Volume Title: Methods for Improving World Transportation Accounts, Applied to 1950-1953

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Volume Publisher: UMI

Volume ISBN: 0-87014-421-9

Volume URL: http://www.nber.org/books/karr61-1

Publication Date: 1961

Chapter Title: Amplification of the Records

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Chapter URL: http://www.nber.org/chapters/c2209

Chapter pages in book: (p. 13 - 46)

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Amplification of the Records

To eliminate the gaps in the reporting, estimates were computed for the freight on imports for a number of countries, the earnings and disbursements of some fleets, and the port receipts of some other countries. In addition, the totals have been allocated to areas. No efforts were made to correct the figures submitted by the countries themselves.[8] Consequently the end product is a set of figures that is more or less complete but far from faultless.

Freight on Imports

More than half the reporting countries state the c.i.f. value of imported merchandise in their balances of payments and, unlike countries reporting imports f.o.b., show no freight on the debit side of the transportation line. To arrive at a set of uniform—f.o.b.—figures for all countries, the freight on imports had to be estimated for the c.i.f. reporting countries. The total amount of freight was subtracted from the c.i.f. value of imported merchandise and added to the transportation debits. Finally, the freight payments were allocated to the countries that rendered the transportation services.

The best method of estimating the freight on imports of a particular country—closest to that actually used by countries reporting it—would be to make a selection of the imported quantities and multiply each by its appropriate freight rate. Because of time-consuming details, it was not possible to apply this method to all countries that do not state the freight on their imports. Section 5 deals more extensively with this accurate method of assessing the freight on imports. In this study a quicker but rougher method was used. The first step is to make a selection of the

[8] The IMF is still not in a position to audit figures submitted by its member countries.

TABLE 5

FREIGHT RATES AND C.I.F. UNIT VALUES, ACTUAL FREIGHT FACTORS, AND FREIGHT FACTOR INDEXES, 1950-1953
(U.S. dollars per ton; index, 1951 = 100)

	Crude Petroleum		*Fuel Oil*	*Gasoline*	*Coal*		*Iron Ore*	
	Venezuela U.K.	Bahrein U.K.	Indonesia Netherlands	Netherlands Antilles Netherlands	Hampton Roads Netherlands	Bristol Channel River Plate	Algeria U.K.	Sierra Leone U.K.
1950								
Freight rate	5.25	7.60	10.20	5.30	3.75	6.45	3.30	4.40
C.I.F. value	22.40	20.85	13.20	46.50			8.50	7.20
Freight factor	0.234	0.365	0.773	0.114			0.389	0.612
Index	69	71	86	61			72	77
1951								
Freight rate	9.55	13.10	17.90	9.70	10.70	15.25	7.70	10.00
C.I.F. value	28.20	25.40	20.00	51.75	19.10	36.60	14.15	12.55
Freight factor	0.339	0.516	0.895	0.187	0.560	0.417	0.544	0.796
Index	100	100	100	100	100	100	100	100
1952								
Freight rate	11.90	16.15	22.10	12.10	9.10	12.45	5.00	5.20
C.I.F. value	27.50	27.50	23.40	54.60	18.85	29.20	17.55	14.85
Freight factor	0.432	0.588	0.945	0.221	0.485	0.425	0.285	0.350
Index	127	114	106	118	87	102	53	44
1953								
Freight rate	6.45	9.15	12.40	6.55	4.75	4.90	3.50	4.60
C.I.F. value	25.00	21.95	17.35	56.10	14.60	21.80	16.65	16.05
Freight factor	0.258	0.417	0.715	0.117	0.325	0.225	0.210	0.286
Index	76	81	80	63	58	54	39	41

(continued)

TABLE 5 (concluded)

	Fertilizer	*Wheat*		*Maize*	*Timber*	*Lumber*	*Sugar*
	Tunisia U.K.	St. Lawrence U.K.	Australia U.K.	River Plate Netherlands	Finland Netherlands	Canada (Pacific) Netherlands	Cuba U.K.
1950							
Freight rate	3.60	5.40	9.90	6.90	4.35	10.25	8.20
C.I.F. value	12.30	81.00	73.50	65.50	29.40	113.50	122.00
Freight factor	0.293	0.067	0.135	0.105	0.148	0.090	0.067
Index	70	39	58	76	72	54	48
1951							
Freight rate	8.30	15.00	19.90	14.45	8.50	24.00	19.55
C.I.F. value	19.75	87.00	85.50	104.00	41.40	142.50	139.00
Freight factor	0.420	0.173	0.233	0.139	0.205	0.168	0.140
Index	100	100	100	100	100	100	100
1952							
Freight rate	5.25	7.20	13.60	9.00	5.55	15.90	12.25
C.I.F. value	20.90	86.80	85.80	91.50	46.50	161.50	128.50
Freight factor	0.251	0.083	0.159	0.098	0.119	0.098	0.095
Index	60	48	68	71	58	58	68
1953							
Freight rate	4.65	6.55	11.75	9.55	4.90	10.70	9.30
C.I.F. value	16.90	84.50	83.80	77.80	39.50	149.50	86.00
Freight factor	0.275	0.078	0.140	0.123	0.124	0.072	0.108
Index	65	45	60	88	60	43	77

SOURCE: For freight rates on petroleum, the London Award; for freight rates on dry cargo, publications of the Central Bureaus of Statistics of the Netherlands and the United Kingdom.

imported values by broad commodity groups and to distribute the value in each group over various areas of origin. The next step is to determine the proportion of freight to (c.i.f.) value per unit of quantity of the commodity groups, and to apply those proportions to the corresponding values.[9] The crux was, of course, to establish the freight factors, i.e., the proportions of the freight in the (c.i.f.) unit values—rough though they must be.

In determining these freight factors, use was made of results of previous investigations for the same purpose by the statistical bureaus of France, West Germany, the Netherlands, and Switzerland for 1951 or the first months of 1952.[10] Though the freight factors found for a particular commodity group were not always the same for all four countries, they all lie within a small range. There was little variance in the factors of various groups of high-value commodities no matter from which part of the world they came; for groups of low-value commodities, however, distance had a definite influence on the factors. On the basis of these observations it was assumed that the freight factors for those four West European countries could be used for other countries for which the c.i.f.-f.o.b. adjustments had to be calculated, provided some allowance was made, where necessary, for the length of haul. Occasionally the validity of this assumption was tested by comparing available freight rates with corresponding unit values; in general, it was found that the adopted and adjusted freight factors could be used for making a first estimate of the freight on imports.

Still other aspects of these rough c.i.f.-f.o.b. adjustments had to be taken into account. First, not all imports are sea borne. Sometimes assumptions had to be made about the means of transportation used, by considering mainly the parts of the two countries where a commodity was produced and had its destination, the existing ways of transportation between them, and so on. In certain instances, where the exporting and importing country are contiguous, no freight has to be deducted from the value of the merchandise. According to the IMF rules, both exported and imported merchandise should be valued at the frontier of the country of export, which between bordering countries is also the frontier of the country of import. Sometimes, however, it must be assumed that the commodity did not cross the common border but came by sea, and for

[9] Carmellah Moneta, who had a great share in calculating these c.i.f.-f.o.b. adjustments gives a good description of the method in "The Estimation of Transportation Costs in International Trade Accounts," *Journal of Political Economy*, February 1959.

[10] Obtained from the Statistical Commission and the Economic Commission for Europe of the United Nations (E/CN.3/Conf. 3/L.2), E/ECE/Stat. 3/L.2, Add. 1, June 15, 1953.

such transportation between contiguous countries allowance for freight has been made in the balance of payments of the importing country.

Second, some attention was paid to changes in the 1951 freight factors for estimating the freight on imports for the other years studied. Without exact information on freight rates for most commodities imported by the countries for which c.i.f.-f.o.b. adjustments had to be made, the 1951 freight factors were changed only in a general way. This was necessary particularly for materials for which unit values, freight rates, and hence freight factors fluctuated greatly in those years. The selections included some of the most important raw materials, for which annual freight rates for transportation over particular routes have been secured; their corresponding c.i.f. unit values were computed from data shown in import statistics (see Table 5).

Some interesting features emerge from the table. The freight rates of tankers and dry cargo vessels show a remarkable conformity of movement, as one might expect from prices established on open markets. With the dry cargo rates in 1951 at 100, the indexes are shown in the next tabulation.

	1950	*1951*	*1952*	*1953*
Coal				
Hampton Roads—Netherlands	35	100	85	44
Bristol Channel—River Plate	42	100	82	32
Wheat				
St. Lawrence—United Kingdom	36	100	48	44
Australia—United Kingdom	50	100	68	60
Maize				
River Plate—Netherlands	48	100	62	66
Sugar				
Cuba—United Kingdom	42	100	63	48
Iron Ore				
Algeria—United Kingdom	43	100	65	45
Sierra Leone—United Kingdom	44	100	52	46
Fertilizers				
Tunisia—United Kingdom	43	100	63	56
Timber				
Finland—Netherlands	51	100	65	68
Lumber				
North Pacific—Netherlands	43	100	66	44

The range and central tendency of these rates (except coal) in 1950, 1952, and 1953 are 36-51 and 45 in 1950, 48-68 and 61 in 1952 and 44-68 and 53 in 1953 (particular circumstances prevailing in Europe caused the high coal freight rates in 1951 and 1952). This suggests that, once we know the tramp freight rate of a particular commodity transported over

a certain route for one year, we can estimate the corresponding rates of that commodity for the other years rather well.

