UNCTAD/RMT/2001

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Geneva

REVIEW OF MARITIME TRANSPORT, 2001

Chapter III

United Nations

New York and Geneva, 2001

Chapter III

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

This chapter provides information on 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 the analysis of tonnage oversupply in the main shipping market sectors.

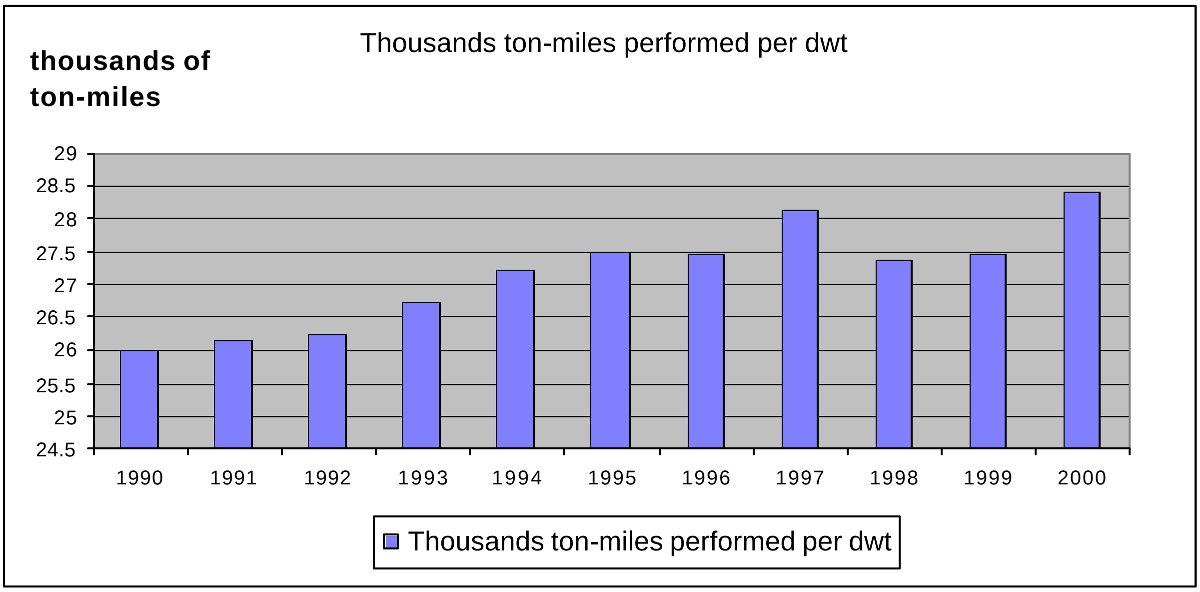
A. OPERATIONAL PRODUCTIVITY

Estimate of tons and ton-miles per dwt

65. The main indicators of operational productivity for the world fleet are shown in graph 6 and table 24. Tons of cargo carried per deadweight ton (dwt) in 2000 maintained a similar level as in the previous two years at 7.19, whilst thousands of ton-miles performed per deadweight ton increased to 28.38. The slight increase in productivity measured in tons of cargo carried per deadweight ton (dwt) reflects the accelerated growth of cargo carried relative to the fleet expansion. The increase in productivity measured in ton-miles per deadweight ton results from the recovery of seaborne trade from the slowdown of the previous two years.

Graph 6

Index of ton-miles performed per deadweight ton of total world fleet, 1990–2000



Source: UNCTAD calculations.

