

Roads

Hirofumi Yamamoto

The Development of the Motor-Vehicle Industry

During the postwar economic recovery, the motor-vehicle manufacturers resumed production centred mainly on the manufacture of small, three-wheeled lorries; beginning in 1955, a far-reaching renovation of plant facilities and equipment had begun. The four big manufacturers, Toyota, Nissan, Isuzu, and Hino, took out large loans from the government, the World Bank, and the United States Export-Import Bank to replace worn-out plants and equipment. This upgrading and the reorganizing of a highly trained workforce led to an explosion in productivity. The number of vehicles went from 162,000 in fiscal 1955 to 1,978,000 in 1965 and 11,176,000 in 1980 (see table 4). The number of vehicles owned climbed from 924,000 at the end of fiscal 1955 to 7,248,000 for 1965 and 37,972,000 for 1980 (table 5). The 1965 liberalization of trade in passenger cars and the 1971 liberalization of motor-vehicle-industry capital transactions brought on a period of intense international competition. Japan's exports rose rapidly from 1,689 in 1955 to 6,150,000 in 1980 (figures do not include motor cycles).

Progress in Motorization

Rapid progress in motor-vehicle manufacturing and increases in the number of vehicles brought concomitant increases in the share of motor vehicles in domestic freight and passenger transport. Freight transported by motor vehicle jumped from 9.51 billion ton-kilometres in fiscal 1955 (11.7 per cent) to 20.8 billion ton-kilometres (14.9 per cent) in fiscal 1960 and then to 48.39 billion ton-kilometres (26.0 per cent) in fiscal 1965. By fiscal 1966, lorry-transported freight had surpassed in volume and share train cargo (table 6). The railroads' share of the freight market peaked at 75 per cent in fiscal 1946, and then dropped every year thereafter. Quantity transported

Table 4. Motor vehicles produced (1955–1980)

Fiscal year	Passenger cars	Lorries	Buses	Light motor vehicles	Total
1955	22,377	135,129	4,808	552	162,866
1960	146,818	380,916	9,201	307,883	844,818
1965	613,830	799,623	19,254	546,250	1,978,957
1970	2,580,042	1,519,290	44,384	1,323,946	5,467,662
1975	4,548,498	1,988,976	36,439	557,086	7,130,999
1980	6,898,233	2,997,378	101,426	1,179,851	11,176,888

Source: Ministry of Transportation, *Rikuun tōkei yōran* (Statistics on land transport).
Note: Motor cycles are not included here.

Table 5. Motor vehicles owned (1955-1980)

Fiscal year ending	Registered vehicles					Total
	Passenger cars	Lorries	Buses	Special-use vehicles	Light motor vehicles	
1955	157,802	693,012	35,162	34,087	4,492	924,555
1960	440,417	1,321,601	57,770	74,252	410,461	2,304,501
1965	1,877,912	2,870,249	105,386	163,608	2,230,872	7,248,027
1970	6,776,949	5,460,393	190,066	351,661	5,409,611	18,188,680
1975	14,822,093	7,381,024	219,945	595,798	5,387,138	28,405,998
1980	21,543,500	8,682,978	229,429	794,025	6,722,845	37,972,777

Source: *Rikkuun tōkei yōran.*

Note: Motor cycles not included here.

(ton-kilometres) peaked in fiscal 1970, falling off rapidly thereafter. By 1980, inland shipping and motor vehicles hauled the largest shares in the freight market.

The expansion of motor-vehicle passenger transport stands out; the 312.47 billion passenger-kilometres (50.6 per cent) reached in fiscal 1971 may be compared with the 290.04 billion passenger-kilometres (46.9 per cent) garnered by the railroads in that year. The gap widened year after year, with seemingly nothing able to stop the decline in railroad transport. Airline-passenger increases in the 1970s were also significant, rising in transport volume and share from 9.31 billion passenger-kilometres (1.6 per cent) for fiscal 1970 to 29.68 billion passenger-kilometres (3.8 per cent) for fiscal 1980 (table 7).

