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The Incidence of Liner Freight Charges

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One of the important aspects of the cost of shipping a country's overseas trade is the manner in which a change in ocean freight charges by shipping conferences is divided between exporters and importers. The incidence of such a change could favourably or adversely affect both the real burden of the cost of ocean transport of imports and the competitive ability of exporters in overseas markets.

To an importing country, the most adverse effect would occur when a rise in freight rates on imports, bought on fob terms and carried in foreign-owned vessels, was entirely shifted on to importers in the form of proportionately higher final landed (cif) prices. If, in this case, import freights were payable in foreign exchange (frequently the case for smaller importing countries), then the increasing freight charge would involve an increased foreign exchange cost too. To an exporting country, the most adverse effect would occur when a rise in export shipping charges resulted in final landed prices of cif exports remaining unchanged, i.e., when exporters were forced to absorb the whole of the increase in freight rates. *Ceteris paribus*, export volume might be expected to decline as marginal exporters were now faced with net losses on their products in overseas markets. The cost of this situation would be increased where freight rates were increased by foreign-owned shipping lines, since outgoings to foreigners by cif exporters would increase with a less than proportionate falling off in export volume.

Proportions of Freight Charges

Naturally, any combination of effects is possible, but stating the most adverse to any single importing or exporting country has the result of dramatising the possibilities of incidence. These two most adverse cases are not curiosities, however. It is the existence or potential existence of these circumstances that is a major cause of the increasing desire by trading countries dependent on foreign fleets for transport for greater control over the negotiation of freight rates and the scheduling of liner services. A number of such countries, notably the developing nations having a high proportion of overseas trade to GNP, have also investigated the possibility of establishing national flag fleets to ensure a maximum available carrying capacity at a minimised real cost to importers and

exporters. This latter move, it may be noted, may have the effect of subsidising importers and exporters at the expense of the optimum allocation of national resources.

The incidence of changes in liner freight rates would matter less if the charge itself were a negligible part of the final landed prices of goods. In the case of some primary exports this appears to be true. For example, 1966/67 freight charges for Australian wool to Japan, for beef and veal and for dairy products to the United States, made up 6 per cent, 8 per cent and 9 per cent respectively of fob commodity prices. In 1965, the proportions of freight charges to fob commodity values for the following Indian exports were — jute sacking to the UK 7.1 per cent, tea to the UK 4.5 per cent, cotton cloth to the UK 4.4 per cent, pepper to the UK/Continent 7.0 per cent, cashew nuts to the USA (New York) 4.1 per cent. Nonetheless, for most developing countries primary exports are the main source of foreign exchange, and an unfavourable incidence of freight rate changes on exports could have a large negative aggregate effect on foreign receipts. In liner shipping, freight rates frequently bear a positive relationship to the value of the commodity transported, especially at more extreme values. Consequently, manufactured and processed goods tend to be charged proportionately more in relation to unit value than lower-valued primary goods. Manufactures are naturally very heterogeneous. Many are shipped as "general cargo", paying a flat general cargo rate irrespective of value. Major items of manufactured export e.g., automobiles, refrigerators, steel pipes and so on, pay a specially designated rate, sometimes, but not usually, as part of a "class" rate. The percentages of freight charges of fob commodity prices vary enormously between commodities, they may range from 15 to 200 per cent. Changes in freight rates of such proportion can have a large impact on the foreign exchange costs of cif shippers and, irrespective of the method of charging freights, can be crucial in highly competitive overseas markets for manufactures.

Quotation of Freight Rates

The problem of incidence arises most acutely with freight rates set by liner conferences. In the case of charter rates on the open market, these are established

in more competitive markets for shipping services, and rates are likely to accurately reflect the state of supply and demand for tramp shipping services. Liner rates are administered, and changes in these rates, which may not realistically reflect an altered market for shipping services, are liable to be passed on by importers or exporters to foreign traders depending on the state of market imperfection for commodities.

