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Methods to Correct Freight Payments

One possible explanation for the excess of payments over receipts is that countries estimating the freight component in the c.i.f. value of their imports might have overstated the amounts. The amounts of freight and insurance deducted by those countries from their c.i.f. values were, in 1950, $1,293 million; in 1951, $2,296 million; in 1952, $2,078 million; and in 1953, $1,797 million.[24] It might very well be that the amount of freight included in these figures is overstated by $150 to 200 million, or about 1 per cent of the total c.i.f. value of imports of those countries.

In case of such overstatement of freight payments, how can they be corrected? The approach selected will depend upon the degree of accuracy desired in the figures and upon the amount of work that can be done.

The method applied in this study was described, with its virtues as well as its shortcomings, in Section 2 under freight on imports. The conclusion there was that the accuracy of the results obtained by use of rough freight factors is not high, particularly if the same freight factor is used throughout all years irrespective of the change in proportion of freight rate to c.i.f. value. The question remains, also, whether the freight factor used for a particular commodity is the proper one. To determine the average freight factor for a particular commodity transported between two specific countries in a certain period of time requires at least some notion of the actual freight rates during that period. Failing that, an estimate must be made on the basis of various criteria. Apart from the difficulty of determining appropriate freight factors for each commodity transported in a particular year, the proper selection of commodities for

[24] According to Table 5 of Herbert B. Woolley's paper, "Transactions between World Areas in 1951," presented for discussion at the Conference on International Economics, Princeton, April 1956.

the computation is an important factor. The sample should be representative from a transportation point of view if the result is to be applied to the whole group of commodities imported by that country.

Another and—from the standpoint of transportation—more promising approach consists of collecting information on the quantities of a particular commodity imported and multiplying them by the appropriate freight rates. This method is in keeping with that actually used to determine freight amounts and can be expected to render the most accurate estimates possible. That accuracy still depends, however, upon whether the samples on which the computations are based are sufficiently representative. Selection of the size of samples requires information on corresponding freight rates and the total quantity imported by each country in a particular year.

It is for this reason that the collection of information began with efforts to find the total quantity of dry cargo imported by each country in each of the four years of the study.[25] Sometimes that information was readily available, but often many conversions to the same unit—metric tons—were necessary. From the total quantity of imports of a country, commodities imported in large quantities were selected, for it may be assumed that those bulk commodities accounted for most of the freight paid by the importing country.

Admittedly the freight rate—the other determining factor—on bulk commodities is, on the average, lower than on commodities transported in smaller quantities, but the above statement about freight still holds. Moreover, the freight rates on bulk commodities are more subject to quick and severe changes and consequently account for most of the variations in the freight amounts—another reason for focusing attention upon them in selecting the samples. In general, the samples comprise 70 to 80 per cent of the total quantity imported by a country. That proportion was obtained usually by including all commodities imported in quantities of 5,000 metric tons or more. For smaller countries or those having very detailed trade classifications, imports in smaller quantities had to be included to obtain the desired coverage.

For 1951, the base year of the study, such selections were made for countries that require careful computations of the freight on their imports. In general it was found that the number of items was not unmanageable. A country like Brazil, for instance, with an import quantity of 5,500 metric tons of dry cargo from noncontiguous countries in 1951, required no more than 61 commodity items to cover about 76 per cent of the imported quantity. A very careful selection was made for Japan

[25] The study was confined to dry cargo because of Dwyer's companion study of petroleum products, previously cited.

because of its dominant position as importer in the Far East that year; the coverage was about 97 per cent requiring almost 200 commodity items.

For all years, selections covering 75 to 95 per cent of imported quantities were made for all countries that had c.i.f. trade records, whether or not they made the c.i.f. adjustments. They comprise about two-thirds of the total number of reporting countries.

To calculate the freight amounts, all that is needed besides the selection of imported commodities is the appropriate freight rates. Some of them, particularly tramp rates applying to transportation of commodities in bulk, are not difficult to obtain. In collecting them some notable institutions in the United States and Europe cooperated, making possible a store in our files of tramp rates for commodities, imported as well as exported in those four years by North America and northwest Europe from and to various areas of the world.

To the information already collected on dry cargo liner rates applying to the transportation of commodities in smaller quantities, liner rates on United States exports and imports to all other areas in the four years were added, thanks to the courtesy of the Maritime Commission in Washington. Rates on imports and exports of Spain, and rates on imports of northwest Europe from some countries in South America (Brazil), South Africa, the Persian Gulf, the Far East (Indonesia), and Australia are also at hand.

At present not all the needed information on freight rates is available: liner rates on exports from northwest Europe, for trade between countries in Asia, Africa, and South America, and certain tramp rates are still lacking. This means that the calculations are partly based on estimates of freight rates, rather than the actual rates. At this point, a distinction between tramp and liner rates will be useful.