With the growth of road transport, the number of regional lorry operators and hired-car/taxi operators increased (table 8). Most companies in this category were small compared to long-distance lorry and bus operators (table 9). Only 0.3 per cent of regional lorry operators owned 201 lorries or more, 0.27 per cent had at least 301 employees, and only 1.1 per cent had at least ¥100 million in capital. As a result, however, "many of these companies undercut excessively on fares, overloaded their lorries, worked their drivers too many hours, and were, generally, obstacles to order in the transport market."¹

The rate of traffic accidents went up dramatically, so that in the 15 years from 1955 to 1970, the number of accidents jumped 7.6 times, the number of deaths 2.6 times, and the number of injuries 12.8 times (see table 10). The rate of increase was greatest in the five years between 1955 and 1960 and was attributable to the inability to set up traffic safety equipment, such as signal lights, marked pedestrian crossings, and guard-rails, as fast as the manufacturers were turning out motor cars, lorries, and buses. Another factor was poor safety training for drivers and pedestrians. The result was more than 10,000 traffic deaths a year up to 1975. But, after 1970, the provision of safety facilities and stronger police enforcement of traffic rules paid off in an eventual downturn in accidents and fatalities. It was during the 1960s that the public first began to complain about noise and air pollution from motor vehicles, and in this decade rules against such disturbances were implemented.

Constructing Toll-roads and Motorways

Progress in motorization required the maintenance and construction of general and toll-roads, and the building of new national motorways. Construction of toll-roads began in 1952 when the Construction Ministry offered loans from the Special Operating Funds Account at 6 per cent annual interest to construction projects directly controlled by the ministry and at 6.5 per cent yearly interest to the prefectures to build or repair local roads that would be converted into toll-roads. However, the setting up of the Japan Highway Corporation in April 1956 led to the abolition of the tra-

Table 6. Volume of domestic freight by transport means (1955-1980) (in million ton-kilometres and percentages)

Fiscal year	Total	Railroads		Motor vehicles		Inland shipping		Airlines	
		Number	Share	Number	Share	Number	Share	Number	Share
1955	81,787	43,254	52.9	9,510	11.7	29,022	35.5	1	0.0
1960	138,901	54,515	39.2	20,801	14.9	63,579	45.8	6	0.0
1965	186,346	57,298	30.7	48,392	26.0	80,635	43.3	21	0.0
1966	209,502	55,894	26.7	64,912	31.0	88,664	42.3	32	0.0
1970	350,656	63,423	18.1	135,916	38.7	151,243	43.1	74	0.0
1975	360,779	47,347	13.1	129,701	36.0	183,579	50.9	152	0.1
1980	439,064	37,701	8.6	178,901	40.7	222,173	50.6	290	0.1

Source: Ministry of Transportation, *Un'yu keizai tōkei yōran* (Outline of statistics on transportation economics).

Table 7. Domestic passenger volume by means of transport (1955-1980) (in million passenger-kilometres and percentages)

Fiscal year	Total	Railroads		Motor vehicles		Passenger ships		Airlines	
		Number	Share	Number	Share	Number	Share	Number	Share
1955	165,826	136,112	82.1	27,500	16.6	1,996	1.2	218	0.1
1960	243,275	184,340	75.8	55,531	22.8	2,670	1.1	734	0.3
1965	382,481	255,384	66.8	120,756	31.6	3,402	0.9	2,939	0.8
1970	587,178	288,816	49.2	284,229	48.4	4,814	0.8	9,319	1.6
1971	617,848	290,040	46.9	312,477	50.6	5,026	0.8	10,304	1.7
1975	710,711	323,800	45.6	360,868	50.8	6,895	1.0	19,148	2.7
1980	782,031	314,542	40.2	431,669	55.2	6,132	0.8	29,688	3.8

Source: *Un'yu keizai tōkei yōran*.

Table 8. Trends in number of road transporters (1955-1980)

Fiscal year ending	Lorry operators				Bus/hired vehicle/taxi operators				
	Long-distance routes	Regional	Other ^a	Total	Buses	Hired coaches	Hired vehicles/taxis	Other	Total
1955	528	8,323	928	9,779	346	428	3,559	32	4,365
1960	533	13,017	1,382	14,932	347	442	6,666	24	7,479
1965	489	19,368	1,875	21,732	362	529	16,756	14	17,661
1970	425	22,560	2,258	25,243	359	559	30,892	38	31,848
1975	379	28,253	2,514	31,146	364	661	53,797	89	54,911
1980	356	31,334	2,943	34,633	355	755	54,438	165	55,713

Source: Rikuum tôkei yoran.

^aIncludes small-model vehicles.

Table 9. Number of motor vehicle freight transporters, by scale (as of end March 1979).