The manner in which liner freight rates are quoted has importance only in terms of foreign exchange. Fob (free on board) price quotations by exporters include expenses of transport only up to delivery on board the vessel. Fas (free along side) prices include delivery charges to within reach of the vessel's loading tackle. Liner freight quotations normally include stevedoring charges. Cif (cost, insurance, freight) prices include prepayment by exporters of delivery charges up to the foreign port of discharge. There are minor variations on these ways of quoting freights. When exporters and importers use the services of their own country's liner fleets there is no foreign exchange cost on account of freights since freights are normally paid in domestic currency. When exporters use foreign shipping lines and quote cif freight prices, a foreign exchange cost can be involved. Similarly, fob importers using foreign shipping lines are normally obliged to make foreign exchange payments for freight. Payment for freights is not always made in the currency of the country of registration of liner companies. For example, freight schedules for Australian exporters are now quoted by British and Continental shipping lines in American dollars in a number of outward shipping conferences since the devaluation of Sterling.

The Real Burden of Rate Changes

But, by and large, the manner of price quotation on freight is unimportant in terms of real cost. An increase in liner freight rates has to be paid by either the exporter or the importer, or some combination, in the form of increased selling costs and/or increased marketing prices respectively. The manner in which it is divided between exporter and importer does not depend on who actually pays the liner operator. It can be observed, however, that importers will seek to make fob purchases when they feel they are in a position to take advantage of falling rates; fob exporters may seek to make cif sales in similar circumstances or when they feel able to influence freight rates downwards or stabilise rates at existing levels. Such moves can increase the foreign exchange cost of shipping imports or exports whilst reducing the real cost of trading. In a study of the incidence of changes in liner freight rates, by analogy with the conventional theory of tariffs, one is concerned with the real burden of such alterations in administered charges.

Increases in liner freight rates are likely to be confined to a single conference. Most conferences serve a one way traffic, although shipping lines may be members of several conferences. As a result, changes

in freight rates are normally confined to the export products of one country. Since that country is unlikely to be a single seller of all or any of its export products to any set of foreign markets, an increase in freight rates is likely to discriminate against exporters in competition with other sources of supply. Conference lines are naturally interested in moving the maximum trade possible, but this objective may, on occasion, be in conflict with trade possibilities in other areas (where shipping lines may be members of other conferences), and with considerations of opportunities for reducing overall operating costs by reorganising schedules and routes.

Elasticities of Supply and Demand

In many ways a change in liner freight rates is analogous to a change in import tariffs. Since both are administered changes in prices, their final incidence is determined by the relative market powers of exporters and importers to shift the burden of any increase on to the trading partner (or absorb the benefit of any decrease). This power is basically the same in the cases of tariffs or freight charges — it depends on the state of competition in the commodity market, and on conditions of supply and demand for the commodity in question.

Thus, as for a change in tariffs, the incidence of a change in freight rates is related to the elasticities of supply and demand for the commodity subject to altered rates. The more elastic the demand and the more inelastic the supply of a commodity subject to increased freight charge, the greater the likelihood that the major part of the increased charge will be shifted on to exporters. Conversely, importers will tend to bear the greater part of the real burden of an increased freight charge when their demand is relatively unresponsive to a price increase, and where suppliers are relatively sensitive to such an increase and would reduce export volume if they were unable to keep costs from rising.

The values of these elasticities are very important in international trade. Foodstuffs are in inelastic demand in most markets and in inelastic supply by the nature of agricultural production. Elasticities of supply and demand of manufactured goods tend to be higher. However, for most foodstuffs and primary goods in international trade there are frequently several sources of supply. This tends to increase the sensitivity of foreign demand in response to price changes. It is particularly so, for example, in wheat, sugar and dairy products. For items such as these there is little possibility of shifting the burden of freight rate increases on to importers. The possibility is decreased the greater is competition among suppliers, i.e., the greater are the possibilities of buyers switching their sources of supply when a freight change is specific to one route from one country only. For manufactures, very many more sources of supply are normally available. Elasticities of demand in foreign markets are high partly because of normally large income effects, and also because of easy substitution between related

manufactured goods and between different sources of foreign and domestic supply. Elasticities of supply, for industrialised countries at least, are high, since in many cases the home market is large enough to be freely substituted for export sales in the face of adverse movements in export prices.

