to the usual international practice of restricting coastal shipping for domestic operators (ie cabotage). However, there were exceptions in New Zealand to this general rule if no local vessels were available to transport specific cargoes. In this case, a foreign ship operator could apply for a permit from the Ministry of Transport to carry the specified cargoes.

However, following some controversy regarding the original Clause 240 of the Transport Law Reform Bill 1993, which allowed total deregulation on the coast (discussed in Cavana, 1994 and 1995b), an amended clause (Section 198) in the Maritime Transport Act was passed by Parliament which opened the coast to competition from international vessels that were visiting New Zealand to drop off or pick up cargoes (cross traders), but would not allow transient "tramp vessels" to ply the coast (i.e., overseas owned and operated vessels, not involved in importing or exporting goods from New Zealand).

As predicted, the freight rates for containers and freight travelling from the North Island to the South have dropped by up to 40 percent in some cases, due to the extra competition and marginal costing by cross traders. However, the freight rates for north bound cargo have not changed (also predicted), since most of the international shipping lines usually travel down the coast in a southerly direction before departing from New Zealand. Although local operators have expanded their services, the Ministry of Transport estimates that "international shipping lines have picked up as much as 10% of the inter-island container trade" (Macfie, 1996).

Ironically, domestic shipping operators have also seen an increase in their coastal shipping business, partly due to an expansion in the New Zealand economy over the last few years, but also due to the continuing trend towards "hubbing", where large international carriers call at one (e.g., Auckland) or fewer ports, and then rely on feeder services to carry cargo to and from other parts of the country. " (Macfie, 1996; Grout, 1996). Rod Grout, the Chief Executive of Pacifica Shipping Limited, says that "the most noticeable effect of coastal shipping deregulation has been the loss for New Zealand operators of some southbound cargo to foreign operators providing low-cost rates between domestic port calls. This downside was anticipated prior to deregulation, but it has been pleasing to note recent trading development countering this trend. One is an increasing move by foreign shipping lines to visit a single hub port in New Zealand giving coastal ships the opportunity to provide new cargo feeder services into and out of such ports. The other is a growing realisation by major producers and exporters that foreign vessels simply cannot provide the service reliability and schedule regularity necessary for efficient internal transport, especially if strong inter-modal links are also required." (Grout, 1997)

3.4 Domestic Air Freight

Air Transport Deregulation - Airports

In 1966, the Air Transport Authorities Act empowered local authorities to provide airports. Deregulation of the domestic air services industry commenced in 1983 with the liberalising of the licensing regime, Following this, the Air Transport Authorities Act was amended in 1986 to allow the Crown and local authorities to hold shares in airport companies. Central government has moved to become a minority shareholder in the main international airports. "From April 1988 some of the joint ventures were replaced by airport companies which were to operate on a fully commercial basis. With corporatisation, the airport companies were given the freedom to set their own charges based on the cost of providing services, subject only to the requirements under the Airport Authorities Act 1966 (amended 1986) to consult with airlines before setting charges." (Bollard *et al*, 1996, p49). Current legislation is seen by airline companies as providing insufficient protection for airport users against potential abuse by airports exercising their monopoly position, and has led to dispute in the courts (Air New Zealand v Wellington Airport).

Air Transport Deregulation - Air Traffic Control

All air traffic services provided by the Ministry of Transport were separated and transferred to a State Owned Enterprise (SOE), called the Airways Corporation of New Zealand Limited in 1987. The aim of the new Corporation was to ensure the safe, orderly and quick flow of air traffic within the country's airspace. This commercial service is funded by the revenue earned from users. Safety and other regulatory issues remain as government responsibilities within the Civil Aviation Authority of New Zealand. Airways Corporation of New Zealand has installed the most modern equipment available internationally. It has also been successful in providing consultancy services for other countries wishing to emulate the New Zealand model for air traffic control, including moves to satellite tracking for long range oceanic navigation.

Airline Ownership and Control

In 1983, legislation eliminated government control of fares and removed barriers to airline entry, other than qualitative licensing. Initially, there was a cap on foreign ownership of 24.9 percent, but to encourage entry, this cap was removed in two steps, so that by 1989 full foreign ownership of domestic airlines was possible. As a consequence of the first relaxation of the cap on foreign ownership, Ansett Australia took up a 50 percent share in a new airline that started operation in 1986 called Ansett New Zealand, later moving to 100 percent ownership.

In 1989, the New Zealand Government privatised Air New Zealand. "A" shares account for 65 percent of the total and can only be held by New Zealanders. "B" shares can be held by foreigners. The government holds one special "Kiwi share" which gives it a veto over some actions in a way that preserves the substantial ownership and control of the airline without constraining its commercial operations (Findlay, 1996; Kissling, 1996; Findlay and Kissling, 1997).

Air Freight

The implications for air freight within New Zealand from all these regulatory and operational changes has been increased competition through improved schedules and the introduction of different aircraft to serve both trunk and regional routes.

Whilst the belly-holds of regularly scheduled passenger aircraft are used to move air freight around New Zealand, particularly on the main trunk route connecting Auckland, Wellington, Christchurch and Dunedin, the most significant air freighting takes place at night using specialist air freight capable aircraft. For instance, lifts southbound each night involve Freightways Convair flights lifting 28 tonnes, Air New Zealand flights using their B737QC (Quick Change) aircraft lifting 12 tonnes, Ansett New Zealand flights using their BAE146QC aircraft lifting 9 tonnes, and New Zealand Post's F27s lifting 28 tonnes (Gill, 1997).