(1) Size according to number of vehicles

Type	1-5	6-10	11-20	21-30	31-50	51-100	101-200	201-500	500 or more	Total
Route-lorries	101	44	63	28	34	40	25	18	14	367
(%)	27.5	12.0	17.2	7.6	9.3	10.9	6.8	4.9	3.8	100.0
Other lorries	9,066	9,151	8,661	3,075	1,827	853	229	61	17	32,940
(%)	27.5	27.8	26.3	9.3	5.5	2.6	0.7	0.2	0.1	100.0
Total	9,167	9,195	8,724	3,103	1,861	893	254	79	31	33,307
(%)	27.5	27.6	26.2	9.3	5.6	2.7	0.8	0.2	0.1	100.0

(2) Size according to number of employees

Type	1-10	11-20	21-30	31-50	51-100	101-200	201-300	301-1,000	1,000 or more	Total
Route-lorries	100	46	29	39	41	40	25	30	17	367
(%)	27.3	12.5	7.9	10.6	11.2	10.9	6.8	8.2	4.6	100.0
Other lorries	14,078	10,034	4,069	2,864	1,345	372	89	73	16	32,940
(%)	42.7	30.5	12.4	8.7	4.1	1.1	0.3	0.2	0.0	100.00
Total	14,178	10,080	4,098	2,903	1,386	412	114	103	33	33,307
(%)	42.6	30.3	12.3	8.7	4.2	1.2	0.3	0.3	0.1	100.0

(3) Size according to capitalization (¥10,000)

Type	1-100	101-300	301-500	501-1,000	1,001-3,000	3,001-5,000	5,001-100 million	100 million or more	Other	Total
Route-lorries (%)	16	51	29	50	86	53	29	52	1	367
	4.4	13.9	7.9	13.6	23.4	14.4	7.9	14.2	0.3	100.0
Other lorries (%)	2,907	7,423	5,339	6,463	2,437	530	263	344	7,234	32,940
	8.8	22.5	16.2	19.6	7.4	1.6	0.8	1.1	22.0	100.0
Total (%)	2,923	7,474	5,368	6,513	2,523	583	292	396	7,235	33,307
	8.8	22.4	16.1	19.6	7.6	1.7	0.9	1.2	21.7	100.0

Source: Japan National Trucking Association, *Tōrakkū yusō sangyō no genjō to kadai* (The situation in the lorry transport industry and its problems), p. 20.

Table 10. Traffic accidents (1955-1980)

Year	Number	Deaths	Injuries
1955	93,981	6,379	76,501
1960	449,917	12,055	289,156
1965	567,286	12,484	425,666
1970	718,080	16,765	981,096
1975	472,938	10,792	622,467
1980	476,677	8,760	598,719

Source: *Un'yu keizai tōkei yōran*, 1982 ed., p. 128.

ditional system of borrowing from operating funds for toll-road construction. At the time of its establishment, the Japan Highway Corporation took over 8 routes being constructed under direct control of the Construction Ministry and, between July and September 1956, it assumed control of 26 routes being built as a part of prefectural loan projects, and thus became the controller of toll-road integration. By means of continuing government-fund payments, subsidies, and highway bonds, the construction of general toll-roads and national motorways steadily progressed.

In addition to the improvement of existing roads and the creation of toll-roads, the Law on Motor-Vehicle Road Construction for National Development and the National Motorway Law were enacted in April 1957 in order to promote the construction of national motor-vehicle trunk routes running the entire length of the Japanese islands. Based on these two laws, and under the Japan Highway Corporation, the construction of national motorways made good progress. The construction of national motor-vehicle trunk routes able to withstand the high-speed operation of heavy, long-distance vehicles represented a contribution to national redevelopment quite different in character from that from the improvement of existing roads in order to create general toll-roads.

The creation of a national system of motorways began to be realized in 1958 with the construction of the Meishin (Nagoya-Kobe) Motorway. The stretch between Amagasaki and Ritto was completed and opened in July 1963, and the segment between Nishinomiya and Komaki was opened in July 1963. Construction of the Chuo Motorway, linking Chofu and Lake Kawaguchi, and the Tomei Motorway, connecting Tokyo and Nagoya, began in April 1965. The road between Tokyo and Atsugi was completed and opened in April 1968, that between Hachioji and Lake Sagami in December 1968, and that between Tokyo and Komaki in May 1969. All segments of the Chuo Motorway were completed and opened by November 1982.