As to freight rates: The freight rate per ton of a particular commodity in one year is somewhat proportional to the length of haul to which it applies. The freight rates for cereals, for example, transported from the St. Lawrence, the River Plate, and West Australia to the U.K.–Continent in 1950 are, respectively, $5.40, $6.90 and $9.90 whereas the (approximate) distances are, respectively, 3,000, 5,100 and 9,450 nautical miles.

Comparison of the freight rates of different commodities, however, shows differences that cannot be explained by distance only. The freight rates for cereals from St. Lawrence to the United Kingdom, for timber from Finland to the Netherlands, and for sugar from Cuba to the U.K. in 1950 are, respectively, $5.40, $4.35, and $8.20 per ton, whereas the distances are, respectively, 3,000, 950, and 4,200 nautical miles. Freight rates are not based so much on the weight of freight as on the space occupied—a better measure for the utilization of services offered by the carriers. The relation between the weight and the space occupied by a commodity is given by the so-called stowage factor, which is the number of cubic feet occupied by a long ton (2,240 pounds). The stowage factor for wheat (in bulk) is 48, for timber (air-dried) 66, and for sugar (in bags) 50.[11] If the three freight rates per ton are divided by the stowage factors we obtain the freight rates per cubic foot, for wheat $0.11, for timber $0.07, and for sugar $0.16, which are now in better correspondence with the distances. This distance factor and other factors that determine the freight rates are discussed more extensively in the fifth section.

The freight factors, however, being the quotient of the freight rates and the unit values per ton, show little conformity, even those for a particular commodity in the same year. The 1950 freight factor for iron ore imported by the United Kingdom from Algeria is 0.389, whereas it is 0.613 for iron ore from Sierra Leone. We observe similar differences for other years. Also, the 1950 freight factor for a relatively high-value commodity, wheat imported by the U.K. from the St. Lawrence, is 0.067, whereas it is 0.135 for wheat from Australia. The wide differences are caused by differences not only in the freight rates but also in the c.i.f. unit values of the commodities. Two conclusions can be drawn: it is hazardous to use for a particular commodity always the same freight factor; in fixing freight factors, due account must be taken of the applicable freight rates.

From the roughly computed 1951 freight factors for the most important raw materials imports, the factors of the other years were obtained in a rather general way. Approximately the same proportional changes were

[11] Derived from Joseph Leeming, *Modern Shipping Stowage*, Department of Commerce, 1942.

made in the 1951 freight factors of other countries as shown by those of the United Kingdom and the Netherlands, given in the tabulation below.

	1950	*1952*	*1953*
Petroleum, crude	−30%	+20%	−20%
Petroleum products	−25	+15	−30
Coal	−35 (est.)	−5	−40
Ores, low value	−25	−50	−55
Fertilizers	−30	−40	−35
Cereals	−50	−35	−45
Wood products	−35	−40	−45
Sugar	−50	−30	−20

Similar changes in the 1951 freight factors were made also for other raw materials appearing in the selection of commodities imported by countries for which freight on imports had to be estimated.

The 1951 freight factors for semimanufactured and manufactured commodities, mainly transported by liners, were used unchanged for the other years, on the assumption that movements in the c.i.f. unit values of those broad categories of commodities were about the same as those of the liner freights. To illustrate, the tabulation below shows the export unit value indexes of those commodities, computed by the Statistical Office of the United Nations, and the combined index of liner freights for European and overseas routes, computed by the Marine Section of West Germany's Federal Ministry of Transport.[12]

	United Nations Export Unit Value Indexes of Manufactured Goods		*West Germany Liner Freight Indexes of European and Overseas Routes*	
	1950 = 100	1951 = 100	1953 = 100	1951 = 100
1950	100	84	82	80
1951	119	100	103	100
1952	122	103	112	109
1953	117	98	100	97
1954	115	97	96	93

One might wonder whether the German indexes give a good picture of the fluctuations of liner freight rates all over the world. Most liner conferences raised their rates about 15 per cent in the first part of 1951, sometimes followed by a smaller raise six to nine months later, but this will not amount to an average rise of more than 35 per cent from 1950 to 1952 as shown by the German index. Still more surprising is the sharp decline in the German liner freight index after 1952, since not many liner conferences reduced their rates after 1952. In view of this, the assumption seems warranted that there was in those years some parallel

[12] Both published quarterly in the *Monthly Bulletin of Statistics.*

in the fluctuations of export unit values of manufactured goods and liner freight rates, though the amplitude of the former could have been somewhat smaller than that of the latter. That difference in amplitude will be less if the movement of the liner freight rates is compared with that of the import unit values, the latter being composed mainly of export unit values and freight rates. Such considerations led, in this phase of the study, to application for the other years of the 1951 freight factors to the semimanufactured and manufactured products. Hence, there is a difference over time in treatment of those commodities and the raw materials because of the difference in the fluctuations of freight rates and unit values of the two groups of commodities in those years.

The result of the computations is shown in Table 6, giving not only dollar amounts of the freight but also the amounts as percentages of the c.i.f. values of imports. In general it can be said that the high percentages indicate a rather large share of imports consisting of raw materials such as petroleum, coal, ores, fertilizers, timber, and cereals—all commodities with high or relatively high freight factors. The low percentages usually indicate that a large share of the imports consists of semimanufactured and manufactured commodities and in some cases, for instance Mexico, that much has been imported from contiguous countries.

The amounts of freight contained in the c.i.f. value of imports, calculated where necessary, were allocated to the countries that rendered the transportation services. The allocation was based on the distribution of imported quantities of commodities according to flags of their carriers —a basis considered best, but far from ideal. The flag of a vessel usually indicates the country of its owner, whereas its operator that receives the freight is often located in a different country. For example, when a vessel is let on charter to a foreign operator, the freight is received by a resident of one country, and the ship flies the flag of another country. Only if a ship is let on a bare-boat charter—a rare occurrence—might the flag of the charterer's country be substituted. Consequently, the method of allocating freight on imports according to the flag of the carrier is subject to error in cases of chartering to operators of other countries.

Misallocation of freight charges is illustrated by the transportation of petroleum products, which occupies a large part of world fleets. United States and United Kingdom oil companies, main petroleum producers, charter every year a large quantity of carrying capacity for the transport of their products. The U.S. charters these vessels mainly from Panama, Honduras, and Liberia; and the U.K. from continental OEEC [18] countries. If freight on imported petroleum products is distributed by flag of carrier, the amounts allocated to Latin America and continental OEEC

[18] Organisation for European Economic Co-operation.

TABLE 6

ESTIMATED AMOUNT OF FREIGHT ON IMPORTS AND AMOUNT AS PERCENTAGE OF C.I.F. VALUES, 1950-1953
(amounts in millions of U.S. dollars)

	1950		1951		1952		1953	
Ireland	$ 43	7.8%	$ 59	10.3%	$ 46	9.5%	$ 44	8.5%
Iceland	2	6						
New Zealand	67	14.5						
Burma	11	8.1	15	7.9	13	7.5	8	7.1
Ceylon	21	8.7	33	10.3	33	9.3	34	8.3
India	94	8.2	182	10.1	151	10.9	110	9.3
Iraq	11	10	14	10	17	10	19	10
Jordan	5	12	5	12	6	12	6	12
Total other £	254		308		266		221	
British OT's	210	6.9	324	7.6	339	8.4	287	7.5
Total £ area	464		632		605		508	
Austria	35	7.2	65	10.1	54	8.4	33	6.1
Sweden	110	9.4	202	10.8	196	11.3	137	8.7
Switzerland	79	7.5	117	8.5	96	7.9	71	6.0
Turkey	21	7.4	31	7.8	39	7.0	38	7.2
Total Continental EPU	245		415		385		279	
French OT's	103	6.1	179	7.6	200	7.5	235	6.5
Netherlands OT's	30	4.2	49	6.2	60	7.6	29	5.1
Portuguese OT's	10	7.2	13	7.9	16	8.3	13	6.8
Total non-£ EPU	388		656		661		556	
Colombia	18	5.0	21	5.2	23	5.4	27	5.4
El Salvador	3	6.1	4	6.6	4	6.5	5	6.6
Haiti	3	6.5	3	7.0	4	6.8	3	7.0
Mexico	18	3.5	29	3.8	25	3.4	25	3.2
Argentina	73	10.9	192	13.4	212	18.0	95	11.8
Chile	15	6.2	28	8.5	29	7.9	27	7.9
Uruguay	14	7.1	26	8.2	22	8.6	14	7.3
Total Latin America	144		303		319		196	
Finland	28	7.1	67	9.9	70	8.9	33	6.2
Yugoslavia	16	6.7	34	8.8	32	8.7	32	8.0
Spain	51	13.1	65	16.8	59	11.4	43	12.0
Spanish OT's	24	13.9	38	21.4	39	25.2	44	
Total other Europe	119		204		200		152	
Egypt	44	7.6	69	10.2	61	9.7	44	8.8
Iran	12	5.9	13	5.6	8	5.2	6	5.2
Israel	29	10.2	43	12.9	45	13.6	33	11.4
Lebanon	8	9	11	9	10	9	15	9
Syria	11	10	15	10	13	10	20	10
Saudi Arabia	8	10	15	10	22	10	17	10
Anglo-Egyptian Sudan	4	5.4	7	6.2	13	7.1	9	5.9
Total Middle East	116		173		172		144	
Indonesia	26	5.9	46	5.7	52	5.6	44	5.8
Taiwan	14	12	20	14	27	13	23	12
Thailand	19	9	25	9	27	9	30	9
South Korea	11	10	12	10	16	10	26	10
Total Far East	70		103		122		123	
Total other areas	305		480		494		419	
Total all areas	1,301		2,071		2,079		1,679	