The Palmerston North airport is used instead of Wellington because of the curfew on night operations at Wellington. New Zealand Post's operation enables them to provide an exceptionally high standard of service even for "standard" mail with next day delivery to most destinations in New Zealand. Such is the high level of performance achieved by New Zealand Post, it is now involved in consultancies overseas with countries seeking to emulate New Zealand Post's approach to physical distribution management. Although the bulk of parcel post travels by surface transport modes, air freighting accounts for the success of overnight courier deliveries along with "fastpost" product.

However, in general, air freight transport is not significant, except for time sensitive or perishable products, as less than 1 percent of New Zealand's domestic freight is transported by air (see Table 1 above). Nevertheless, air freight is very important in the market niches that it occupies. At a recent Commerce Commission hearing regarding the proposed merger between Air New Zealand and Ansett Australia, who wholly own Ansett New Zealand, Air New Zealand contended that the domestic air freight service is a market that can be further divided into three separate markets based on the time sensitivity of the goods (Commerce Commission, 1996):

- deferred delivery, which uses multi-modal transport;
- overnight, utilising a combination of air and land transport; and
- same day delivery, for which air transport is necessary.

The Commerce Commission was of the view that the "provision of deferred and overnight delivery is contested equally by air and land transport, and is part of the wider domestic freight market." Hence, the proposed acquisition did not raise any competition issues in that market. The demise of the all-freight airline, Safe Air which plied Cook Strait routes, can be attributed in large part to the competition achieved by surface modes when the Rail Ferries were introduced.

However, the Commission did consider that there were "no alternative air operations dedicated to same day freight services", since Air New Zealand and Ansett New Zealand were the only providers of that service in New Zealand. They concluded that there were "no substitutes for same day air freight services available except for the electronic transmission in the case of some documents". Since same day air freight was a by product of the main trunk passenger air services market, separate consideration of the same day freight services market was not required.

4. MARKET CONDUCT

4.1 Competitive Transport Environment

Following the final deregulation of the road transport industry in New Zealand in 1986, the freight transport market had become highly competitive with the entry of more truck operators taking advantage of the deregulated environment. Between 1980 and 1985, the number of new goods service licenses granted for the carriage of goods on roads had increased by 51 percent from 1,064 to 1,609, with a further increase of 33 percent to 2,144 by 1995 (Cutt, 1996). Over the same period, the annual registrations of new commercial vehicles also increased by about 50 percent from an average of 18,450 per annum for 1971-80, to 23,572 per annum for 1981-90, to 27,258 per annum by 1991-95 (Motor Registration Centre, 1996).

Deregulation of the road transport industry took place between 1977 and 1986. Rail freight rates dropped by about 59 percent in real terms between 1986 and 1996 (see Figure 5). The decrease occurred very sharply at a rate of about 10.8 percent per annum between 1983 to 1988 and more slowly by about 4.3 percent per annum from 1988 to 1996, with the real freight rates currently levelling off. The real decreases in freight rates have been driven by the extremely competitive pricing environment that existed in New Zealand over this period. Since truckers could enter and depart the road transport industry relatively freely, rates were established by customers who used rate quotes to play one freight operator against another, assuring that the lowest cost operators set the market price. Thus, in the long term, prices stabilise when the low cost operator achieves a reasonable rate of return.

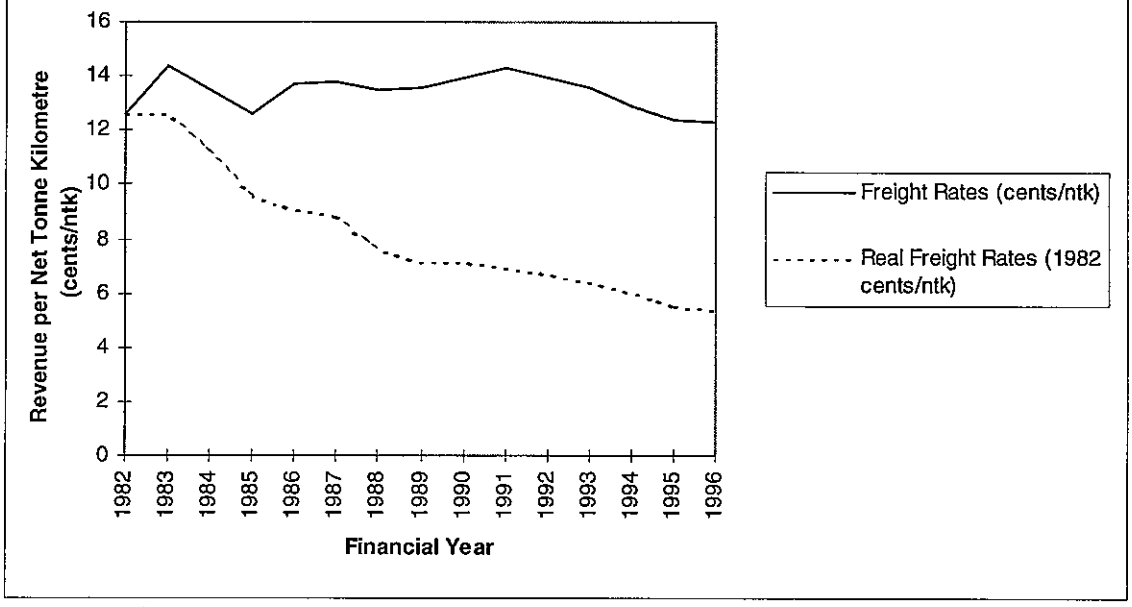
Numerous factors led to the real decreases in truck operator's costs between 1983 to 1989. These included (Booz Allen Hamilton, 1989):