As of 1 April 1980, the Tokyo Motorway Corporation, established in June 1959, had built 138.7 km of urban motorways, and the Hanshin Super-highway Corporation, established in May 1962, had built 103.3 km. The cities of Nagoya, Fukuoka, and Kita-Kyushu were also constructing urban

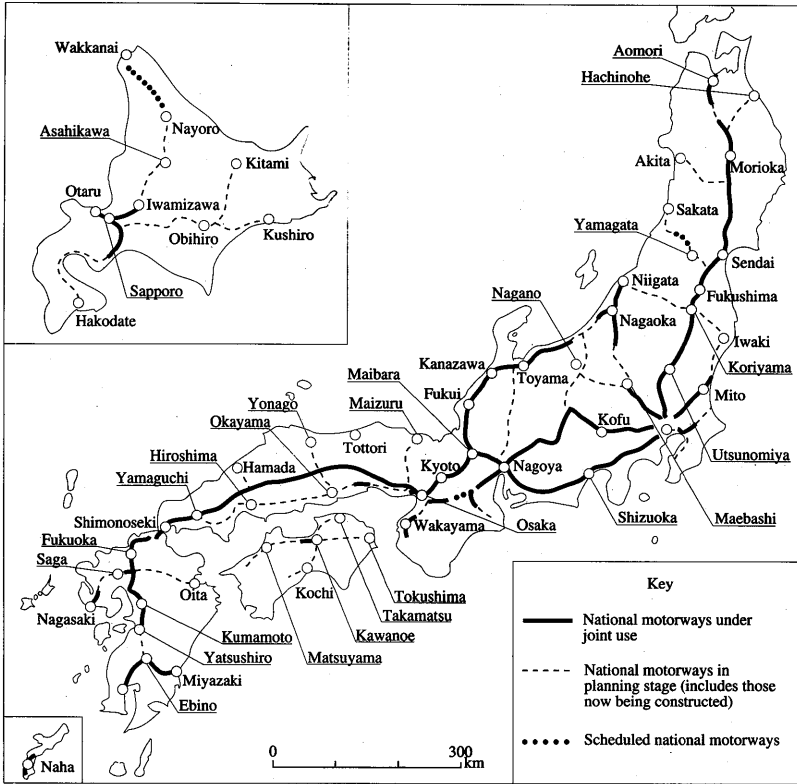


Fig. 3. Network of national motor-vehicle motorways (March 1985)

motorways, under the direction of the Nagoya Motorway Corporation and the Fukuoka-Kita-Kyushu Motorway Corporation. Local road and public works corporations were also set up in each prefecture to construct and operate toll-roads as provided for in the Local Road Corporation Law,

Table 11. Extension of toll-roads as a result of the Road Law (April 1980) (km)

National motorways	2,579.1
Urban motorways	252.9
General toll-roads	
Japan Highway Corporation	781.6
Local public road corporations	767.5
Local public works corporations	784.7

Source: Ministry of Transportation, *Dōro gyōsei* (Highway administration), fiscal 1980 ed.

which was enacted and put into force in May 1970. Table 11 shows the extent of roads that are controlled by these organizations.

Note

1. Japan National Trucking Association, *Torakku yusō sangyō no genjō to kadai* (The situation in the lorry transport industry and its problems), p. 20.

Inland Shipping

Hiromi Masuda

Policies for Domestic Marine Transport in the Period of Rapid Economic Growth

The so-called quantitative boom of 1955 was the start of the Japanese economy's era of high-growth rates. Even though the upswing period was short and soon declined, gross national product remained high every year, with an annual average growth, in real terms, of 10.4 per cent until 1973, when OPEC increased oil prices four-fold (known in Japan as "the oil shock"). The -1.3 per cent growth in GNP the following year, 1974, was the first of minus growth, and from then on the economy shifted from high rates to stable rates of growth.

Marine transport during this period mirrored the trends in the Japanese economy. Japanese shipping recovered in 1955-1956 its prewar, 1934-1935 levels, transporting 59 million tons of cargo in 1955 and 69.88 million tons in 1956; the transport figures steadily increased from then until 1973. The share of shipping in total domestic transport volume was not great in terms of number of tons transported, but in ton-kilometres, inland shipping showed notable progress, expanding dramatically to 51 per cent in 1973. Growth during the period was dramatic in passenger-hauling as well as freight, and this was especially true in the expansion of ferry use that accompanied the progress in motorization from 1965 on, with high growth rates obtaining both in number of passengers transported and in passenger-kilometres.

Domestic economic activity brought a recovery in inland shipping, and by 1956 the number of tons transported reached the prewar levels. However, the good times in shipping led to an excess of ship tonnage, and, although the 180 million tons and 80 billion ton-kilometres transported in fiscal 1965 gave shipping a 43 per cent share of the domestic transport market, excess tonnage kept fares down for a long time.¹ While excess tonnage was a major cause, other important factors were the worsening effect that low-performance standard wartime ships were having on postwar ship quality and the disorderly market situation caused by heavy competition between too many small operators. A rapidly growing economy demanded stable