Tramp rates are generally fixed on open markets where prices quickly reflect changes in demand and supply. Consequently, the freight rates that are established at those markets, apart from loading and unloading charges, are proportional to the extent that the offered services are used. The latter are mainly determined by the space occupied by a certain quantity of the commodity and by the distance of transport. From the relationship between those two factors, the desired freight rate on a shipment can be figured approximately by use of a rate for comparable space and distance.

Liner rates, on the other hand, are established on imperfect markets. Shipowners are usually organized in conferences that enforce the application of freight rates agreed upon by the members. The freight rates lie in the majority of cases between two boundaries. The upper boundary is determined by the amount that can be charged without making trans-

portation unprofitable for the owner of the commodity—"what the traffic will bear." It is usually determined by the difference in price at the place of loading and the place of unloading, assuming that such clearcut prices at both ends of the haul exist. The lower boundary is determined by the specific costs to the ship operator in transporting a particular commodity over a particular route. But the costs are not always sharply defined, particularly not in the case of joint supply. For example, cargo space may be offered from the United Kingdom to the Levant, and at the same time the space not needed for that cargo is offered from the U.K. to Italy. The effect of joint supply on the indefiniteness of specific costs, too well known to dwell upon, explains in large part the great variability in freight rates for the Mediterranean and Caribbean, for instance, especially those in the neighborhood of the minimum rates.

Lying between the two extremes, the actual freight rate is determined by competition—always present, actively or potentially. First, there are the tramps which at times enter the trade attracted by the high liner rates. Then there are always outsiders that try to benefit from the favorable situation created by the restrictive practices of the conferences. And last, but not least, there is also much envy and suspicion among the members of the conference itself. In view of all this, it is surprising that conferences are able to function; good economic reasons must explain their existence.[26]

It is obviously difficult, though not impossible, to estimate appropriate liner freight rates for some of the selected commodity items. Serious mistakes might be prevented by comparing the estimated liner rates of a particular kind with those for general cargo. Almost every conference has such a general cargo rate in its tariff books to apply to commodities for which no specific rate is quoted. Those rates give a good indication of the general level of rates set by a conference in a certain period.

General cargo rates are particularly suited for application to the unselected commodity items, those not included in the samples. An idea of those rates in the past can be obtained, for instance, from the Danish yearly publication *Danmarks Handels fløde og Skibsfart,*[27] in which Table 10a shows what has been earned per ton of cargo by Danish vessels over a large variety of routes. Freight earnings for particular commodities, for instance, citrus fruit from Spain to various West European countries, are sometimes given also.

[26] A good description of the economic factors that call for the creation of a conference and of the influence it exerts on freight rates in general and liner rates in particular can be found in Daniel Marx, Jr., *International Shipping Cartels,* Princeton University Press, 1953.

[27] *The Danish Merchant Marine and Shipping in 1951,* p. 103.

Methods to Correct Freight Payments

The general conclusion emerging from this discussion of freight rates is that calculation of the freight payments of a particular country is not prohibited by insufficient information on freight rates, so long as the matter is handled with care and knowledge of the trade. The reader is reminded that this discussion deals only with the possibilities of assessing the freight paid for transportation of dry cargo that is imported by a certain country. The amount of freight paid for imported petroleum products is much easier to assess, since there is only one publicly quoted freight rate charged in the past for transportation of all petroleum products along a certain route. As mentioned before, the freight on petroleum products imported by each country in 1951 has already been computed, and computations for the other years are planned. To examine and eventually correct the c.i.f.-f.o.b. adjustments of a particular country, therefore, requires computing also the amount of freight paid for the transportation of imported dry cargo.

Accurate computations have been made here for France and the United Kingdom, for all four years of the study. The reason for selecting these two countries is that they do not state the amounts paid to foreign carriers or earned by their own carriers for transporting their imported commodities. The best results were obtained for France, which gives a detailed flag distribution for its imports, whereas that information is poor for the United Kingdom. Therefore, a minute description of the method of obtaining the results for France is given first, followed by only a rough indication of the procedure for the United Kingdom.

The total quantity in metric tons of commodities imported by France in the four years of our study is stated in *French Import Statistics*.[28] From this total is first deducted the quantity of imported petroleum products, since the freight on it is separately calculated, as will be shown later; what is left is the quantity of dry cargo imported. Part of the latter came by land from continental European countries. To find the volume of land-borne imports from those countries, the volume that came by sea (shown in France's *Maritime Statistics*)[29] was subtracted from the total dry cargo imported. Most, though not all, of the land-borne imports originated in contiguous countries and, in the IMF system, does not call for a freight entry in France's balance of payments. Freight rates were therefore estimated for the rest of the overland cargo. In addition, a selection was made of the seaborne imports by country of export and commodity group, to serve as a basis for the detailed freight calculations. Table 26 illustrates the procedure.