- prices for new trucks (over 20 tonne gross vehicle weight) decreasing by an average of about 33 percent, due to changes in tariffs, taxes and truck related regulations;
- diesel prices decreasing by about 43 percent due to a drop in the international prices of crude oil; the competitive discounting as a result of deregulation of petroleum distribution in New Zealand; and the reduction of diesel excise duties;
- the elimination of long distance fees in 1986 (established in 1983 when the road transport industry was deregulated), only partially offset by increases in road user charges;

- an increase in the maximum permitted gross vehicle weight from 39 tonnes to 44 tonnes contributing a further 14 percent decline in road transport costs.

These changes to truck operators' cost structures put further pressure on the Railways Corporation to continue with its restructuring (Cavana (1995a). In addition, reform of coastal shipping in New Zealand (see Section 3.3) provided further competitive pressures.

FIGURE 5
Rail Freight Revenue per Net Tonne Kilometre: 1982-96



Sources: Derived from Cavana (1995, p 137); Tranz Rail Holdings Ltd (1996, p 1); & Statistics New Zealand (Key Statistics, October 1996).

4.2 Comparative Freight Rates

Freight rates vary between modes depending on a number of factors, including the desired delivery time, type and size of consignment, client relationships and distance hauled. Also, whether the freight is to be delivered door-to-door, or at a freight depot or terminal and collected at the destination can have a major influence on the rate quoted. To illustrate the range of freight rates available, Table 10 summarises the freight rates from rail, road, sea and air companies. It can be seen that there is a strong inverse relationship between the delivery time and the freight rate, ranging from $50 for up to 2 kg (or $25/kg) for same day delivery for Air New Zealand to an equivalent rate of about 17 cents/kg for products moved by sea over 3 days with the Pacifica Transport Group. However, it must be emphasised that these rates are indicative only, and minimum charges are applicable. The higher charges are also related to the higher unit costs associated with air travel and the higher handling costs of smaller shipments, together with the more inelastic demand for time sensitive deliveries.

TABLE 10
Comparison of Freight Rates between Auckland and Christchurch by Transport Modes, Nov 1996

Company	Mode	Days to Deliver	Normal Rates	Normal Minimum Charge	Equivalent Rate per kg (cents/kg)
Air New Zealand	air	same day	$50 up to 2 kg	$50.00	2500.0
Air New Zealand	air	overnight	$2.30 / kg	$46.00	230.0
Courier Post	air	overnight	$19.70 up to 5 kg	$19.70	394.0
Courier Post	air	2 days	$12.50 up to 5 kg	$12.50	250.0
Owens Road Transport Ltd.	road & sea	2 - 3 days	$44.65 up to 25 kg	$44.56	178.2
Owens Road Transport Ltd.	road & sea	3 days	$233 / tonne	$44.56	23.3
Tranz Rail	rail & sea	1 day	25 c/kg + 45% up to 124 kg	$25.00	36.3
Tranz Rail	rail & sea	2 days	$250 / tonne	$25.00	25.0
Pacifica Transport Group	sea	2 days	$180 / tonne	$50.00	18.0
Pacifica Transport Group	sea	3 days	$165 / tonne	$50.00	16.8

Source: Various companies, Various companies, pers. comm, indicative figures only.

5. MARKET PERFORMANCE

5.1 Financial Comparisons Between Road and Rail

Various measures of financial performance of truck operators in comparison with Tranz Rail are provided in Table 11 and Figures 6 and 7. Tranz Rail out performs the truck operators industry on all the financial measures. However, Tranz Rail's performance is primarily due to the considerable restructuring that has been undertaken since 1982 (see Section 3.1). Unfortunately, data are not available to enable financial comparison with coastal shipping and domestic air transport.

When interpreting Table 11 and Figures 6 and 7, it must be noted that the Tranz Rail figures represent their entire activities, including freight operations, the Interisland ferries, passenger transport, and other activities. The 1996 figures are provided for comparative purposes, since the restructuring at Tranz Rail is now largely completed. Tranz Rail's return on equity (after interest and before tax) of 36.4 percent for 1994 and 20.3 percent for 1996 is extremely high compared with the truck operators average returns of 7.1 percent. Also, Tranz Rails' returns are very favourable compared with Ernst & Young's (1994, p8) assessment for the road transport industry that "a commercially acceptable return on investors equity is around 18 percent after interest payments and before tax" (after allowing for the risk associated with investing in the road transport industry). These relatively high returns for Tranz Rail reflected the improvements in the railway's operating performance, together with the higher tonnages moved. They could also be biased upwards due to the previous heavy capital write-offs (discussed in Section 3.1).