Amounts include payments to domestic carriers.
Percentages without decimal figures are rough estimates.

will in general be too high and the amounts of the U.S. and the U.K. too low. The same result, to a lesser extent, can be expected from the allocation by flag of carrier of freight on imported dry cargo transported en masse in tramp ships.

There are many obstacles to estimating the misallocation and arriving at a fairly accurate allocation of freight charges. First, the magnitude of the misallocation could be estimated only if we knew whether each carrier of commodities was operated by a resident of the country indicated by the ship's flag or of another country. This is particularly true of tramps. Of tankers not flying the flags of the U.K. or the U.S., there are good reasons to assume that they were chartered (although information is lacking on the proportion chartered by residents of those two countries). Because almost no countries show flag distributions of dry cargo vessels and tankers separately, a reallocation of the freight on imports of petroleum products was impossible. However, in the allocation of freight on imports by flag of carrier, shown below, the errors due to lack of information on chartering are, on the average, smaller than expected.

Secondly, few countries for which allocation of freight on imports had to be made show flag distributions of quantities of imported merchandise sufficiently detailed for that purpose. What is needed for accurate allocation is information about the nationality of carriers for every commodity (or group of commodities), for every route of transport, and by type of vessel (tramp or liner). With such detailed information and also the appropriate freight rates, in a few instances, allocation of freight on imports close to the actual could be made. For France, which publishes detailed flag distributions of its imports and exports, a description of the calculation and its results is given in Section 5.

A number of countries publish the flag distributions of total quantities of imported merchandise, and others show only the flag distributions of tonnages entering their ports. Both types of records were used here for allocation of freight on imports. A few countries—none important in transportation—show no flag distributions at all, and flag distributions of neighboring countries were used. The question remains, how reliable this yardstick of assorted records of flag distribution is for the allocation of the freight on imports.

A very detailed breakdown of freight on imports paid to foreign countries is given in the Danish balance of payments. A flag distribution of the unloaded quantities of merchandise as well as of the tonnages arrived at Danish ports is given in *Danish Ships and Shipping*.[14] Hence, for Denmark a comparison between the allocation of freight payments and the flag distribution of ships calling at its ports is given in Table 7.

[14] Published annually by the Statistical Department, Denmark.

TABLE 7

COMPARISON OF ALLOCATION OF FREIGHT ON IMPORTS PAID BY DENMARK WITH FLAG DISTRIBUTION OF IMPORTED QUANTITIES AND OF VESSELS CALLING AT DANISH PORTS, 1951

Transporting Country	*Allocation of Freight on Imports*		*Flag Distribution of Imports* [a] Commodity Quantity		Carrying Tonnages	
DISTRIBUTION AMONG FOREIGN CARRIERS ONLY						
United Kingdom	9.5 [b]	12.5%	10.0 [c]	12.5%	5.7 [d]	10.4%
Rest of £ area	0.1	0.1	0.1	0.1	0.4	0.8
Total £ area	9.6	12.6	10.1	12.6	6.1	11.2
Norway	12.3	16.2	12.9	16.2	10.0	18.3
Sweden	12.7	16.7	13.4	16.8	13.7	25.1
West Germany	17.1	22.5	18.0	22.5	9.7	17.7
Netherlands	5.2	6.9	5.4	6.8	2.8	5.1
Belgium	0.1	0.1	0.1	0.1	0.1	0.2
France	1.1	1.5	1.2	1.5	0.6	1.1
Italy	0.6	0.8	0.7	0.9	0.3	0.5
Other OEEC	1.0	1.3	1.0	1.3	0.4	0.7
Total Continental OEEC	50.1	66.0	52.7	66.1	37.6	68.7
United States	9.0	11.9	9.5	11.9	6.1	11.1
Latin America	1.2	1.6	1.2	1.5	0.6	1.1
Finland	4.8	6.4	5.1	6.4	2.9	5.3
Poland	0.1	0.1	0.1	0.1	0.8	1.5
East Germany	0.1	0.1	0.1	0.1	0.1	0.2
Other East Europe	0.9	1.2	0.9	1.1	0.4	0.7
Total other Europe	5.9	7.8	6.2	7.7	4.2	7.7
Total other areas	0.1	0.1	0.2	0.2	0.1	0.2
Total foreign countries	75.9	100.0	79.9	100.0	54.7	100.0
DISTRIBUTION BETWEEN FOREIGN AND OWN CARRIERS						
Total foreign countries	75.9	76.2	79.9	66.7	54.7	58.0
Denmark	23.7	23.8	39.9	33.3	39.6	42.0
Grand total	99.6	100.0	119.8	100.0	94.3	100.0

[a] From *The Danish Merchant Marine and Shipping in 1951*, pp. 44 ff.
[b] Millions of U.S. dollars.
[c] Hundred thousand metric tons.
[d] Hundred thousand register tons.

There appears to be an almost perfect correspondence between the allocation of freight on imports paid to foreigners and commodity quantities carried by foreign vessels. The flag distribution of the tonnages of foreign carriers deviates more than that of the imported quantities from the allocation of the freight payments. This is true of countries taken separately, but by areas the correspondence is much better and could be used to allocate the freight on imports in case the flag distribution of the imported quantities were not known.

Comparing the figures for total foreign countries and Denmark we see that the latter's share of the total freight on imports is smaller than its share of the tonnages that carried the imported commodities.[15] This is to be expected, since Denmark is the home country to which Danish vessels have to return, even without the average quantity of cargo. That Denmark's share of the freight on imports is smaller than its share in unloaded quantities of merchandise is explained by the preference of homebound Danish vessels for low freight quantities rather than empty holds. These points will be recalled in allocating total freight on imports of a country between foreign countries and the importing country itself.

It is worth noting that the average freight on imports paid to foreign carriers is about $9.50 per ton of cargo, and freight paid to foreign and domestic carriers together is about $8.30 per ton. The average c.i.f. value of cargo imported is $86.50 per ton, making Denmark's over-all share of freight in the c.i.f. value of imports approximately 9.6 per cent.

The correspondence between freight paid to foreign carriers and quantities transported by them, remarkably close for Denmark, leads to the question whether other countries might show as good correspondence. A comparison of the figures for Australia and Japan, both paying considerable amounts of freight on imports, is given in Table 8. In the Australian customs returns the imports are valued f.o.b. This suggests that most imported commodities are purchased f.o.b., and only slight adjustments had to be made in the exchange control records. Japan's customs returns record the c.i.f. value of imports. According to IMF *Yearbook,* however, import figures are changed to f.o.b. basis in a rather careful way, and the same probably applies to the area breakdown. For Australia, the 1951 allocation of total freight on imports is derived from the total payments on transportation after deducting $10 million from the sterling area (U.K.) and $15 million from nonsterling EPU [16] for estimated payments of passage fares, and the like. The freight on imports is compared with the flag distribution of the imported quantities of

[15] The tonnages that visited Danish ports in ballast are not included in the carrying tonnage figures.

[16] European Payments Union.

