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Chapter III

Productivity of the World Fleet and the Supply and Demand Situation in World Shipping

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PRODUCTIVITY OF THE WORLD FLEET AND THE SUPPLY AND DEMAND SITUATION IN WORLD SHIPPING

This chapter provides information concerning the operational productivity of the world fleet and an analysis of the balance between supply and demand for tonnage. Key indicators are the comparison of cargo generation and fleet ownership, tons of cargo carried and ton-miles performed per dwt, and analysis of tonnage oversupply by main shipping market sectors.

A. Comparison of cargo turnover and fleet ownership

50. The correlation between cargo volume generated by different country groups and their fleet ownership in 1980, 1995 and 1996 is summarized in table 24. In 1996, developed market-economy countries, either directly or through open or international registers, controlled 71.6 per cent of the world fleet in deadweight tons (the same level as in 1995), while they generated 55.5 per cent of world seaborne trade (55.8 per cent in 1995). The share of developing countries in world cargo turnover stood at 38.9 per cent (38.6 per cent in 1995), while their merchant fleet accounted for 19.5 per cent of the world fleet (18.7 per cent in 1995).

51. Long-term comparisons indicate that the difference between cargo turnover and fleet ownership has narrowed substantially in both developed market-economy countries and developing countries. The ratio of goods loaded and unloaded in 1996 was almost unchanged from that in 1980 for both groups. On the other hand, developed market-economy countries' fleet ownership declined significantly from 82.4 per cent of the world fleet in 1980 to 71.6 per cent in 1996, while developing countries substantially improved their share to 19.5 per cent in 1996 from 10.0 per cent registered in 1980.

B. Estimate of tons and ton-miles per dwt

52. The main operational productivity indicators for the world fleet developed unfavourably in 1996 (see table 25 and graph 9). Tons of cargo carried per dwt stood at 6.28 in 1996, whereas in 1995 the figure had reached the record level of 6.33. Ton-miles performed per dwt also declined in 1996 - to 27,097 - slightly less than the record level of 27,675 in 1995. These decreases in operational productivity indicators reflect both the relatively slower growth of world seaborne trade than in the previous year (an increase of 2.3 per cent in 1996 versus 3.7 per cent in 1995) and a somewhat speculative expansion of the world fleet (an increase of 3.2 per cent in 1996, compared with 2.1 per cent in 1995). Additionally, the shift to short-haul carriage in some of the major dry and liquid bulk trades is affecting the port/sea ratio of ships and thus leading to a relative reduction of productive time at sea. In 1997, world seaborne trade is expected to grow at the rate of 3.8 per cent and the world fleet will expand at almost the same rate as in 1996 (3.2 per cent). On the basis of these preliminary estimated factors, 1997 overall world shipping activities are expected to slightly improve operational productivity this year.

53. Table 26 provides additional details about ton-miles performed by oil tankers, dry bulk carriers, combined carriers and the residual fleet. Ton-miles per dwt of tankers, combined carriers and residual fleet continued to marginally increase in 1996 - by 0.8 per cent, 0.1 per cent and 2.3 per cent respectively over 1995. On the other hand, ton-miles per dwt of dry bulk carriers continued to decline by 1.6 per cent in 1996. This can be explained by the supply/demand correlation that the continuously increased number of ore/bulk carriers (by 6.0 per cent over 1995) exceeded the supply of main dry bulk commodities, specifically for vessels of above 50,000 dwt (a decline of 0.6 per cent over 1995). As indicated in table 27, these trends are also evidenced by the data on tonnage productivity in terms of cargo carried per dwt. There was an expansion in tons carried per dwt of oil tankers and the residual fleet - an increase of 2.6 per cent and 1.7 per cent over 1995 respectively - whilst the performance of dry bulk carriers continued to decline in terms of tons carried per dwt by 1.3 per cent as compared with the 1995 results.

Table 24

Comparison between total cargo turnover and fleet ownership
by groups of countries, 1980, 1995 and 1996

Country grouping	Year	Goods loaded and unloaded (millions of tons)		Total of goods loaded and unloaded (millions of tons)	Merchant fleet (millions of dwt)	Percentage of world total of	
		Loaded	Unloaded			Goods loaded and unloaded	Merchant fleet owned (dwt)
Developed market-economy and major open-registry countries	1980	1 370	2 595	3 965	562.7	53.7	82.4
	1995	2 022	3 220	5 242	525.2	55.8	71.5
	1996	2 037	3 276	5 313	542.4	55.5	71.6
Developing countries	1980	2 087	839	2 926	68.4	39.6	10.0
	1995	2 353	1 278	3 631	137.5	38.6	18.7
	1996	2 441	1 286	3 727	147.5	38.9	19.5
Countries of Central and Eastern Europe (including the former USSR)	1980	201	145	346	37.8	4.7	5.5
	1995	176	146	322	33.0	3.4	4.5
	1996	179	148	327	29.0	3.4	3.8
Socialist countries of Asia	1980	46	100	146	10.9	2.0	1.6
	1995	100	104	204	27.0	2.2	3.7
	1996	101	105	206	27.1	2.2	3.6
World total a/	1980	3 704	3 679	7 383	682.8		
	1995	4 651	4 748	9 399	734.9		
	1996	4 758	4 815	9 573	758.2		

Source: As per annex II and III (b).

a/ Including unallocated tonnage indicated in annex III (b).