TABLE 11
Comparison of Financial Performance between Tranz Rail & Truck Operators, 1994

Financial Measure	Tranz Rail		Truck Operators			
	1996 (%)	1994 (%)	Industry Average (%)	Intercity Average (%)	Intercity Owner Drivers/ Small (%)	Intercity Medium/ Large (%)
Profit after tax as % of sales	8.6	7.5	2.6	1.9	(15.0)	3.0
Net profit before tax on total assets	11.2	8.9	6.0	6.0	(20.0)	8.0
Return before tax on assets (pre finance)	17.0	13.4	9.9	9.7	(11.3)	11.7
Return after tax on assets (pre finance)	11.4	9.5	5.9	5.7	(14.3)	7.7
Return on equity (after interest & before tax)	20.3	36.4	7.1	na	na	na

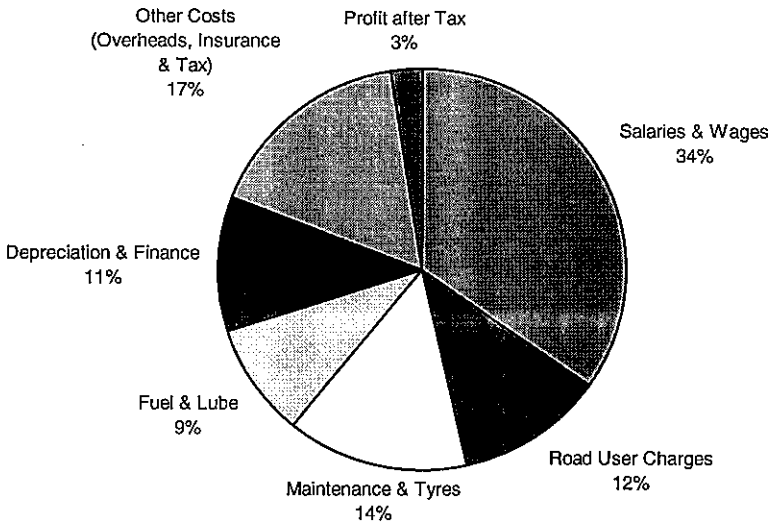
Sources: Tranz Rail Holding Ltd, 1996, Annual Report 1996, Wellington.
Ernst & Young, Nov 1994, The NZRTA / Ernst & Young Truck Operators Survey 1994, Financial Performance & Truck Operators: Survey Results, Wellington.

The intercity truck operators most directly compete with the freight activities of Tranz Rail. However, the average performance for the intercity truck operators is very similar to the averages of all truck operators. The owner drivers and small operators (1 to 4 trucks) are performing very badly compared with the medium and large size trucking firms. However, in the short run, the low financial returns could be off-set by the non-pecuniary benefits of being one's own boss. As Ernst & Young (1994, p13) conclude: "The survey results show small operators are subsidising operating incomes through dissipation of capital, that is, while many are achieving an operating profit, it is insufficient to sustain longer term capital replacement. This tends to keep returns at an artificially low rate and is unsustainable in the longer term with many eventually going out of business. However, because entry barriers are low, there is a ready supply of new operators able to take their place thus continuing the downward pressure on returns". Also, buyers can switch between transport carriers relatively easily without incurring large costs. Hence, "these two forces, in particular, have largely contributed to an intensely competitive industry. Those who operate within it will continue to find it difficult as reflected by the continuing low returns and narrow margins".

A breakdown of truck operators costs is provided in Figure 6. According to Ernst & Young (1994, p14): "No major cost reductions seem possible with costs as a percentage of sales having been held reasonably steady over recent years at around 97 percent to 98 percent (including finance costs)."

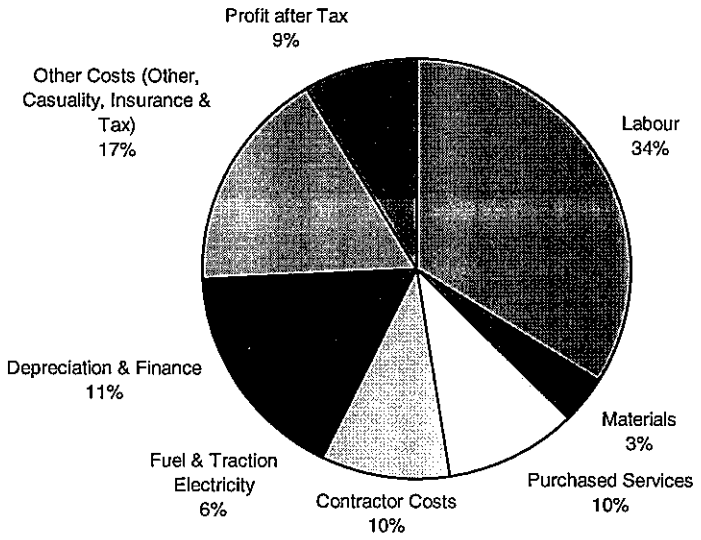
The Tranz Rail cost distribution provided in Figure 7 shows a very similar structure to the truck operators costs, particularly for labour (34%), depreciation and finance (11%) and other costs (17%). However, Tranz Rail has significantly lower fuel related costs. Other major differences relate to Tranz Rail maintaining its own rail track, whereas truck operators pay for the use of public roads through 'road user charges'.