TABLE 8

COMPARISON OF ALLOCATIONS OF FREIGHT ON IMPORTS WITH FLAG DISTRIBUTION OF IMPORTS, AUSTRALIA 1951, JAPAN 1953

Transporting Country and Area	*Australia 1951*				*Japan 1953*			
	Freight on Imports		Flag Distribution of Imported Quantities		Freight on Imports		Flag Distribution of Imported Quantities	
United Kingdom	176 [a]	66.1%	81.9 [b]	62.7%			44.8 [c]	
Rest of £ area	7	3.0	3.4	2.6				
Total £ area	183	69.1	85.3	65.3	59.9	29.4%	44.8	29.2%
Norway			17.9				16.3	
Sweden			4.4				2.8	
Denmark			2.7 [d]				3.5	
Netherlands			5.4				6.8	
France			0.4 [d]				1.5	
Italy			1.1 [d]				7.8	
Greece							11.3	
Other OEEC								
Total continental OEEC	44	16.6	31.9	24.4	53.2	26.0	50.0	32.5
United States	11	4.1	4.0	3.1	36.3		18.3	
Canada	1	0.4			2.5		1.4	
Total North America	12	4.5	4.0	3.1	38.8	19.0	19.7	12.8
Panama			9.4 [b]				25.9 [c]	
Other Latin America								
Total Latin America	22 [a]	8.3	9.4	7.2	30.2	14.7	25.9	16.9
Far East					22.2		13.1	
Rest of world					0.1		0.1	
Total other areas	4	1.5			22.3	10.9	13.2	8.6
Total allocated	265	100.0	130.6	100.0	204.4	100.0	153.6	100.0
Unallocated			5.7		8.4		15.9	
Total foreign	265		136.3	99.2	212.8	62.5	169.5	54.0
Own country			1.1	0.8	130.0	37.5	143.3	46.0
Grand total	265		137.4 [e]	100.0	342.8	100.0	312.8	100.0

SOURCE: For Australia, *Transport and Communication*, Commonwealth Bureau of Census and Statistics. The flag distribution is shown by fiscal year (weight and measurement combined). All figures are averages of 1950-51 and 1951-52. For Japan, *The Monthly Return of the Foreign Trade of Japan*, Ministry of Finance, Jan.-Dec., 1953, p. 425.

[a] Millions of U.S. dollars.

[b] Hundred thousand tons.

[c] Hundred thousand metric tons.

[d] Estimated on basis of tonnage entered.

[e] Equivalent to 10.694 million metric tons.

merchandise in that year. For Japan, 1953, the least "abnormal" of all the years under study, was chosen as year of comparison.

For Australia, we see that the shares of the freight on imports of both the U.K. and the U.S. were higher than the shares of their vessels in the carriage of the imported quantities. The OEEC countries show the opposite relationship. This could be expected because of chartering but the differences do not detract from the general applicability of this yardstick.

For Japan, the results are the same with respect to the U.S.; its share of the freight paid on imports is greater than its share of the quantities imported by its carriers. The continental OEEC countries and Latin America (mainly Panama) show the opposite, again because of chartering of Continental European and Pan-American vessels by the U.S. for carrying part of its exports to Japan. The share of Japan in the total freight on imports is smaller than its share in imported quantities, for reasons given above to explain the same relationship for Denmark.

The average freight on imports paid to foreign carriers is about $27.10 (Australia, 1951) and $12.50 (Japan, 1953) per ton of cargo; and that paid

TABLE 9

FREIGHT ON IMPORTS STATED BUT UNALLOCATED BY IMPORTING COUNTRY, 1950-1953
(millions of U.S. dollars)

Importing Country	1950	1951	1952	1953
Union of South Africa	81	117	118	115
Belgium	198	319	292	296
Italy	145	261	212	229
Netherlands	129	208	201	182
Norway	42	67	56	56
Total	514	855	761	763
Costa Rica	4	5	6	7
Dominican Republic	4	7	8	4
Nicaragua	4	5	7	7
Panama	8	8	10	10
Venezuela	71	87	95	95
Paraguay	4	5	8	6
Peru	33	48	37	38
Total	128	165	171	167
Grand total	723	1,137	1,050	1,045

to foreign and domestic carriers together is about $27.10 and $11.60 per ton. The average c.i.f. value per ton of cargo imported is $188.10 and $177, so that the over-all share of the freight in the c.i.f. value of imports is approximately 14.4 per cent for Australia and 16.2 per cent for Japan.

Though the correspondence between the distributions is not so close for these two countries as for Denmark, the usefulness of the flag distribution for allocating the freight on imports appears to be established by these three comparisons. In case the importing country has a sizable fleet of its own, care must be used in estimating the share of freight on imports earned by its vessels, although earnings of such fleets are usually stated. The allocation of the freight on imports, estimated in this study, is shown in Appendix Table A-1.

Countries that estimated the freight on imports but did not allocate it to partner countries, are listed with their estimates in Table 9. Allocations of the freight on imports for these countries, on the basis of the flag distribution, are shown in Table A-2.

Unreported Ship Earnings and Disbursements

A serious understatement of total receipts as well as total payments on account of transportation was discussed in the part of Section 1 dealing with reported figures. The United Kingdom, for instance, does not report under transportation the receipts and payments of tankers operated by British oil companies. The revenues of these shipping activities are included in the financial outcome of all transactions of those oil companies and reported by the U.K. in the miscellaneous category. Clearly, this procedure causes an understatement of total receipts and payments in the world transportation account.

The earnings and disbursements of vessels flying the flags of Panama, Honduras, and Liberia are not reported at all by those countries, since they "do not consider the vessels as part of their economy" (IMF *Yearbook*). Among reasons for registering ships under those flags, an important one is that those countries do not demand financial statements showing either the total or foreign exchange earnings and expenditures of the ships flying their flags and do not levy taxes on the companies that own the ships. Another reason seems to be that those three countries do not keep a close watch on labor conditions prevailing on board those ships. These and other reasons explain the term "flags of convenience." Since Panama, Honduras, and Liberia are not informed about the finances of the vessels that fly their flags, they are unable to report receipts and disbursements in foreign exchange to the IMF.

The owners of ships flying the Greek flag are usually residents of other

countries. The latter should report under transportation the earnings and disbursements of those ships according to the instructions in the *Manual.* Surpluses remitted to Greece should also be reported as investment income by Greece. It is safe to assume, however, that the earnings and disbursements of vessels flying the Greek flag are not included in the figures reported by those countries. This might be why Greece includes the amounts remitted to her in her transportation figures. Since only surpluses are remitted, it is clear that a large part of the earnings and disbursements of that fleet are not reported at all.

The ways in which these gaps in the transportation account have been filled are the subject of the next three subsections.

Tankers Operated by British Oil Companies [17]

Tanker operations affecting the balance of payments of the United Kingdom have been performed by two groups of companies: British oil companies like Anglo Iranian and Royal Dutch Shell; British subsidiaries of American companies, which sell for sterling, on behalf of the parent companies, petroleum products to various countries of the sterling area. Since those subsidiaries are residents of the U.K. the outcome of their transactions should also be reported by the U.K., according to the instructions in the IMF *Manual.* However, the receipts as well as the disbursements abroad for the transportation of petroleum had to be estimated for both groups of companies.

The way in which the amounts to be put on the credit and debit sides of the U.K. transportation account were estimated is essentially the same as that to be used later for estimating credits and debits for transportation of dry cargo, discussed in the fifth section. The idea is more simple than the means for carrying it out. It amounts essentially to a reconstruction of the freight bill by making use of the quantities moved in world trade and the corresponding freight rates.

Dwyer had a good idea of the quantities of petroleum products imported by each country from various sources in 1951, and he could determine the shares that British and American oil companies had in the supply of petroleum that year. The freight rates charged by those companies for the carriage of petroleum products along each route were available. They are based on the so-called London Award, a time charter rate expressed in shillings per deadweight [18] ton (DWT) per month for

[17] In preparing this section I benefited from the MS. study of Cornelius J. Dwyer, "The Oil Trade in the International Balance of Payments in 1951," National Bureau of Economic Research, December 1955, p. 5. Table 17 of that paper shows a world freight bill for tankers, allocated to the countries that were engaged in the transportation of petroleum products.

[18] Weight of the ship without cargo.

a tanker with standard speed. The time rates were converted in this study into voyage rates by taking into account the average number of miles that can be traversed by such a standard tanker, after allowing for "non-productivity" because of loading and unloading, minor repairs, and so on.

By multiplying the quantities moved along each route by the appropriate freight rates, the tanker freight bill of 1951 was reconstructed for the world as a whole, and also for the shares that British and American oil companies, in particular their subsidiaries in the U.K., had in it. To arrive at the amounts to be put on the credit side of the U.K. 1951 transportation account, earnings of tankers operated by subsidiaries of British oil companies in France, the Netherlands, and other countries were subtracted. The allocation of the total amounts to the U.K. and to foreign countries is shown in Table A-3.

To determine how much was paid by British and American oil companies located in the U.K. for charter hire to foreign countries, information on the ownership of tankers in operation during 1951 was obtained from a publication of the Supply and Transportation Division of the Petroleum Administration for Defense (PAD), *World Tank Ship Fleet Balances 1950-1952*.[19] The deadweight tonnage, at standard (T-2) speed, owned by oil companies (American and British) as well as by non-oil companies and governments, by flag of vessel as of April 1, 1951, is shown in Table 15 of that publication. The table was brought into line with the tonnage actually in use on July 1, 1951, as shown in the statistical appendix of *Lloyd's Register of Shipping*.

All tankers owned and chartered were assumed to be fully employed in 1951, and of the total tonnage operated by oil companies located in the U.K. the part chartered to them was determined. The next step was to decide what proportion British "free market" tankers had in the total tonnage chartered, since the charter fee paid for those tankers does not affect the U.K.'s balance of payments. The remaining part of the chartered tonnage has been charged with the full charter hire, discussed in the next subsection. Meanwhile, what is meant here by charter hire includes all costs, charter fee as well as operating expenses, in so far as they are paid by the charterer. For tankers chartered from foreign countries, it can be assumed that all those costs are paid in foreign exchange and belong on the debit side of the transportation account of the U.K. They have been allocated mainly to nonsterling EPU countries (Norway, Sweden, Denmark, and others).