Table 24

Cargo carried and ton-miles performed per deadweight ton (dwt) of the total world fleet, 1990–2000

Year	World fleet (millions of dwt)	Total cargo (millions of tons)	Total ton miles performed (thousands of millions of ton-miles)	Tons carried per dwt	Thousands of ton-miles performed per dwt
1990	658.4	4 008	17 121	6.09	26.00
1991	683.5	4 120	17 873	6.03	26.15
1992	694.7	4 220	18 235	6.07	26.25
1993	710.6	4 330	18 854	6.09	26.53
1994	719.8	4 485	19 461	6.23	27.04
1995	734.9	4 651	20 188	6.33	27.47
1996	758.2	4 758	20 810	6.28	27.45
1997	775.9	4 953	21 825	6.38	28.13
1998	788.7	5 648	21 588	7.16	27.37
1999	799.0	5 688	21 928	7.12	27.44
2000	808.4	5 811	22 940	7.19	28.38

Sources: World fleet: Lloyd's Maritime Information Services (London) (mid-year data for 1990, year-end data for 1991–1999); total cargo carried: UNCTAD secretariat; ton-miles: Fearnleys (Oslo), *Review*, various issues. Data compiled by the UNCTAD secretariat.

66. Table 25 provides supplementary data on operational productivity in terms of cargo carried per deadweight ton. Cargo volumes in tons carried per deadweight ton of oil tankers increased by 3.0 per cent in 2000 over the previous year to reach 7.25 tons per dwt. Those cargo volumes carried per deadweight ton of dry bulk carriers, combined carriers and the residual fleet increased by 4.2, 14.1 and 1.7 per cent respectively compared with those in 1999.

67. Indicative data on ton-miles performed by oil tankers, dry bulk carriers, combined carriers and the residual fleet are provided in table 26. Ton-miles per deadweight ton of oil tankers continued to increase in 2000 by 4.3 per cent to 35.41, while ton-miles per deadweight ton of dry bulk carriers, combined carriers and the residual fleet increased by 2.9, 7.6 and 3.1 per cent to reach 24.00, 34.91 and 24.97 respectively.

Table 25

Estimated productivity of tankers, bulk carriers, combined carriers [a] and the residual fleet, [b] selected years

(tons carried per dwt)

Year	Tons of oil carried by tankers of over 50,000 dwt (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 [a] (millions)	Tons carried per dwt of the residual fleet
1970	1 182	8.58	403	8.40	97	6.83	800	6.34
1980	1 564	4.79	396	2.85	282	5.83	1 406	8.33
1990	1 427	5.96	667	3.29	203	6.28	1 680	9.13
1998	1 985	7.10	1 137	4.41	130	7.34	2 379	10.18
1999	1 988	7.04	1 162	4.48	131	7.83	2 402	9.99
2000	2 070	7.25	1 262	4.67	102	8.94	2 451	10.16

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

[a] Tankers, bulk carriers and combined carriers indicated in table 6.

[b] The residual fleet refers to general cargo, container and other vessels included in table 6.

Table 26

Estimated productivity of tankers, bulk carriers, combined carriers and the residual fleet, [a] selected years

(thousands of 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
1970	6 039	43.82	1 891	39.40	745	52.46	1 979	15.69
1980	9 007	27.56	2 009	14.47	1 569	32.43	4 192	24.83
1990	7 376	30.81	3 804	18.77	1 164	36.04	4 777	25.96
1998	9 465	33.86	5 988	23.23	535	30.24	5 600	23.97
1999	9 586	33.94	6 048	23.31	542	32.44	5 753	23.93
2000	10 107	35.41	6 484	24.00	398	34.91	5 951	24.67

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

[a] See footnotes from table 25.

B. SUPPLY AND DEMAND IN WORLD SHIPPING

Surplus tonnage

68. An indicative summary of the balance of tonnage supply and demand for the period 1995–2000 is provided in table 27. The total surplus tonnage in 2000 continued to decrease by 5.3 million dwt to a new record of 18.4 million dwt or 2.3 per cent of the world merchant fleet from 3.0 per cent in 1999. This improved balance was largely attributable to the continuously increasing cargo volumes, specifically since 1998, (see table 24) which reached 5.6 billion tons, when surplus tonnage was 3.1 per cent.