[28] *Tableau Générale du Commerce Extérieur*, 1953, Tables 1 and 9.

[29] *Tableau Générale de la Navigation Maritime et des Transports*, for 1934 to 1953, Tables 1 to 4.

TABLE 26

COMPUTATION OF QUANTITY OF SEABORNE DRY CARGO IMPORTED BY FRANCE, 1950-1953
(1,000 metric tons)

Imports	1950	1951	1952	1953
Total quantity	38,832	48,839	51,940	49,312
Petroleum products	14,533	18,686	21,358	22,475
Dry cargo	24,299	30,153	30,582	26,837
From Continent	11,875	12,565	13,345	14,041
By sea	1,650	1,162	1,496	1,847
By land	10,225	11,403	11,849	12,194
Seaborne dry cargo	14,074	18,750	18,733	14,643
Selection	11,995	16,911	17,332	13,270
Coverage	85%	90%	93%	91%
Number of items	222	300	311	314

The selection contains all commodity items shipped from a country in quantities of 5,000 metric tons or more in each of the four years, and covers about 90 per cent of all imported seaborne dry cargo. The number of items for all four years is 1,147, covering more than 60 million metric tons or, on average, somewhat more than 50,000 metric tons per item.

Once the selection was made, the question arose how much of each selected commodity was unloaded in Mediterranean ports and how much in Atlantic ports, since there is a great difference in the respective freight rates. This question could be answered by use of France's *Maritime Statistics* which gives a breakdown by quantity of the commodities unloaded at every port of some significance. As could be expected, most of the dry cargo coming from Asia and from east and north Africa but only a small portion of the quantity from other areas was unloaded in Mediterranean ports.

The next step was to find the average freight rate for each selected commodity transported over a certain route for each of the four years—not too difficult, since we are rather well informed on freight rates for imports of western Europe. The unavailable freight rates were estimated along the indicated lines, taking account of differences in length of haul, stowage factor, and so forth. The freight rates were multiplied by the corresponding quantities to obtain the total amount of freight paid on about 90 per cent of the imported dry cargo.

The rest of the dry cargo, specified by country of export, consists

mainly of commodities usually transported by liners. To those quantities general cargo rates appropriate to each route were applied. Rates not available were estimated on the basis of the average freight rates of the selected items.

Finally, freight amounts paid on imported petroleum products were computed. No distinction between seaborne and not seaborne was necessary, but a distinction was made between the part that was directly loaded in the ports of the producing country and the part that went first by pipeline to another country before it was shipped. For this, France's *Maritime Statistics,* which indicates port of loading as well as port of unloading, was used. It was used also for the distinction between Mediterranean and Atlantic ports of unloading. It appeared that, unlike dry cargo, less than half of the imported quantity was unloaded in Mediterranean ports. Then the quantities were multiplied by the freight rate applicable to all sorts of petroleum products carried over a certain route, giving for each year the amounts of freight paid by France on petroleum products shipped from certain ports. A summary of the results is given in Table 27. Under (3), we observe the same fluctuations in the

TABLE 27

COMPUTED FREIGHT ON IMPORTS OF FRANCE, 1950-1953
(freight, millions of U.S. dollars; quantity, millions of metric tons)

	1950	1951	1952	1953
1. Selected Dry Cargo				
Freight	97.0	197.9	153.6	123.3
Quantity	12.0	16.9	17.3	13.3
Average freight	8.1	11.7	8.9	9.3
2. Nonselected Dry Cargo				
Freight	12.9	18.0	8.0	19.4
Quantity	2.7	3.6	1.5	2.2
Average freight	4.8	5.0	5.3	8.6
3. All Dry Cargo, Noncontiguous				
Freight	109.9	215.9	161.6	142.7
Quantity	14.7	20.5	18.8	15.5
Average freight	7.5	10.5	8.6	9.2
4. Petroleum and Derivatives				
Freight	95.2	191.2	253.2	150.3
Quantity	14.6	18.7	21.4	22.5
Average freight	6.5	10.2	11.9	6.7
5. All Imports, Noncontiguous				
Freight	205.1	407.1	414.8	293.0
Quantity	29.3	39.2	40.2	38.0
Average freight	7.0	10.4	10.3	7.7

freight amounts as shown by the rougher computations discussed in Section 2, under freight on imports. Though less sharp, the same fluctuations are noticeable in the average freight of all noncontiguous dry cargo. Comparing the last line under (3) and (4) we see that, whereas the average freight on dry cargo had its peak in 1951, for petroleum products its maximum was reached in 1952. This could be expected, since the tanker freight rates, applicable to most transported petroleum products, are based on the London Award, which is a two-year charter hire rate. Comparing the last lines under (1) and (2), we notice much more fluctuation in the average freight rate on the selected items than on the nonselected. This is also reasonable, since most of the selected items were carried by tramps, while the nonselected items were brought in by liners. That the average freight rate on the nonselected items is lower than that on the selected items is due to the fact that most of the nonselected items were shipped from nearby countries.