FIGURE 6
Truck Operators' 1994 Costs as a Percentage of Sales



Source: Ernst & Young, 1994, The NZRTA/Ernst & Young Truck Operators Survey 1994.

FIGURE 7
Tranz Rail's 1996 Costs as a Percentage of Sales



Source: Tranz Rail, 1996, Annual Report 1996, Tranz Rail Holdings Ltd.

Finally, Ernst & Young (1994, p14) conclude that: "The industry appears to be moving away from owner driver operators towards an increasing number of company owned operations. This trend is a positive sign for the industry, in terms of returns, as the company owned operations look to compete on service with a more sustained approach to pricing."

We have also commented on this trend in Section 3.2 (Table 7).

5.2 Service Quality

A number of trends in freight transport are changing the nature of the services provided. These trends include a greater customer focus, modal diversity for moving freight, expanded services into warehousing, and enhanced communications. The freight transportation industry has become more customer oriented since deregulation in the mid 1980s. "Driven by customer requirements, competitive pressures, and technological developments, transportation companies have had to increase the scope, depth, and quality of their services even as they reduced their prices. These trends are expected to continue." (King, 1994 p285).

Customer Focus

Freight transporters are increasingly focusing on satisfying their customer's needs. As Bradshaw (1994, p56) points out, "... the customer is King. The operations fit the customer and not the other way around." Customers, whether manufacturers, importers, or retailers, want to minimise the number of different companies with which they contract for services. Customers look for transport companies that can provide a range of transport, storage, and distribution services. They also seek transportation companies that are flexible and able to change quickly as customer demands and markets change.

Intermodal Integration

Successful transportation companies are diversifying their operations into inter-modalism. These companies have diversified to meet their customer's needs by providing comprehensive door-to-door services. Thus, large transportation companies have become trans-modal operations that provide shipping by alternative means, depending on the customer's requirements, the availability of transport, and the cost. Coastal shipping and rail companies have established trucking components to facilitate and supplement deliveries. Some of the larger transport companies have diversified into freight forwarding operations that ship by truck, rail and sea. Freight forwarders purchase transport services from a number of different carriers and modes. They consolidate small consignments from numerous customers into larger shipments (usually whole containers) taking advantage of lower rates (Lambert & Stock, 1993, p181).

Containerisation has made inter-modalism more feasible. ISO standards ensure compatibility across modes, so the same container can be easily transferred between modes. All three surface based modes have adapted technologies to efficiently handle containers. Container transport has proved to be the most cost effective means of transporting most non-bulk products. (Bradshaw, 1994 p54)

Warehousing

As part of their expanded role in the supply chain, some transporters are diversifying their services to include warehousing for their manufacturing, importing, exporting and retailing customers. Just-in-time manufacturing and delivery trends have resulted in industry and retailing downsizing their storage facilities. The transportation industry is now providing much of this storage service. Managed warehousing operated by transport companies is mainly located in major metropolitan areas such as Auckland, Wellington and Christchurch where there is a large and diverse potential client base. Smaller companies that may not have the capital to build or purchase warehousing are able to access these automated and efficient warehousing facilities provided by transport companies. These storage facilities also benefit businesses that are seasonal in nature. The capacity needed for a few months can be leased from the transport company, rather than having capital invested in a storage facility that is used only part of the year. (Twomey, 1996)

Communications

Communications plays a role in tracking the freight being transported and the management of the carrier's vehicle fleet. The introduction of Electronic Data Interchange (EDI) between transport companies and their customers has increased the speed of communications, reduced the need for the large amounts of paperwork, and resulted in a faster billing cycle. Customers can electronically transfer information on the goods that need to be moved to the carrier. The carrier can then plan for the appropriate means of transport. The freight can be scanned using bar codes when it is picked up. At each stage of the transportation process, the shipper and customer can access information about the status of the shipment. Billing is also simplified because the customer has an up-to-date expense record on line and can transfer funds for the transport services directly to the transportation company. (Twomey, 1996; Small, 1995c, p107; Kennedy, 1992 p27; The Evening Post, 1993, p43; Wallis, 1992, p2)

Transportation companies are also looking to more efficiently use their vehicle fleets. Tracking and communications systems now available for use in the industry are becoming more common. In the rail industry, electronic systems are used to weigh and identify freight cars as they travel through the network. Tracking and communications systems are available for motor carriers to provide drivers with information needed for pick up and deliveries while they are on the road. This allows for more efficient centralised dispatching and planning. (Jester, 1995, p12; Transport News, 1993 pp. 28-29)

6. PUBLIC POLICY ISSUES

There are still a number of major policy issues affecting the freight transport industry in New Zealand. These policy issues relate to the environment, safety, road pricing, marine transport taxation and labour relations. There is currently a substantial effort made by rail and the motor carrier industry organisations to influence government policy in these areas. It is Tranz Rail's contention that rail transport is more environmentally friendly, safer, and more cost effective than highway transport (King, 1995b, pp 52-56). The New Zealand Road Transport Association, the

motor carrier industry organisation, is pushing for voluntary agreements for environmental controls on emissions. Road transport spokesman contend that the motor carrier industry has a very good safety record, and makes the point that it pays its fair share of the upkeep of the roading system in New Zealand. (Friedlander, 1996a, p 6) The maritime transport taxation issue is a major equity concern, with long term implications for both coastal and international shipping from New Zealand. The final issue is labour relations, which has an impact across the entire freight transport industry in New Zealand.