Table 27

Tonnage oversupply in the world merchant fleet, 1990 and 1995–2000
(end-year figures)

	1995	1996	1997	1998	1999	2000
			Million dwt			
World merchant fleet	734.9	758.2	775.9	788.7	799.0	808.4
Surplus tonnage [a]	50.8	48.8	29.0	24.7	23.7	18.4
Active fleet [b]	684.1	709.4	746.9	764.0	775.3	790.0
			Percentages			
Surplus tonnage as a percentage of the world merchant fleet	6.9	6.4	3.7	3.1	3.0	2.3

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

[a] 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.

[b] World fleet minus surplus tonnage.

The supply and demand mechanism by type of vessel

69. Tonnage supply in the oil tanker sector decreased in 2000 by 4.3 million dwt to 279.4 million dwt as newbuildings delivered were less than tonnage scrapped or lost (see table 28 and graph 7). This combined with increased shipments reduced overcapacity to 13.5 million dwt or 4.8 per cent of the total world tanker fleet. In 2000, the total dry bulk fleet supply increased marginally by 2.0 million dwt to 247.7 million dwt. The considerable increase in shipments of the main dry cargoes mentioned in chapter I helped to reduce overtonnage to only 3.8 million dwt, about half the level of the year before and equivalent to 1.5 per cent of the dry bulk fleet. For the conventional general cargo fleet, overcapacity was reduced in 2000 with supply exceeding demand by only 1.1 million dwt or 1.8 per cent for the world fleet of this sector. The surplus tonnage of general cargo vessels has continued to follow a downward trend since the early 1990s. In the unitized fleet sector, 7.5 million dwt of containerships were added in 2000 with this fleet reaching 83.6 million dwt. As in previous years, expanding trades for liner shipping have been able to absorb these tonnages, thus resulting in full employment of the world unitized fleet.

Table 28

Analysis of tonnage surplus by main type of vessel, 1995–2000 [a]
(average annual figures in millions of dwt)

	1995	1996	1997	1998	1999	2000 [d]
World tanker fleet	277.0	285.1	290.6	291.0	281.8	279.4
Total tanker fleet surplus [b]	28.8	28.8	17.0	17.3	14.0	13.5
Share of surplus fleet in the world tanker fleet (per cent)	10.4	10.1	5.8	5.9	5.0	4.8
World dry bulk fleet	252.9	257.2	260.9	257.1	245.7	247.7
Dry bulk fleet surplus [b]	17.9	17.2	10.3	5.8	7.9	3.8
Share of surplus in the world dry bulk fleet (per cent)	7.1	6.7	3.9	2.3	3.2	1.5
World conventional general cargo fleet	62.0	62.7	62.0	60.5	59.9	59.3
Conventional general cargo fleet surplus	2.0	1.4	1.7	1.6	1.8	1.1
Share of surplus in the world conventional general cargo fleet (per cent)	3.2	2.2	2.7	2.6	3.0	1.8
World unitized fleet [c]	53.4	59.3	65.7	73.1	76.1	83.6
Surplus of unitized fleet	0.7	0	0	0	0	0
Share of surplus in the world unitized fleet (per cent)	1.3	0.0	0.0	0.0	0.0	0.0

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

[a] Aggregates for all sectors shown in this table are averages for the years indicated and therefore differ from the world figures in table 28. This 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 50 per cent of combined ore/bulk/oil carriers.

[c] Unitized fleet includes here fully cellular containerships, partly cellular containerships, ro-ro ships and barge carriers.