Table 25

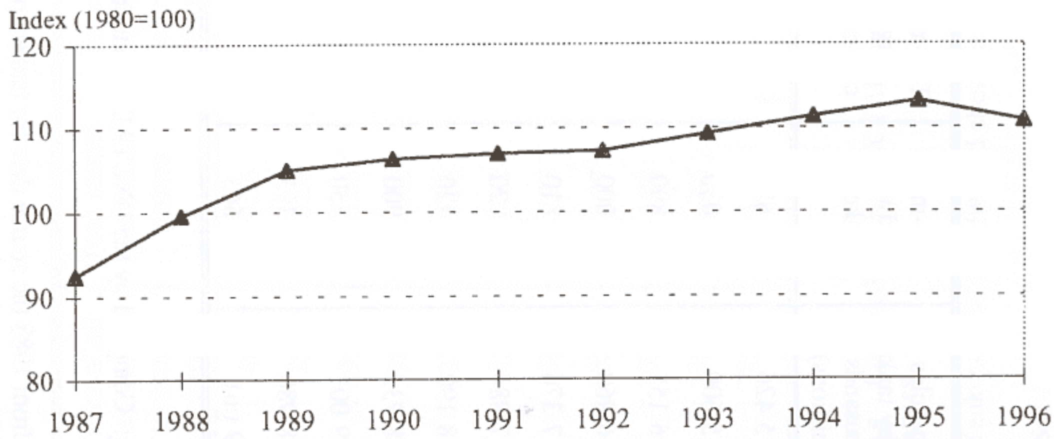
Cargo carried and ton-miles performed per dwt of the total world fleet, 1986-1996

Year	World fleet (millions of dwt)	Total cargo carried (millions of tons)	Total ton-miles performed (thousands of millions of ton-miles)	Tons of cargo carried per dwt	Ton-miles performed per dwt
1986	639.1	3 459	13 856	5.41	21 680
1987	632.3	3 505	14 298	5.54	22 610
1988	628.0	3 692	15 299	5.88	24 360
1989	638.0	3 891	16 385	6.10	25 680
1990	658.4	4 008	17 121	6.09	26 000
1991	683.5	4 120	17 873	6.03	26 150
1992	694.7	4 220	18 228	6.07	26 240
1993	710.6	4 330	18 994	6.09	26 730
1994	719.8	4 485	19 600	6.23	27 230
1995	734.9	4 651	20 338	6.33	27 675
1996	758.2	4 758	20 545	6.28	27 097

Source: Compiled by the UNCTAD secretariat on the basis of the following data. World fleet: Lloyd's Maritime Information Services Ltd. (London) (mid-year data for 1986-1990, year-end data for 1991-1996); total cargo carried: UNCTAD secretariat; ton-miles: Fearnleys (Oslo), *Review*, various issues.

Graph 9

Index of ton-miles performed per dwt of total world fleet, 1987-1996



Source: UNCTAD calculations based on table 25 of this publication.

Table 26

Estimated productivity of tankers, bulk carriers, combined carriers a/ and the residual fleet, b/ 1986-1996
(Ton-miles performed per dwt)

Year	Ton-miles of oil by tankers (thousands of millions)	Ton-miles per dwt of tankers	Ton-miles of dry bulk cargo by dry bulk carriers (thousands of millions)	Ton-miles per dwt of bulk carriers	Ton-miles of oil and dry bulk cargo by combined carriers (thousands of millions)	Ton-miles per dwt of combined carriers	Ton-miles of the residual fleet (thousands of millions)	Ton-miles per dwt of the residual fleet
1986	5 426	22 670	3 717	18 820	944	26 520	3 769	22 610
1987	5 600	24 030	3 922	20 010	1 022	30 690	3 729	21 940
1988	6 155	26 890	3 475	17 990	1 264	37 510	4 411	25 630
1989	6 960	30 000	3 629	18 560	1 247	37 450	4 566	25 780
1990	7 376	30 810	3 804	18 770	1 164	36 040	4 777	25 960
1991	7 884	30 920	4 035	18 680	1 049	33 620	4 905	26 980
1992	8 190	31 420	4 061	18 770	1 012	32 440	4 965	26 620
1993	8 735	32 900	4 257	19 297	1 012	34 896	4 967	25 524
1994	9 001	34 250	4 435	19 392	908	34 789	5 256	26 007
1995	8 980	34 393	4 500	18 672	925	38 542	5 785	27 706
1996	9 061	34 663	4 442	18 371	926	38 583	5 993	28 350