The amounts of freight on imported commodities computed by country of export had to be divided according to whether earned by French carriers or paid to foreign carriers. That division was based on the detailed information on the flags of the carriers, by country of loading and port of unloading in France (*French Maritime Statistics*). To be more precise, the quantities of cargo transported over each route by the carriers of the various flags was used as a basis for the division. The last step was to allocate the amounts earned by the foreign carriers to the eight areas adopted for the purpose of this study. The final outcome, specifying the amounts paid on its imports by France to its own and to foreign carriers, is shown below, in millions of U.S. dollars.

	1950	*1951*	*1952*	*1953*
Total freight on imports	205.1	407.1	414.8	293.0
Earned by own carriers	102.5	162.9	187.1	147.9
Paid to foreign carriers	102.6	244.2	227.7	145.1

It appears that, in the "normal" years 1950 and 1953, about half the amount of freight paid by France on its imports was earned by its own carriers; in the years between, however, their share was only about 40 per cent.

Essentially the same computations, described in detail for the imports of France, were made to find the total amount of freight paid by the United Kingdom on its imports. The final outcome is, however, far less accurate than that obtained for France, because the information on the flags of the vessels that carried the imported merchandise is so much poorer. The results are summarized in Table 28.

TABLE 28

COMPUTED FREIGHT ON IMPORTS OF UNITED KINGDOM, 1950-1953
(quantity in millions of metric tons; freight in millions of U.S. dollars)

	1950	1951	1952	1953
Quantity				
Total dry cargo imported	n.a.	n.a.	46.7	51.2
Selection	40.5	46.7	43.7	49.4
Coverage (%)	n.a.	n.a.	94.0	96.0
Number of items	697.0	797.0	709.0	799.0
Freight				
Calculated on selected dry cargo	374.0	667.0	497.0	528.0
Average [a]	9.3	14.3	11.4	10.7
Estimated on all dry cargo	396.0	708.0	530.0	548.0
On Petroleum and derivates	186.0	291.0	348.0	245.0
Total on imports	582.0	999.0	878.0	793.0
Earned by own carriers	364.0	582.0	508.0	449.0
Paid to foreign carriers	218.0	417.0	370.0	344.0

In this and following tables, n.a. = not available.
[a] U.S. dollars per metric ton.

The total quantity of dry cargo imported by the United Kingdom in 1950 and 1951 is, unlike that in 1952 and 1953, not stated in the OEEC publications on foreign trade. Overland traffic and contiguous countries were not problems in this case, but a breakdown of the imported quantities according to the port of loading would have been welcome. There is sometimes quite a difference in freight rates to ports on England's west coast, south coast, and east coast. Unlike the records for France, however, there is no flag distribution for each of these three areas—at least not published—and the assumption was made that most of the cargo coming from North America was unloaded at the west coast and the rest at the south or east coast with London as center.

The selection, as for France, contains all commodity items from a country in quantities of 5,000 metric tons or more; the coverage is about 95 per cent in the four years. The average number of items is about 750, with an average of about 60,000 metric tons per item, compared with the average for France of about 50,000.

The information on freight rates was sufficient to assign stated or estimated freight rates to all selected items. The average freight on the selected dry cargo for the United Kingdom is in general 20 per cent higher than that for France, because a large part of the quantity of

France's imports came from nearby overseas territories. The fluctuations in the average freight rate are similar to those for France, but more pronounced; moreover, the average freight rate in 1953 is lower than in 1952. The amount of freight paid on the nonselected items—about 5 per cent of all imported quantities—was estimated in an over-all way for all countries together. It was assumed to be equal to that on the selected items, probably somewhat on the high side. The freight on petroleum products was computed for 1951 and 1952, and for the other years was estimated along the lines indicated in Section 2, under tankers operated by British oil companies.

The total amount of freight on imports was next divided according to whether earned by British carriers and or paid to foreign carriers. Like the other allocations described here, this was based on the flags of the carriers, though information on flag distribution published by the United Kingdom is rather poor. The U.K., unlike France, releases no information on the flags of the carriers by country of loading or by groups of commodities, nor on the total quantity of commodities unloaded in British ports as a whole. A flag distribution of the tonnages of vessels that entered the British ports with cargo was available and was used as a basis for distributing the freight on imports over domestic and foreign carriers. It will be clear that the poverty of the information on the nationality of carriers has seriously affected the accuracy of the results.