6.1 Environment

Land Transport Environmental Control

The Ministry of Transport is doing a multi-part study on the effects of transport on New Zealand. Part of the Land Transport Pricing Study is devoted to environmental impacts of transport. The study is divided into four areas of noise, air quality, greenhouse gasses, and water quality. The study gives a range of figures for the damage done by transport in these areas. The estimates for annual social cost for noise pollution range from $230 million to $2,650 million, with a best estimate of $290 million. The best estimate for air pollution cost is $700 million a year. The damage from greenhouse gases is from $25 million to $580 million, with a best estimate of $290 million a year. Water quality costs range from $35 million to $170 million, with a best estimate of $100 million a year. (Ministry of Transport, 1996a)

Greenhouse gasses are a major contributor to global warming. New Zealand has signed the Framework Convention on Climate Change and accepted as a goal that net carbon dioxide emissions should be returned to 1990 levels by the year 2000. The consumption of fossil fuels is a major contributor to carbon dioxide and greenhouse gas emissions. This consumption has been on the increase in New Zealand as freight transport, especially road transport has been on the increase (Milne, 1996b, p23). Transport contributes to about 40 percent of emissions (Rails, 1996, p166).

The New Zealand government is now trying to determine the best course to take to reduce the emissions. The current strategy is to obtain voluntary agreements to limit emissions. If that is not successful, more restrictive measures such as a carbon tax, tradeable quota certificates, or a combination of these may be implemented. The most likely scenario is the implementation of a carbon tax, if the carbon dioxide levels are not brought down to 1990 levels. The trucking industry's concern over these measures is that it will increase their cost of operation and make them less competitive with rail and coastal shipping (Friedlander, 1996a, p6).

Rail has an environmental advantage in their operation given they can carry higher tonnages with a better fuel efficiency. For example, one log train can carry as much as 65 truck and trailer units (Statistics New Zealand, 1995, p511). Tranz Rail is also a member of the Energy-wise companies group that aim to maximise industrial energy efficiency over the next five years. Owens Group, trucking company, is also participating in the Energy-wise programme.

Maritime Transport Environmental Control

The Maritime Safety Authority is responsible for maritime environmental controls and implementing New Zealand's oil response strategy. The previous position was "In the event of a

major oil spill, New Zealand would be reliant on assistance from overseas. Current arrangements for such assistance are informal." (Hughes, 1990, p2). The oil spill system under the 1994 Act involves a tiered local, national and international response.

Marine pollution is currently covered by the Marine Pollution Act 1974. This will be repealed and replaced by the Resource Management Amendment Act 1994 which will cover this environmental control of dumping and discharge. The Maritime Transport Act when fully implemented will cover the following International Conventions: The Prevention of Pollution of the Sea by Oil as amended in 1969, The Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 and The Prevention of Marine Pollution From Ships 1973 including the 1978 Protocol.

The Resource Management Amendment Act 1994 will not be brought into effect until regulations setting out the date of the detailed controls applicable to discharges and marine dumping and incineration from ships and offshore installations have been made. The Resource Management Act, at present, does not apply to foreign vessels, therefore on the repeal of the Marine Pollution Act, that lack of legislative oversight will have to be addressed to be effective.

Specific provisions of the Maritime Transport Act came into force on 1 February 1995. They are the provisions governing the rule making powers under which rules can be made, the oil spill planning response measures and the measures relating to the establishment and operation of the Oil Pollution Fund all came into force.

Air Transport Environmental Control

Environmental control of aircraft noise is covered under the Resource Management Act and planning provisions in city plans. It is open to airlines as to how they comply with the environmental controls. Ansett New Zealand did this with the use of whisper jets. Air New Zealand complied by fitting its B737s with engine hush kits. Both sections 326 and 327 of the Resource Management Act deals with excessive noise control of aircraft being operated during, or immediately before or after, the flight.

6.2 Safety

Land Transport Safety

The Ministry of Transport estimates the social cost of road crashes in New Zealand for 1994 were approximately $3.4 billion (Ministry of Transport, 1996b, pp2 & 12). These costs include loss of life and life quality due to long-term impairments; medical treatment; property damage; legal system charge; and loss of output due to temporary incapacitation. The disagreement between rail and trucking in regard to safety is significant. Rail contends that the major way to reduce truck accidents is to shift more freight to rail which is much safer. Rail operates on an exclusive right-of-way, whereas road freight competes for road space with other users. Thus, it can be expected that rail accidents will be less than for road, except at road/rail crossings where the modes meet. Tranz Rail cites statistics that show total rail fatalities, excluding suicides, at four for 1994, while truck caused fatal accidents were ten times this rate (Small, 1995b, pp 82-83). At the same time, the New Zealand Road Transport Association has figures indicating that the accident rate for road transport per million kilometres travelled has declined in recent years

(Transport News, 1995, p12). It must be remembered that road transport is needed for most door-to-door services regardless of what other modes may also be employed.