[19] Additional information on some of the tables in this publication was supplied to us by Mr. Cross and Mr. Hunter McDowell of the Statistical Research Division of the Sun Oil Company (Philadelphia, Pennsylvania). That company continues the work started at PAD and issues every year *Analysis of World Tank Ship Fleets*, which contains many interesting details on tankers all over the world.

As for the "free market" tankers under the United Kingdom's flag chartered to British oil companies, only the costs over and above the charter fee, in so far as they are paid by the charterer, have affected the U.K.'s balance of payments. In general these additional costs consist of port expenditures, canal tolls, and so on. Fuel is usually a cost to the charterer but is not counted here, because it may be assumed that the oil companies did not pay for the fuel consumed by the tankers they operated.

The part of operating expenses of tankers owned by British oil companies, presumably paid in foreign exchange, had to be estimated. It consists of costs enumerated above for chartered British tankers plus ships' stores and repair costs. Wages are not counted for the British oil company tankers, because it can be assumed that their crews are predominantly British and paid in British currency.

The costs in excess of charter hire for chartered tankers, and the operating expenses for owned tankers were estimated on the basis of average costs per DWT, discussed more fully in the next subsection. The total computed amounts of additional costs were allocated in correspondence with the freight receipts; the breakdown is given in Table A-3.

The freight earnings of British oil companies in 1952 were computed in almost the same way as those for 1951, with only one difference—the computations were based on the number of ton miles actually produced in 1952, rather than on the exported and imported quantities. Multiplying the ton miles by an average freight (approximately $2.20 per 1,000 ton miles) yielded the freight amounts charged by British oil companies in 1952 for transportation of petroleum products in the tankers they operated. The average freight was found by weighting the 1952 Caribbean–United Kingdom and Middle East–United Kingdom freight rates per ton mile. Use of an average freight rate instead of a freight rate for every route makes the 1952 computation to a certain extent less exact than the 1951 calculation, but accurate enough in this phase of the study.

To assess the amount paid by British oil companies for 1952 charter hire, use was made of the same (adjusted) PAD table used for 1951. Since the increase in tonnage used from mid-1951 to mid-1952 was not the same for all countries, the proportions were not the same as for the year 1951; but the correction to be made because of these changes is minor.

The freight earnings of tankers operated by British oil companies in 1950 and 1953 could not be computed in the same way as for 1951 and 1952, since there was no detailed information available on quantities moved or ton miles produced. The more over-all computations are based on average increases in the transported quantities of approximately 5

per cent from 1950 to 1951 and 5 per cent from 1952 to 1953. By taking account of an increase in freight rates per ton mile of 60 per cent from 1950 to 1951, and a decrease of 38 per cent from 1952 to 1953, the amounts earned in those years by tankers operated by British oil companies were calculated. For the charter hire paid to foreign countries the proportions found for 1951 were used for 1950 and 1953 to obtain the less accurate figures.

Despite these shortcomings in the 1950 and 1953 computations, it can still be claimed that the computations here of both the receipts and payments of foreign exchange by the United Kingdom for tanker operations are more accurate than ever before, particularly those for 1951 and 1952.

Ships under the Flags of Convenience

In estimating the freight earnings and disbursements of vessels flying the flags of Panama, Honduras, and Liberia it was clear that four categories of vessels had to be distinguished: the first distinction was between tankers and dry cargo vessels, since average earnings and disbursements of these two types of vessels are quite different; for the same reason, each of these two types of vessels was divided into two categories —vessels operated on voyage charter by their owners, and vessels let on time charter to foreigners. The receipts and payments of each of these four categories of ships were estimated separately for each of the four years under study.

With almost nothing known about the operation of ships flying the flags of Panama, Honduras, and Liberia, a search was undertaken for information on ships that, from an operational standpoint, could be compared with ships under the flags of convenience. Some Scandinavian publications supply a wealth of information on the performance of such ships, particularly for Norway. But the applicability of Norwegian averages to the operation of the fleets under study is immediately open to question.

On the disbursement side, there is the contention that the running expenses of ships under the flags of convenience are much lower because of the loose supervision of labor conditions prevailing on board. However, wages constitute in general no more than about 15 per cent of all running expenses of the comparable ships dealt with in Scandinavian publications. Hence, the small difference in cost casts doubt upon savings in wages as the principal reason for registering ships under those flags, even in such a competitive trade as international shipping. Rather, the main reason for the transfer must be sought in avoiding taxes, which are really excessive in some countries and the subject of many com-

plaints.[20] A more important fact is that part of the Norwegian ship running expenses are not paid in foreign exchange—are not disbursements abroad. At this point the Norwegian averages had to be supplemented by use of Danish statistics, explained later.

On the earnings side, Norwegian averages are probably more applicable than on the disbursement side, since there is strong similarity between the operation of Norwegian ships and of ships under the flags of convenience. In both instances only a small percentage of revenues is obtained from the carriage of imports and exports of the flag's country, and almost all earnings stem from transporting commodities between foreign countries. The ships wander about for long stretches of time, visiting one foreign country after another, and return only occasionally to their home countries. It is on the basis of these and similar considerations that Norwegian averages are used for estimating the disbursements as well as the earnings of the fleets in question.

A rich source of information on the performance of Norwegian ships in the years under study is *Norske Skip I Utenriksfart,* probably unequaled by any other source in the field of international shipping activities. It supplied the information on the previously mentioned four categories of ships used here as a basis for computing the earnings and disbursements of the Pan. Hon. Lib. fleet. Some of the relevant 1953 figures were estimated in advance of their appearance. This basic material is shown in Table 10.

The tonnage figures given by *Lloyd's Register* for tankers in 1950 and 1951 refer to ships of 1,000 GRT and over. In order to convert all *Lloyd's* figures to that basis, the tanker figures for 1952 and 1953 were increased by 60,000 GRT, a figure derived from *Norske Skip,* Table r, giving the tonnages of ships in various size groups. The end-of-year tonnages of the dry cargo and passenger fleet were obtained by subtracting the tanker tonnages from the total fleet tonnages. *Norske Skip* does not give the dry cargo fleet tonnages separately, and consequently the relevant figures of Table 10 are estimated. The difference between the two figures stated for tankers and dry cargo ships at the end of each year is due, first to a difference in cut-off point (25 versus 500 GRT) and, secondly, to the difference in the tonnages in domestic trade.

Allowance was made in the figures for average tonnages in foreign trade during each year for ships out of service for at least eleven months

[20] A good description of the many and heavy taxes levied on Norwegian ship owners is given by Kaare Petersen on pages 19-21 of the ten-year anniversary issue of *Norwegian Shipping News.* The connection betweeen taxes and transfer to flags of convenience is also discussed at length in the 1955 annual report of the Chamber of Shipping of the United Kingdom.

TABLE 10

NORWEGIAN TONNAGES, RECEIPTS AND PAYMENTS FOR INTERNATIONAL SHIPPING ACTIVITIES, 1949-1953
(tonnages in 1,000 GRT; receipts and payments in millions of U.S. dollars)

	1949	1950	1951	1952	1953
FLEET					
Tonnages					
1. End of year	5,300	5,681	5,975	6,249	6,500 [a]
2. July 1 of year		5,557	5,817	5,907	6,264
TANKER FLEET					
1. End of year	2,272	2,631	2,990	3,245	3,450 [a]
2. July 1 of year		2,547 [b]	2,959 [b]	3,076	3,362
3. In foreign trade, end of year	2,045	2,395	2,753	3,066	3,140 [a]
4. In foreign trade, during year [c]		2,110	2,535	2,882	2,950 [a]
4. On voyage charter		593	732	796	830 [a]
4. On time charter		1,517	1,803	2,086	2,120 [a]
Voyage Receipts and Payments					
5. Freight receipts		44.1	109.7	121.1	93.5
6. Payments abroad		19.8	33.3	39.3	37.1
Total payments		26.3 [b]	45.0 [b]	51.5 [b]	54.8 [b]
Time Receipts and Payments					
5. Freight receipts		79.9	99.5	115.6	125.6
6. Payments abroad		26.3	30.0	36.0	40.6
Total payments		47.5 [b]	52.3 [b]	60.0 [b]	74.1 [b]
DRY CARGO AND PASSENGER FLEET					
Tonnages					
1. End of year	3,028	3,050	2,985	3,004	3,050 [a]
2. July 1 of year		2,910	2,858	2,831	2,902
DRY CARGO FLEET					
1. End of year	2,880 [a]	2,900 [a]	2,835 [a]	2,855 [a]	2,900 [a]
3. In foreign trade, end of year	2,392	2,430	2,362	2,287	2,410 [a]
4. In foreign trade, during year		2,347	2,357	2,285	2,290 [a]
4. On voyage charter		1,581	1,623	1,529	1,545 [a]
4. On time charter		766	734	756	745 [a]
Voyage Receipts and Payments					
5. Freight receipts		182.0	273.0	253.0	216.5
6. Payments abroad		108.4	138.9	142.2	131.1
Total payments		143.7 [b]	187.0 [b]	182.7 [b]	174.7 [b]
Time Receipts and Payments					
5. Freight receipts		46.1	60.2	72.8	57.7
6. Payments abroad		19.0	22.0	27.0	23.8
Total payments		34.8 [b]	42.5 [b]	46.9 [b]	45.7 [b]

SOURCE BY LINE

1. *Norske Skip*, table a, vessels of 25 GRT and over.
2. *Lloyds's Register*, Appendix section 6 or 7, vessels of 100 GRT and over.
3. *Norske Skip*, table c, vessels of 500 GRT and over.
4. *Norske Skip*, table d.
5. *Norske Skip*, table n.
6. *Norske Skip*, table q.