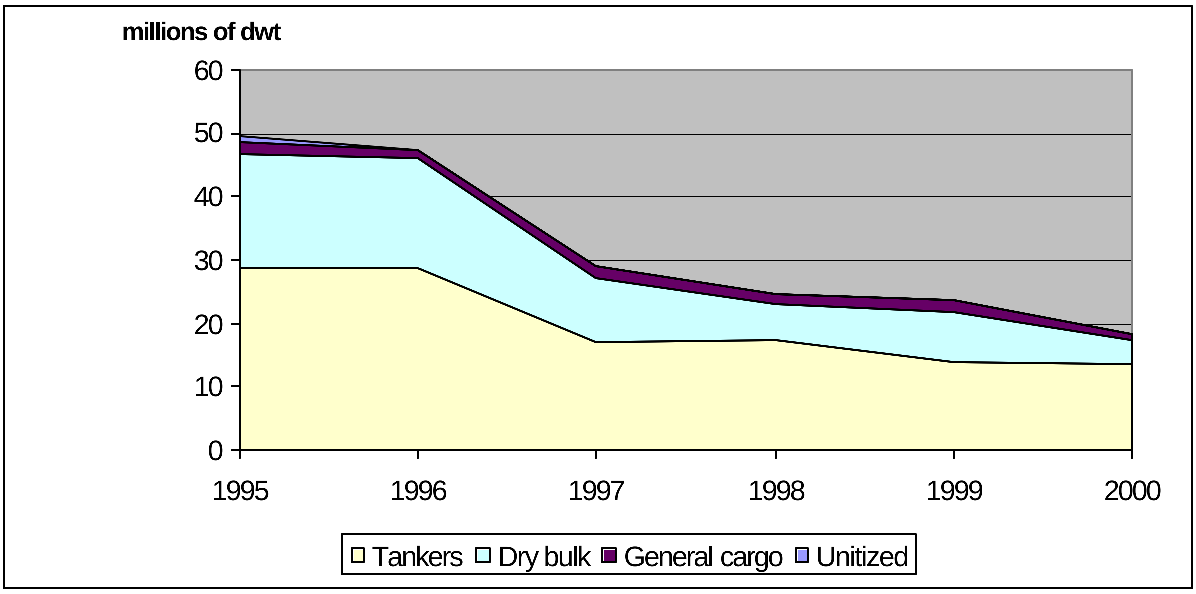
[d] Data for 2000 corresponds to figures up to October 2000 as compiled in December 2000.

C. COMPARISON OF CARGO TURNOVER AND FLEET OWNERSHIP

70. The correlation between cargo volume generated by different country groups and their fleet ownership is summarized in table 29. Developed market-economy countries generated nearly 53 per cent of world seaborne trade in 2000 compared with about 54 per cent in 1980. The tonnage share of the fleet of developed market-economy countries has been halved from about 51 per cent in 1980 to 25 per cent in 2000. However, to the tonnage under national flags must be added the tonnage of vessels owned but registered under foreign flags. The share of developing countries in world cargo turnover has remained at about 40 per cent. Their tonnage owned and registered under national flags had increased from 10 per cent of the world fleet in 1980 to nearly 20 per cent at the beginning of 2001. Tonnage beneficially owned by developing countries has expanded to nearly one third of the total beneficially-registered tonnage thus placing the total tonnage owned by developing countries at about 36 per cent of the world fleet. The share of world cargo turnover generated by the countries of Central and Eastern Europe remained at about 3.0 per cent in 2000, unchanged from the levels of previous years, but significantly less than 4.7 per cent

Graph 7

Trends in surplus capacity by main vessel type in selected years



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

in 1980. Their fleet position also declined from 5.5 per cent to 2.1 per cent in 2000. The socialist countries of Asia increased their share in world trade to 4.6 per cent in 2000, while they improved their share in world tonnage from 1.6 per cent in 1980 to 3.3 per cent in 2000. In addition these countries have a small share of their fleet registered in the open registries.

71. Information on fleet ownership of the major trading nations is provided in table 30. It may be noted that the major trading nations are also major owners of tonnage. This reflects an aspect of trade-supporting policies for exploiting maritime transport as a trade complement. It is generally considered that maritime capabilities, specifically the ownership of substantial tonnage, are essential for the country's trade support and promotion. The table also shows many similarities as well as differences in the shipping services of the leading trading nations. Major trading countries such as Japan, China (including Hong Kong), Republic of Korea, Denmark, Sweden and Norway are outstanding among the nations with maritime services for cross trades. Other major trading nations are major importers or users of shipping services, while they maintain a relevant ownership position and, to a lesser extent, national flag position. The United States and France come into this group. In 2000 the United States generated more than 15.7 per cent of world trade while it owned 7.87 per cent of world tonnage with only 3.55 per cent of such tonnage flying the national flag. Similarly, France generated 4.6 per cent of world trade as compared to a tonnage ownership position of 1.48 per cent, and a national flag share of 0.85 per cent.