In 1992, the Traffic Safety Service of the Ministry of Transport merged with the New Zealand Police, and the responsibility for traffic safety enforcement went to the Police. Repeated complaints that the lack of a dedicated enforcement division adversely impacted safety efforts lead in 1996 to the Police reintroducing dedicated personnel to perform this function. In 1993, the Land Transport Safety Authority was established with the responsibility for all rail and road safety issues. This new safety regulatory authority was formerly the Land Transport Division of the Ministry of Transport. The responsibility of the new authority is to establish safety standards at a reasonable cost, and to control and monitor the safety performance of the land transport industry. The authority is involved in consultation with industry and is also the government's chief adviser on land transport safety.

Maritime Transport Safety

The Maritime Transport arm of the Ministry of Transport was disbanded when the Maritime Safety Authority was established. This authority was created to deal with safety, rules, licensing and standards of enforcement. This regulatory authority is required to establish safety standards, monitor safety performance and to control entry to and from the industry.

Ship safety and survey was the primary concern of the Shipping and Seamen Act 1952. This is now covered by the Maritime Transport Act, and there is a greater responsibility placed on the industry to look after seafarers. The government is a signatory to the International Maritime Organisation and the International Labour Organisation Conventions which detail ship and crew safety standards.

Air Transport Safety

The 1967 Carriage by Air Act was amended in 1990 to include international carriage. The Transport Accident Investigation Commission Act of 1990 created the body corporate with the powers of a Commission of Inquiry to independently investigate selected transport accidents for all transport modes.

During 1992, the Civil Aviation Authority was formed with the sole responsibility for aviation safety and technical matters. It is a legal requirement that the authority report directly to the Minister of Transport. This authority was created to replace the Air Transport arm of the Ministry of Transport. The authority must monitor aviation operators by using safety audit systems to ensure standards are maintained. Responsibility has now been removed from the regulator to the operator.

6.3 Road Pricing

Land Transport Roading Authorities

In 1989, Transit New Zealand was established by the Transit New Zealand Act to take over the functions of the National Roads Board and the Urban Transport Council. The previous system provided for a situation where the National Roads Board had a particular focus which was

essentially to provide roading while the Urban Transport Council had a particular focus on one aspect of passenger transport. The functions of Transit contained in the legislation are to: prepare an annual national land transport programme and update it when necessary, control all aspects of the state highway system and monitor and assist with local roading, to advise and assist local authorities on all aspects of the 1989 Act, to make payments from the Land Transport Fund and to monitor the revenue from that fund and finally to advise the Government on all the aspects of the land transport system.

The funding of Transit New Zealand comes from the excise tax on fuel, road user charges, the fees and charges from driver licensing and vehicle registration and other funding from the Crown. Starting in July 1991, all projects for which Transit New Zealand was required to provide any form of funding had to go through a competitive pricing procedure to ensure the maximum use of that funding. As a direct result of this, all road works contracts are now subject to competitive pricing procedures. The introduction of competitive pricing for road maintenance and construction works has resulted in savings of 15 percent per annum (Milne, 1994, p13).

In 1996, Transfund New Zealand was formed with the responsibility for the funding of roading and alternatives to roading. Transit New Zealand now has the sole responsibility for state highway operation.

Land Transport Pricing Study

The Land Transport Pricing Study estimated the value of the public roading network at $25.8 billion. State highways are valued at about 30 percent of this ($7.4 billion). Local roading makes up 70 percent of the network, worth $18.4 billion. Annual maintenance and depreciation on the roads is about $750 million. The return on investments through fuel taxes is keeping pace with expenditures on maintenance of the current system (Ministry of Transport, 1995).

At the heart of the road pricing issue is the debate over whether motor carriers pay the full cost of using the highway infrastructure provided to transport freight. The railroads contend that they must provide their own infrastructure (track, stations, etc.), while road transport is subsidised by the tax payers (Stott, 1994, pp. 100-101). At the same time, the motor carrier industry contends that they are paying more than their fair share of the cost for maintaining the nation's highways (Friedlander, 1996b, p6). Also, rail pays a nominal rental for the land under their tracks. It is clear that the methodology used to assess costs and values in the Land Transport Pricing Study are open to critique. Until that study is completed and policies are derived from its findings, there can be no firm resolution of the debate.

6.4 Maritime Transport Taxation

During the debate on opening the coast to competition by international shipping lines (discussed briefly in Section 3.3), Prebble (1994a & 1994b) argued that the international shipping operators would not be required to pay New Zealand taxes, and that would give them an unfair advantage over domestic coastal shipping operators. Prebble (1994a) concluded that: "An open coast policy has two arms: maritime and fiscal. The maritime element should not proceed until it is established that an appropriate tax regime can be drafted."

However, this argument was ignored by Parliament and the new law, allowing foreign vessels to carry domestic cargoes on coastal routes, came into effect on 1 February 1995. Although the

coastal shipping industry has responded well to this new environment (discussed in Section 3.3), the inequities of the different taxation regimes for foreign and coastal shipping operators still remain.

The inconsistency of New Zealand's maritime taxation regime has recently been discussed by Grout (1996) and Plowman (1996). Plowman (1996, pp. 10-11) has summarised the New Zealand taxes that a foreign shipping line operating under a Flag of Convenience would be able to avoid compared with a New Zealand based company: "tax on business profits (33%); PAYE withheld on crews salaries (31%); tax on bareboat charter payments (38%); tax on protection and indemnity insurance (3.8%); and tax on hull insurance premium (3.8%)".