[a] Estimated.
[b] Adjusted.
[c] 1,000 GRT on the average.

per year, and for new ships for the months not yet in operation. From the stated figures the average earnings per GRT of both tankers and dry cargo ships on active duty, on voyage and on time charter can be computed.

The disbursement figures of *Norske Skip* refer only to expenditures outside Norway and do not include payments in domestic currency. Since the Pan. Hon. Lib. fleet has actually no home country, all its expenditures and receipts are in foreign exchange and should be recorded in its balance of payments. In order to serve as a basis for the Pan. Hon. Lib. fleet, the Norwegian disbursements (*Norske Skip*) were, therefore, increased to include also the payments in Norway. The figures used for the increases were for activities of the Danish merchant marine in those years, from *Skibsfarts-beretning for Året,* 1954. The revenues and running expenses, in foreign and domestic currency of the fourteen largest companies operating tankers, tramps, and liners, comprising 65 per cent of the Danish merchant fleet, are given for 1948 and following years (page 137). The proportions between average earnings and average disbursements of the Danish fleet were used to obtain gross figures for Norwegian disbursements to serve as a basis for the Pan. Hon. Lib. fleet.

The only information available on tonnages for the latter is contained in *Lloyd's Register,* giving the number of tons of the entire fleet and of tankers, July 1 of each year. The computation of receipts and payments was therefore based upon the tonnages given by *Lloyd's* for Norway, as shown in Table 11.

The tonnages of tankers and dry cargo ships exceeding 500 GRT were taken from those exceeding 25 GRT (Table r of *Norske Skip*). The percentages of ships in foreign trade, July 1 of each year, were more or less assumed on the basis of percentages given for the beginning and the end of the year. The percentages of ships on voyage and on time charter are the same as those in Table 10.

The composition of the fleets carrying the flags of Panama, Honduras, and Liberia in the four years of the study, taken from *Lloyd's Register,* are shown in Table 12. The tanker figures for 1950 and 1951 were corrected for the difference in cut-off points as in the case of Norway; the dry cargo figures were corrected accordingly.

In relating tonnages of ships carrying flags of convenience to those of Norwegian ships to estimate the receipts as well as the disbursements of the Pan. Hon. Lib. fleet, differences in average speeds of the two fleets were taken into account. For, the higher the speed the better the performance, which means generally higher earnings as well as disbursements per GRT. The differences in average speed of tankers appear in Table 13.

TABLE 11

TONNAGES, RECEIPTS AND PAYMENTS OF NORWEGIAN SHIPS, 1949-1953
(tonnages in 1,000 GRT; receipts and payments in millions of U.S. dollars)

Tonnages	1949	1950	1951	1952	1953
		TANKERS			
1. Exceeding 25 GRT, end of year	2,272	2,631	2,990	3,245	3,450 [a]
2. Exceeding 500 GRT, end of year	2,192 [a]	2,546 [a]	2,900 [a]	3,150 [a]	3,350 [a]
3. In foreign trade, end of year	2,045	2,395	2,753	3,066	3,140 [a]
Per cent of (2)	93.3	94.0	94.9	97.3	94.3
4. Exceeding 100 GRT, July 1 of year		2,547 [b]	2,959 [b]	3,076	3,362
5. In foreign trade, July 1 of year		2,395	2,810	2,955	3,160
Per cent of (4)		94	95	96	94
6. On voyage charter, July 1 of year		675	810	815	885
Per cent of (5)		28.1	28.9	27.6	28.1
Receipts		44.1	109.7	121.1	93.5
Payments		26.3	45.0	51.5	54.8
7. On time charter, July 1 of year		1,720	2,000	2,140	2,275
Per cent of (5)		71.9	71.1	72.4	71.9
Receipts		79.9	99.5	115.6	125.6
Payments		47.5	52.3	60.0	74.1
		DRY CARGO SHIPS			
8. Exceeding 25 GRT, end of year	2,880 [a]	2,900 [a]	2,835 [a]	2,855 [a]	2,900 [a]
9. Exceeding 500 GRT, end of year	2,510 [a]	2,530 [a]	2,465 [a]	2,485 [a]	2,530 [a]
10. In foreign trade, end of year	2,392	2,430	2,362	2,287	2,410 [a]
Per cent of (9)	95.3	96.1	95.8	92.0	95.3
11. Exceeding 100 GRT, July 1 of year		2,775	2,725	2,695	2,765
12. In foreign trade, July 1 of year		2,665	2,615	2,535	2,625
Per cent of (11)		96	96	94	95
13. On voyage charter, July 1 of year		1,795	1,800	1,695	1,770
Per cent of (12)		67.4	68.9	66.9	67.5
Receipts		182.0	273.0	253.0	216.5
Payments		143.7	187.0	182.7	174.7
14. On time charter, July 1 of year		870	815	840	855
Per cent of (12)		32.6	31.1	33.1	32.5
Receipts		46.1	60.2	72.8	57.7
Payments		34.8	42.5	46.9	45.7

[a] Estimated.
[b] Adjusted.

TABLE 12

DISTRIBUTION OF FLEETS UNDER FLAGS OF CONVENIENCE, JULY 1 OF 1950-1953
(in 1,000 GRT)

	1950	1951	1952	1953
All Ships				
Panama	3,370	3,618	3,749	3,915
Honduras	523	508	468	471
Liberia	245	595	898	1,434
Total	4,138	4,721	5,115	5,820
Tankers				
Panama	1,740	1,765	1,843	2,151
Honduras	162	148	147	135
Liberia	230	432	608	1,029
Total	2,132	2,345	2,598	3,315
Correction	+50	+50		
Total	2,182	2,395		
Dry Cargo Ships				
Panama	1,630	1,853	1,906	1,764
Honduras	361	360	321	336
Liberia	15	163	290	405
Total	2,006	2,376	2,517	2,505
Correction	−50	−50		
Total	1,956	2,326		

TABLE 13

AVERAGE SPEED OF TANKERS, SELECTED DATES, 1951-1953
(knots)

	April 1, 1951 [a]		*Oct. 1, 1952* [b]		*Dec. 31, 1953* [c]	
Tankers	DWT [d]	Average speed	DWT [d]	Average speed	DWT [d]	Average speed
Panama	2,696.2	14.0	2,946.0	13.6	3,457.0	13.8
Honduras	238.8	14.6	229.5	14.2	220.7	14.4
Liberia	672.7	15.3	1,087.6	14.8	2,037.9	15.0
Total	3,607.7	14.3	4,263.1	14.0	5,715.6	14.3
Norway	4,040.5	12.9	4,767.1	13.2	5,389.6	13.3

[a] *World Tank Ship Fleet Balances*, PAD, 1950-1952, Table 14.
[b] *Analysis of World Tank Ship Fleet*, Sun Oil Company, October 1, 1952, Table 9.
[c] *Ibid.*, December 31, 1953, Table 11.
[d] Dead weight ton (see text footnote 18).

It appears from these figures that there was a 5 to 10 per cent difference in the average speed of the Norwegian and the Pan. Hon. Lib. tanker fleets in those years. The average speed of dry cargo ships is, however, not readily available and would have to be computed to enable a similar comparison. But even if we knew the average speeds, there still remains the question how this would affect receipts and expenditures. There is no straight relationship between average speed and average earnings and disbursements, not even under the assumption of full employment. Because of these considerations, no correction was made in the Norwegian earnings and expenditures per GRT for differences in average speed of the ships. While no correction was made in those figures for the Pan. Hon. Lib. fleet for ships not in active service during these years, such a correction was made for Norway. This might to a certain extent compensate for the effect of disregarding the differences in average speed of both fleets.

A distinction has been made, however, between both the Pan. Hon. Lib. tankers and dry cargo ships according to their operation on voyage or on time charter. Essentially, the Norwegian proportions have been assumed, though some modification proved to be necessary for tankers. As Table 14 shows, a large share of the Pan. Hon. Lib. tanker tonnage, but only a negligible share of Norwegian tanker tonnage, was owned by oil companies or their subsidiaries.