Source: Compiled by the UNCTAD secretariat on the basis of Fearnleys (Oslo), *Review*, *World Bulk Trades* and *World Bulk Fleet*, various issues, and other specialized sources.

a/ As from 1988 the source data for tankers pertain to ships above 50,000 dwt (previously 60,000 dwt). For bulk carriers the basis is now also ships above 50,000 dwt (previously 40,000 dwt). Combined carriers have been similarly amended.

b/ The residual fleet refers to all vessels included in table 15, excluding tankers, bulk carriers and combined bulk carriers of the size range indicated in footnote a/.

Table 27

Estimated productivity of tankers, bulk carriers, combined carriers and the residual fleet, 1986-1996
(Tons carried per dwt)

Year	Tons of oil carried by tankers a/ (millions)	Tons carried per dwt of tankers	Tons of dry cargo carried by bulk carriers of over 18,000 dwt (millions)	Tons carried per dwt of bulk carriers	Tons of oil and dry bulk cargo carried by combined carriers of over 18,000 dwt (millions)	Tons carried per dwt of combined carriers	Tons carried by the residual fleet b/ (millions)	Tons carried per dwt of the residual fleet
1986	1 140	4.76	663	3.36	195	5.48	1 420	8.52
1987	1 185	5.08	693	3.54	195	5.84	1 384	8.15
1988	1 295	5.66	610	3.16	214	6.35	1 556	9.04
1989	1 398	6.02	639	3.27	211	6.34	1 612	9.10
1990	1 427	5.96	667	3.29	203	6.28	1 680	9.13
1991	1 485	5.82	707	3.27	196	6.38	1 722	9.47
1992	1 550	5.95	709	3.28	194	6.22	1 762	9.45
1993	1 665	6.27	744	3.37	192	6.62	1 738	8.89
1994	1 702	6.48	769	3.36	174	6.67	1 861	9.21
1995	1 738	6.66	770	3.20	177	7.38	1 993	9.55
1996	1 785	6.83	765	3.16	177	7.38	2 057	9.71

Source: Compiled by the UNCTAD secretariat on the basis of Fearnleys (Oslo), *Review*, *World Bulk Trades* and *World Bulk Fleet*, various issues, and other specialized sources.

a/ Tankers of 50,000 dwt and above as from 1988 (previously 60,000 dwt and above).

b/ See footnote b/ to table 26.

C. Supply and demand in world shipping

54. A comprehensive summary of the balance of tonnage supply and demand for the 1989-1996 period is provided in table 28. The total surplus tonnage stood at 48.8 million dwt (the lowest since 1988) or 6.4 per cent of the 1996 world merchant fleet. In terms of surplus tonnage, 1996 benefited from spillovers of the positive developments in 1995 when surplus tonnage declined from 63 million dwt to 51 million dwt. Time-charter arrangements concluded in 1995, which extended into 1996, led to an additional marginal reduction in surplus tonnage despite the fact that during the year seaborne trade grew at a slightly slower pace than tonnage supply.

55. The analysis by vessel types reveals that capacity in the oil tanker sector increased in 1996 by 2.9 per cent to 285.1 million dwt (see table 29 and graph 10). A total of 28.8 million dwt or 10.1 per cent of the total world tanker fleet was in excess of the demand for global oil seaborne transport. This was a minimal improvement over 1995, when 10.4 per cent of the total world tanker fleet was surplus. While tanker newbuildings (11.7 million dwt), improving oil trades (3.8 per cent over 1995) took much of the pressure off the market.

56. Overcapacity in the dry bulk sector slightly decreased in 1996 to 17.2 million dwt, representing a decline of 0.7 million tons and accounting for 6.7 per cent of the world dry bulk fleet. In 1996, shipowners of conventional general cargo ships continued to concentrate more on steady shipping practices with less speculative activities. The oversupply of the conventional general cargo sector further decreased by 0.6 million dwt to 1.4 million dwt, representing 2.2 per cent of the world total conventional general cargo fleet. In the unitized sector, a significant increase in supply in 1996 (59.3 million dwt) was completely absorbed by the market, although not all vessels were necessarily fully booked on each voyage. Additional demand was generated by expanding container and ro/ro trades of not only East-West trunk liner services but also North-South and intraregional services, specifically those covering Latin American and Asian regions.