According to Plowman (1996), these arrangements would confer a tax generated 30 percent competitive advantage for foreign ships over New Zealand shipping operators. This issue clearly needs more attention, as it also has some major implications for the shipping of New Zealand's international cargoes.

6.5 Labour Relations

At a recent Conference, Steven Penn (1996), President of the Mt Maunganui and Tauranga Branch of the New Zealand Waterfront Workers Union, gave a presentation covering the effects of continued waterfront "reform" on the members of his union. His summary of the "commercial" benefits of the reforms has been discussed in the Ports Reforms sub-section of Section 3.3.

Penn noted that a consequence of the ongoing "restructuring" has been a considerable reduction in the permanent employment of waterside workers and a sharp increase in "casualisation" or employment on a casual basis, with workers often being called out at all hours of the day and night, during week days or weekends and public holidays, and not knowing when they will be employed next. This is resulting in "high levels of stress", and is having a "severe impact on family and matrimonial relationships". (Penn, 1996, p4).

Part of the problem appears related to the current workings of the Employment Contracts Act. Penn (1996, p5) suggests that: "Changes to the E.C.A. will most likely bring some controls to the casualisation by granting casual workers better rights and entitlements which will pull some of these employers into line and bite into some of their profits mainly generated from low labour costs."

Penn also emphasises the need for employers and employees to work closely together, rather than against each other to survive in the face of ongoing competition. However, ultimately if the ports continue to make "super profits", these are likely to be competed away with some of the returns going to shippers and customers. Nevertheless, there is a good case for a review of the returns to labour and the conditions of service, if the ongoing improvements in financial returns have resulted in a large part from the labour reforms on the waterfront.

The state of labour relations in the freight transport industry and the long term effects of the Employment Contracts Act are issues which require very close attention in the future. At a recent conference, Anne Knowles, Deputy CEO of the New Zealand Employers' Federation reminded members of the transport industry of a number of important industrial relations issues that need to be considered further, including the implications of "good faith bargaining" (Knowles, 1997, pp 22-23).

7. CONCLUSIONS

New Zealand's freight transport task is conditioned by many factors. There can be no escape from the dictates of geography - the island character, topography, climate, pattern of natural resource distribution and resultant historical settlement patterns and varying regional economic growth. It is the uneven distribution of materials and peoples that gives rise to the need for freight transport and the variety of means for meeting that demand for movement by sea, land and air.

There has been much government influence in New Zealand's transport history since European settlement. This influence ranged from building the rail and highway infrastructure, seaports and airports, to ownership and operation of shipping lines, railways and airlines. It is a sign of a maturing economy that since the mid 1980s, government has concentrated on providing the environment for the private sector to assume ownership and control of most transport capacity. The driving philosophy behind this move is to ensure competition and the best possible allocation of resources, subject to the thrust of full market disciplines. So long as safety at reasonable cost is assured, government is content to foster an "even playing field" and let all components of the transport sector find their appropriate niche.

Reform of the transport sector has seen big gains in productivity and in customer satisfaction. In no small measure, changes to labour legislation, backed by the introduction of sophisticated information and handling technology, and a shift in management style away from engineering solutions towards response to market demands has underpinned the transformation. However, the reforms and restructuring of the freight transport industry have not been achieved without considerable costs to some sections of New Zealand society.

Consumer gains in the domestic aviation sector following the introduction of vigorous competition in the form of Ansett New Zealand to challenge Air New Zealand's monopoly has been well documented.

Rail has been transformed from a large inefficient government operation into a profitable private sector company with a focus on customer needs.

Once commercial road transport was unshackled from the artificial restrictions of competing against the railways, it captured a far larger slice of the business on offer.

To survive the dual pressures applied by road and rail, coastal shipping has become much more efficient. Where once New Zealand's seaports were renounced for their snail-like throughput, they now compare more than favourably with many of New Zealand's trading partners. At the same time, individual ports (both sea and air) cannot rest assured that their apparent natural advantage regionally will not be tested by rival ports hungry for business to justify their infrastructure investment decisions.

Competition between modes has not stopped the rise of intermodalism and creation of integrated solutions to the total door-to-door freight transport task. In large measure, the various transport modes can be seen as complementary. It is merely a management exercise for shippers to take advantage of the best mix of efficient modal components to meet their needs. Freight forwarders have followed this dictate and firms, such as Tranz Rail, Mainfreight and Pacifica have become multimodal operations.

There remain unresolved public policy issues in freight transport that relate to environmental controls in all transport modes. Safety is a primary concern of government reflected in the

structure of the modal regulatory organisations that emerged from restructuring the Ministry of Transport. The Land Transport Pricing Study is seen as addressing the issue of land transport eventually meeting its full costs. The playing field is still seen to be tilted by various operators of freight transport, the direction of tilt somewhat dependent upon which modal monocle is being worn. The Maritime transport taxation issue must be addressed to satisfy domestic coastal shipping concerns.

We would like to conclude with a quote from Mick Payze (1996), the Chief Executive of New Zealand Line Group, to sum up the effect of the last 10-15 years of deregulation in the New Zealand transport industry. "Deregulation has brought the removal of entry barriers from the Transport Industry and this in turn has encouraged new entrants to challenge the status quo. The resultant competition has caused established businesses to accelerate their quest to improve work methods so that they can stay ahead of customers' expectations of achieving continuous improvement."

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