To separate the Pan. Hon. Lib. ships operated on voyage charter and on time charter, it was assumed that the tankers owned by oil companies

TABLE 14

PROPORTIONATE SHARE OF TANKERS OWNED BY OIL COMPANIES, SELECTED DATES, 1951-1953
(in T-2 units [a])

	April 1, 1951 [b]			*October 1, 1952* [c]			*December 31, 1953* [d]		
	All Tankers	Oil Co.	%	All Tankers	Oil Co.	%	All Tankers	Oil Co.	%
Panama	155.3	78.4	50.5	165.3	70.3	42.5	196.9	68.2	34.6
Honduras	14.4	–	–	13.4	–	–	13.1	–	–
Liberia	42.3	11.0	26.0	66.2	13.8	20.8	125.9	30.5	24.2
Total	212.0	89.4	42.2	244.9	84.1	34.3	335.9	98.7	29.4
Norway	213.7	5.4	2.5	258.3	5.1	2.0	293.9	5.7	1.9

[a] T-2 is a standard type tanker of 16,765 DWT with a speed of 14.5 knots.
[b] *World Tank Ship Fleet Balances*, 1950-1952, Table 15.
[c] *Analysis of World Tank Ship Fleet*, Table 10.
[d] *Ibid.*, Table 12.

or their subsidiaries were operated on voyage charter. For the remaining part of the Pan. Hon. Lib. fleet, the Norwegian proportions were assumed to apply. Table 15 shows the results of that distinction between tonnages on voyage and on time charter.

TABLE 15

TONNAGES OF FLEETS CARRYING FLAGS OF PANAMA, HONDURAS, AND LIBERIA OPERATED ON VOYAGE AND ON TIME CHARTER, 1950-1953
(tonnages in 1,000 GRT)

	1950	1951	1952	1953
Tankers				
Total fleet	2,182	2,395	2,598	3,315
Owned by oil companies (%)	47.5	41.0	35.5	31.0
Owned by oil companies	1,036	982	922	1,028
Tons remaining	1,146	1,413	1,676	2,287
On voyage charter (%)	28.7	29.5	28.2	28.7
On voyage charter	329	417	473	656
Owned by oil companies	1,036	982	922	1,028
Total on voyage charter	1,365	1,399	1,395	1,684
Total on time charter	817	996	1,203	1,631
Dry Cargo Ships				
Total fleet	1,956	2,326	2,517	2,505
On voyage charter (%)	67.4	68.9	66.9	67.5
On voyage charter	1,318	1,603	1,684	1,691
On time charter	638	723	833	814

The average proportionate shares of tankers owned by oil companies in each year were obtained by linear interpolation. In fixing the percentages of tankers not owned by oil companies and operated on voyage charter, due account was taken of the small proportion of the Norwegian fleet that is owned by oil companies.

With the figures of Tables 11 and 15, the receipts and payments of the Pan. Hon. Lib. fleet could be estimated, as shown in Table 16.

The receipts of gross freight from voyage charters were allocated according to the freight payments to the Pan. Hon. Lib. fleet. The receipts of charter hire from the United States are the Department of Commerce amounts for payments of charter hire to the Pan. Hon. Lib. fleet. The remaining charter hire receipts are equally spread over the United Kingdom and the nonsterling EPU countries. The disbursements under both voyage and time charter are allocated according to the receipts of freight and charter hire. The specification can be found in Table A-4.

TABLE 16

ESTIMATED RECEIPTS AND PAYMENTS OF FLEETS CARRYING FLAGS OF PANAMA, HONDURAS, AND LIBERIA, 1950-1953
(tonnages in 1,000 GRT; amounts in millions of U.S. dollars)

	1950	1951	1952	1953
Tankers				
On voyage charter				
Norway				
Tonnage	675	810	815	885
Receipts	44.1	109.7	121.1	93.5
Payments	26.3	45.0	51.5	54.8
Pan. Hon. Lib.				
Tonnage	1,365	1,399	1,395	1,684
Receipts	85.1	181.5	207.3	177.9
Payments	50.8	74.4	88.1	104.3
On time charter				
Norway				
Tonnage	1,720	2,000	2,140	2,275
Receipts	79.9	99.5	115.6	125.6
Payments	47.5	52.3	60.0	74.1
Pan. Hon. Lib.				
Tonnage	817	996	1,203	1,631
Receipts	36.2	47.5	65.0	90.0
Payments	21.5	25.0	33.7	53.1
Dry Cargo Ships				
On voyage charter				
Norway				
Tonnage	1,795	1,800	1,695	1,770
Receipts	182.0	273.0	253.0	216.5
Payments	143.7	187.0	182.7	174.7
Pan. Hon. Lib.				
Tonnage	1,318	1,603	1,684	1,691
Receipts	133.6	243.1	251.4	206.8
Payments	105.5	166.5	181.5	166.9
On time charter				
Norway				
Tonnage	870	815	840	855
Receipts	46.1	60.2	72.8	57.7
Payments	34.8	42.5	46.9	45.7
Pan. Hon. Lib.				
Tonnage	638	723	833	814
Receipts	33.8	53.4	72.2	54.9
Payments	25.5	37.7	46.5	43.5

What is needed in the balance of payments figures is a special column for payments to the Pan. Hon. Lib. fleet in the area breakdown. This would provide a check on the total earnings of the vessels flying those flags as well as of the regional distribution of these earnings. Therefore, in the Appendix tables a column has been introduced for payments to these fleets as a first attempt at providing such a check.

The Greek Fleet

With the detailed description in mind of how the receipts and expenditures of the Pan. Hon. Lib. fleet have been estimated, the discussion of estimates for the Greek fleet will be brief. As for the proportion of tonnages operated on voyage and on time charter, the Norwegian percentages have been used without modification. Table 17 shows the results. Relating these figures to those of Norway (Table 11) yielded the estimated earnings and disbursements of the Greek fleet, shown in Table 18.

TABLE 17

TONNAGES OF THE GREEK FLEET OPERATED ON VOYAGE CHARTER AND ON TIME CHARTER, 1950-1953
(tonnages in 1,000 GRT)

	1950	1951	1952	1953
All vessels	1,349	1,277	1,274	1,222
Tankers	102	104	111	121
Corrected	105	107	111	121
On voyage charter (%)	28.1	28.9	27.6	28.1
On voyage charter	30	31	31	34
On time charter	75	76	80	87
Dry cargo ships	1,244	1,170	1,163	1,101
On voyage charter (%)	67.4	68.9	66.9	67.5
On voyage charter	838	806	778	743
On time charter	406	364	385	358

It appears from this comparison that the reported net receipts are in all four years smaller than the calculated net earnings, particularly in 1951 and 1952, the years of excessively high freight rates. This could mean that the net receipts as reported include only amortization and interest on capital invested in the fleet, but exclude profits made by the owners of the ships. The difference between the calculated gross earnings and the reported net receipts has been put on the receipts side

TABLE 18

ESTIMATED RECEIPTS AND PAYMENTS OF GREEK FLEET, 1950-1953
(tonnages in GRT; amounts in millions of U.S. dollars)

	1950	1951	1952	1953
Tankers				
On voyage charter				
Norway				
Tonnage	675	810	815	885
Receipts	44.1	109.7	121.1	93.5
Payments	26.3	45.0	51.5	54.8
Greece				
Tonnage	29	31	31	34
Receipts	1.9	4.2	4.6	3.6
Payments	1.1	1.7	1.9	2.1
On time charter				
Norway				
Tonnage	1,720	2,000	2,140	2,275
Receipts	79.9	99.5	115.6	125.6
Payments	47.5	52.3	60.0	74.1
Greece				
Tonnage	76	76	80	87
Receipts	3.5	3.8	3.8	4.8
Payments	1.9	2.0	2.0	2.8
Dry Cargo Ships				
On voyage charter				
Norway				
Tonnage	1,795	1,800	1,695	1,770
Receipts	182.0	273.0	253.0	216.5
Payments	143.7	187.0	182.7	174.7
Greece				
Tonnage	838	806	778	743
Receipts	85.0	122.3	116.1	90.9
Payments	67.1	83.8	83.9	73.4
On time charter				
Norway				
Tonnage	870	815	840	855
Receipts	46.1	60.2	72.8	57.7
Payments	34.8	42.5	46.9	45.7
Greece				
Tonnage	406	364	385	358
Receipts	21.5	26.9	33.3	24.2
Payments	16.3	19.0	21.5	19.1
COMPARISON: ESTIMATED EARNINGS AND EXPENSES WITH NET RECEIPTS REPORTED BY GREECE				
Reported				
Total receipts	23	31	36	27
Sales of ship stores, etc.	3	4	2	1
Net receipts	20	27	34	26
Estimated				
Total receipts	112	157	158	124
Running expenses	86	107	110	97
Net receipts	26	50	48	27

and the calculated running expenses on the payments side of Greece's transportation account. No reduction was made for freight on imports earned by Greek ships, since it is clearly stated in the IMF *Yearbook* that these freight earnings have not been deducted from the estimated total freight on imports. The allocation of freight earnings and of expenditures, in conformity with that of Norway (*Norske Skip I Utenriksfart*), is shown in Table A-5.