Table 28

Tonnage oversupply in the world merchant fleet, 1989-1996 a/
(Million dwt and percentages)

	1989	1990	1991	1992	1993	1994	1995	1996
	Million dwt							
World merchant fleet	638.0	658.4	683.5	694.7	710.6	719.8	734.9	758.2
Surplus tonnage b/	62.3	63.7	64.2	71.7	72.0	63.4	50.8	48.8
Active fleet c/	575.7	594.7	619.3	623.0	638.6	656.4	684.1	709.4
	Percentages							
Surplus tonnage as a percentage of the world merchant fleet	9.8	9.7	9.4	10.3	10.1	8.8	6.9	6.4

Sources: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Maritime Information Services Ltd. (London); *Lloyd's Shipping Economist* (London), various issues.

a/ Mid-year data for 1989-1990, year-end data for 1991-1996.

b/ Estimates of average year figures. Surplus tonnage is defined as tonnage that is not fully utilized owing to slow steaming or lay-up status, or because it is lying idle for other reasons.

c/ World fleet minus surplus tonnage.

Table 29

Analysis of tonnage oversupply by main vessel type, 1989-1996 a/
(Average year figures in million dwt)

	1989	1990	1991	1992	1993	1994	1995	1996
Supply of world tanker fleet b/	253.9	266.2	273.5	283.4	284.6	282.9	277.0	285.1
Total tanker fleet surplus c/	41.0	40.9	39.8	41.8	43.5	39.0	28.8	28.8
Share of surplus fleet in the world tanker fleet (per cent)	16.2	15.4	14.6	14.8	15.3	13.8	10.4	10.1
Supply of world dry bulk fleet b/	225.4	228.7	235.0	237.3	238.6	242.6	252.9	257.2
Dry bulk fleet surplus c/	17.0	19.4	20.7	25.1	23.6	20.3	17.9	17.2
Share of surplus in the world dry bulk fleet (per cent)	7.5	8.5	8.8	10.6	9.9	8.4	7.1	6.7
Supply of world conventional general cargo fleet	63.4	63.6	63.5	63.0	62.1	61.9	62.0	62.7
Conventional general cargo fleet surplus	2.2	2.1	2.2	2.7	2.8	2.2	2.0	1.4
Share of surplus in the world conventional general cargo fleet (per cent)	3.5	3.3	3.5	4.3	4.5	3.6	3.2	2.2
Supply of world unitized fleet d/	35.8	37.5	40.3	43.0	45.7	49.8	53.4	59.3
Surplus of unitized fleet	0.8	0.5	0.4	0.7	0.7	0.5	0.7	0
Share of surplus in the world unitized fleet (per cent)	2.2	1.3	1.0	1.6	1.5	1.0	1.3	0.0

Source: Compiled by the UNCTAD secretariat on the basis of data from *Lloyd's Shipping Economist* (London), various issues.

a/ Aggregates for all sectors as shown in this table are averages for the years shown and therefore differ from the world figures in table 28, which indicate estimates at mid-year. The present table excludes tankers and dry bulk carriers of less than 10,000 dwt and conventional general cargo/unitized vessels of less than 5,000 dwt.

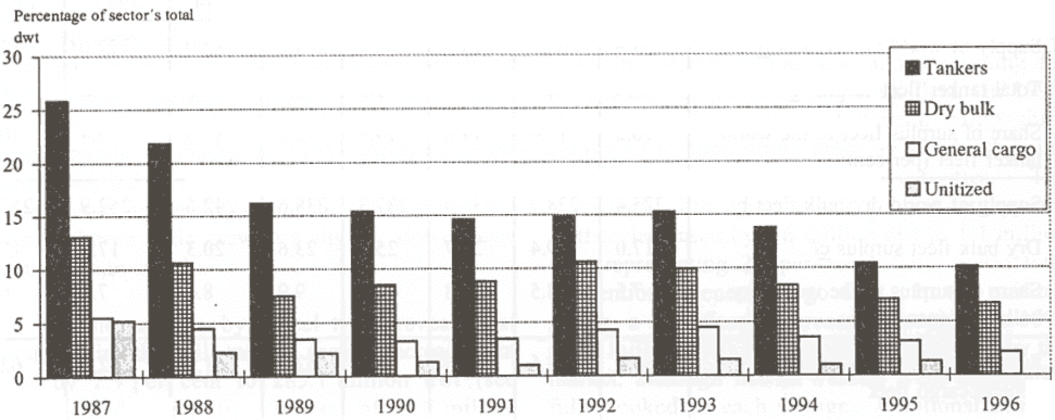
b/ Including combined ore/bulk/oil carriers on the basis of actual supply (for 1996, total of 20.9, of which 5.5 as tanker and 15.5 as dry bulker).

c/ Including 50 per cent of combined ore/bulk/oil carriers.

d/ Unitized fleet includes here fully cellular containerships, partly cellular containerships, ro-ro ships and barge carriers.

Graph 10

Trends in surplus capacity by main vessel type, 1987-1996



Source: Compiled by the UNCTAD secretariat on the basis of data from *Lloyd's Shipping Economist* (London), various issues.