Table 29

Comparison between total cargo turnover and fleet ownership by groups of countries in 1970, 1980, 1990 and 1998–2000

Country grouping	Year	Total of goods loaded and unloaded (millions of tons)	Percentage of world total	Merchant fleet (millions of dwt)	Percentage of world total
Developed market-economy countries	1970	2 832.0	55.1	211.9	65.0
	1980	3 965.0	53.7	350.1	51.3
	1990	4 574.7	56.2	219.0	33.3
	1998	6 140.3	53.2	202.6	25.7
	1999	6 103.6	52.2	203.2	25.4
	2000	6 398.9	52.7	203.9	25.2
Major open-registry countries	1970	[b]	[b]	70.3	21.6
	1980	[b]	[b]	212.6	31.1
	1990	[b]	[b]	224.6	34.1
	1998	[b]	[b]	376.8	47.8
	1999	[b]	[b]	384.7	48.1
	2000	[b]	[b]	390.5	48.3
Developing countries	1970	2 056.0	40.0	20.5	6.3
	1980	2 926.0	39.6	68.4	10.0
	1990	3 095.0	38.0	139.7	21.2
	1998	4 625.5	40.0	150.8	19.1
	1999	4 748.2	40.6	153.6	19.2
	2000	4 824.9	39.8	157.5	19.5
Countries of Central and Eastern Europe (including former USSR)	1970	204.0	4.0	20.5	6.2
	1980	346.0	4.7	37.8	5.5
	1990	275.9	3.4	44.3	6.7
	1998	292.7	2.5	20.7	2.6
	1999	334.0	2.9	18.3	2.3
	2000	348.2	2.9	16.8	2.1
Socialist countries of Asia	1970	43.0	0.8	1.2	0.4
	1980	146.0	2.0	10.9	1.6
	1990	187.7	2.4	22.1	3.4
	1998	490.1	4.2	26.0	3.3
	1999	504.2	4.3	25.8	3.2
	2000	554.6	4.6	26.3	3.3
World total [a]	1970	5 135.0	100.0	326.1	100.0
	1980	7 383.0	100.0	682.8	100.0
	1990	8 133.3	100.0	658.4	100.0
	1998	11 548.7	100.0	788.7	100.0
	1999	11 689.9	100.0	799.0	100.0
	2000	12 126.7	100.0	808.4	100.0

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

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

[b] All goods loaded and unloaded are included in the volume of developing countries.

Table 30

Maritime engagement of 25 major trading nations
(as at the end of 2000)

Country/territory	Percentage share of world trade generated, in terms of value	Percentage share of world fleet in terms of dwt
United States	15.7	7.87
Germany	8.1	4.11
Japan	6.6	12.74
United Kingdom	4.7	3.76
France	4.6	1.48
Italy	3.6	1.84
Canada	4.0	0.37
Hong Kong, China	3.2	5.49
Netherlands	3.1	0.85
Belgium-Luxembourg	2.9	0.99
China	3.6	5.22
Republic of Korea	2.6	3.35
Singapore	2.1	5.14
Spain	2.0	0.71
Taiwan Province of China	2.2	2.47
Malaysia	1.4	0.95
Sweden	1.2	1.32
Switzerland	1.2	0.87
Thailand	1.0	0.38
Australia	1.0	0.48
Brazil	0.9	0.76
Russian Federation	1.1	2.09
Saudi Arabia	0.9	1.36
Denmark	0.7	3.24
Norway	0.7	10.90
Total	79.1	78.74

Source: UNCTAD secretariat on the basis of data supplied by the World Trade Organization.