Miscellaneous

Receipts from Sales of Fuel Out of Bunkers

The payments for bunker fuel, part of the running expenses of the carriers, are reported on the debit side of the transportation accounts of the countries that own the ships. Accordingly, the receipts from sales of fuel out of bunkers should be recorded on the credit side of the transportation accounts of the receiving countries. However, a number of countries fail to follow this practice.

Some countries—for instance, the Canary Islands—include sales of fuel out of bunkers under their merchandise exports; the amounts involved were deducted here from merchandise and entered into the transportation account of that country. Another necessary correction was for the United Kingdom, which reports receipts from sale of fuel out of bunkers, like those from all petroleum transactions, under Miscellaneous. Still other countries are on a special trade basis and consequently do not include the amount of fuel, going into and coming from bonded warehouses, in their payments for merchandise and receipts from transportation. A number, particularly the overseas territories of European countries, do not report receipts from sales of fuel out of bunkers at all.

The amounts involved were calculated on the basis of quantities supplied by each country and estimated average prices charged for it.[21] Separate calculations were made for oil and coal, the latter being of minor importance in this respect. An average price for fuel oil supplied by each country was estimated and multiplied by the relevant quantities, resulting in the figures shown in Table A-6. The same procedure was followed for estimating receipts from sales of coal out of bunkers, using different sources of information. The quantities were derived from the

[21] The quantities of oil supplied in 1950 and 1951 were derived from official U.N. publications (for 1950, Statistical Papers, Series J, No. 1, pages 81-83; for 1953, *Monthly Bulletin of Statistics*, March 1955, page xv). The information on the quantities of oil supplied out of bunkers in 1951 and 1952 was kindly supplied by N. B. Guyol, Chief of the Industrial Statistics Section of the Economic Statistics Branch of the United Nations.

The prices of oil out of bunkers were obtained from *Marine Fuel Oils*, Esso Export Corporation, stating prices for different sorts of fuel oil supplied by the most important bunkering stations.

official publication, *Statistical Summary of the Mineral Industry* (London, 1955). The average prices were estimated on the basis of prices charged for the supply of coal by the country in question.

The next step was to determine how much of those amounts was received by domestic carriers, leaving the rest to be credited on the country's transportation account. Some countries, like the Netherlands, show in their foreign trade statistics how much was taken in by their own carriers, but for most countries the amounts had to be estimated. For each country, the estimates were based on the tonnages of ships under various flags that entered the ports of the country with cargo or in ballast. The same yardstick was used to determine how much each foreign area contributed to the receipts on account of fuel deliveries. The results are shown in Table A-5.

Since practically all the bunker fuel has been supplied by British or American oil companies, it might be that countries owning vessels allocated the payments to the U.K. and the U.S. rather than to the countries where the fuel was taken in. Since the principle of country-of-origin rather than country-of-sale was followed here in dealing with oil, it is possible that the allocation to a country of payments for bunker fuel does not match the allocation of the total amounts received from it.

Port Receipts

Apart from receipts from sale of bunker fuel there are two other kinds of port receipts. The first group consists of harbor dues, light dues, dues for anchorage or mooring, berth dues or wharfage, pilotage and towage. All these charges are related to the ship that visits the port and are usually quoted in a certain amount per net register ton (NRT), sometimes per GRT. The second group of port receipts is related to the cargo delivered and loaded in port and consists of loading and unloading charges, stevedorage, and so forth. The amounts involved are usually higher than those of the first group of dues.

There is a question whether the amounts charged for loading and unloading cargo should be included in the port receipts of the exporting and importing country's balance of payments. According to the instructions given in the *Manual,* exports and imports should be evaluated f.o.b., which means that in this system of recording the loading charges should be included in the price of the merchandise. What has been stipulated in the purchase contract with respect to the loading and unloading charges, therefore, determines whether they will or will not appear on the transportation line of the given countries' records.

Let us assume, for example, that the price of a commodity before loading is 90 money units, the loading charges 2, the freight 6, and the unloading charges also 2 money units. There are four different ways in

which these charges can be settled, for the two extremes of which the entries as required by the *Manual* are:

1. The loading charge is paid by the exporter to a stevedore in his country, and the unloading charge is paid by the importer in his country; the entries in the balance of payments of the country of export (*X*), of transport (*Y*) and of import (*Z*) are then as follows:

	X		*Y*		*Z*	
	C	*D*	*C*	*D*	*C*	*D*
Merchandise	92					92
Transportation			6			6

2. The loading and unloading charges are first paid by the carrier and then passed on to the importer; the entries are now:

	X		*Y*		*Z*	
	C	*D*	*C*	*D*	*C*	*D*
Merchandise	90					90
Transportation (from *Y*)	2		(from *Z*) 4	(to *X*) 2		
				(to *Z*) 2		
			(from *Z*) 6		(from *Y*) 2	(to *Y*) 4
						(to *Y*) 6

The last method is most common, and consequently the amount paid to the carrier is assumed always to include the loading and unloading charges.

The dues related to the ship (first group, above) can be found in publications like *Ports of the World,*[22] which give sometimes also particulars about stevedorage. More information on the latter can be found in publications of the Baltic and International Maritime Conference (main office, Copenhagen). Both give specific details on the various kinds of costs ships of different sizes must pay for harbor and other dues, and for loading or unloading particular types of cargo in specific ports.

Rather than using this detailed information for estimating the port receipts of particular countries, the estimates here are based on information of a much more general character. Some countries—for instance, Italy and Japan—give a careful account of their port receipts, information on the tonnage under foreign flags visiting their ports, and also on quantities of cargo delivered and loaded by foreign ships. The figures are shown in Table 19.

[22] *Ports of the World,* 5th Ed., Archibald Hurd and Paul E. Chevalier, eds., London, 1951.

TABLE 19

PORT RECEIPTS, TONNAGES ENTERED, AND CARGO DELIVERED AND LOADED, ITALY AND JAPAN, 1950-1953

	1950	1951	1952	1953
Italy				
Port receipts ($ mil.)	$24.30	$35.70	$35.70	$46.10
Tonnage entered (mil. NRT) [a]				
All flags	31.37	33.01	36.43	41.84
Italian flag	11.17	11.07	11.93	15.91
Foreign flags	20.20	21.94	24.50	25.93
Cargo unloaded (mil. MT) [b]				
All flags	21.66	27.20	27.76	31.28
Italian flag	9.38	10.54	10.18	14.81
Foreign flags	12.28	16.66	17.58	16.46
Cargo loaded (mil. MT)				
All flags	3.93	5.12	5.44	6.84
Italian flag	1.17	1.37	1.21	1.46
Foreign flags	2.76	3.75	4.23	5.38
Total cargo handled, foreign flags (mil. MT)	15.04	20.40	21.81	21.84
Japan				
Port receipts ($ mil.)	$13.10	$ 5.80	$17.10	$19.20
Tonnage entered (mil. NRT)				
All flags	23.10	14.45	17.83	22.35
Japanese flag	3.42	3.67	6.51	8.38
Foreign flags	19.68	10.78	11.33	13.97
Cargo unloaded (mil. MT)				
All flags		20.73	23.74	31.29
Japanese flag		6.37	11.46	14.33
Foreign flags		14.36	12.28	16.96
Cargo loaded (mil. MT)				
All flags		3.10	5.06	4.96
Japanese flag		.60	1.61	1.78
Foreign flags		2.49	3.45	3.18
Total cargo handled, foreign flags (mil. MT)		16.85	15.73	20.14
Port receipts per NRT				
Italy	$1.20	$1.60	$1.45	$1.75
Japan		0.55	1.50	1.35

SOURCE: Italy, *Statistica della Navigazione Marittima* (Instituto Centrale di Statistica), for 1950-1951, Table IV, for 1952-1953, Table VI; Japan, *Monthly Return of Foreign Trade.*

[a] Net register ton.

[b] Metric tons.

From these figures it appears that the correspondence between port receipts and tonnages of foreign carriers is better than that between port receipts and cargo handled by foreign carriers. This is somewhat surprising, since income from handling the cargo usually exceeds the other group of port receipts. But there is, of course, some connection between tonnage and cargo unloaded or loaded, or both, although a rather loose one. However, the estimates for port receipts of Italy and Japan are based on tonnages rather than on total quantities of cargo handled.

Apart from the Japanese low 1951 figure, it appears that the average receipts were about $1.20 per NRT in 1950 and $1.50 for later years. On the assumption that the averages were lower in African countries because of lower labor costs, the averages for those countries were put at $0.75 per NRT for 1950 and $1.00 for later years. Multiplying these averages by the tonnages under foreign flags that visited the ports of certain countries yielded the figures shown in Table A-6. No port receipts were estimated for bunkering stations, since presumably oil companies do not charge separately for visits paid to their supplying facilities. Allocation of the receipts to paying areas was made in correspondence with the flag distributions of the tonnages loaded with cargo that visited the ports of each area, shown in Table A-7.