The Level of Freight Rates

On the criteria so far, those developing countries which depend heavily on the export of primary products for growth, and which are attempting to diversify exports with manufactured products, appear to be those most likely to experience an adverse incidence in the case of a freight rate increase. For these countries, their primary exports face an increased elasticity of demand because of alternative sources of supply, as well as inelastic supply; their exports of manufactured goods on the other hand are in inelastic supply because of small home markets, and they face conditions of elastic demand in foreign markets. For developing countries, the fact that freight charges are mostly a small proportion of fob prices for primary exports (this feature alone reducing the significance of rate increases) tends to be outweighed by strong competition between sources of supply.

There is a point, however, beyond which the analogy between tariffs and freight charges breaks down. The primary function of tariffs is to act as a protective device to foster home industries, or as a balance of payments expedient. They play a smaller role as a means of raising revenue. The revenue aspect of freight charges is, of course, crucial. Increases in freight charges are intended to raise revenues for liner operators, and ideally the increase in charges should not result in decreased trade volume at all. Liner operators are normally always interested in moving the maximum volume of trade possible. Whereas tariffs are frequently wholly or nearly prohibitive, it would be disastrous for liner operators if an increase in freight rates deterred the movement of goods completely. The height of tariffs is limited by the degree of protection necessary for home industries or by the reduction in purchases of imports required. The level of freight charges can fluctuate within limits set by the cost of the lay up of ships and adverse effects on the movement of trade and by competition from non-conference shipping lines and from the charter market. In the short run, non-conference vessels may be chartered or agreements signed with non-conference liner operators in the face of an increase in freight rates. In the long run, faced with a sufficiently large freight rate increase, exporters may even seek alternative foreign markets served by different conference lines with more favourable freights.

Bargaining Power of Shippers

The incidence of changes in freight rates can be influenced by the organisation and bargaining power of shippers, being either exporters or importers. The exports of developing countries are mostly sold on

fob terms, whilst those from advanced countries are mostly sold cif. Cif exporters and fob importers naturally have a more direct interest in bargaining with liner operators. But whatever the means of payment, all exporters and importers have an indirect interest in the real burden of freighting overseas trade. In some countries, exporters have, on occasion, attempted to reduce actual or suspected discrimination by liner conferences in favour of other sources of supply. In fact, most conferences have procedure for such complaints written into their agreements with shippers. The success of such bargaining depends on a calculation by liner operators on the increase in trade moved at lower rates against the loss of revenue per unit of trade moved. Freight rate negotiations by Australian exporters, who have a long tradition of negotiation, succeeded in 1968 in obtaining one quarter of the benefit of the Sterling devaluation of the previous year, and reductions in 1968 on certain exports carried by the UK/Continent Conference as a result of the rationalisation of port calls by liner companies in that Conference. The rationalisation followed a study by the Commonwealth Government in 1966.

The Calculation of Incidence

An increase in liner freight rates is equivalent to an increase in selling costs for exporters in overseas markets. But it is a cost which exporters feel more incentive to shift than most since it is administered by an agency outside the internal control of costs. One is therefore interested in calculating the effect of an increase in freight rates upon selling quotations i.e., fob commodity prices, since whoever pays the transport charge cannot avoid paying the higher rate (except by seeking cheaper, non-conference carriage).

This is undoubtedly a very difficult statistical exercise. Freight rates are not, on the whole, varied at frequent intervals. In many trades an annual review is common. Commodity prices, on the other hand, are very variable indeed. This may mean removing some of the very short-term fluctuations in commodity prices for the purpose of the exercise. Also, freight rates are not normally a large proportion of final selling price for most commodities. It is likely that an increase in freight rates will be in some way divided between increased producer costs and increased final prices, except in special conditions of supply and demand. The final result is that one is dealing in very small quantities. In the situation where a small increase in freight rates, which are themselves a small part of fob prices, results in only part of the increase being reflected in fob prices, it means that the ultimate change in fob prices is very small. Such an investigation into freight rates also shares the statistical problem encountered by all investigations which seek to establish a causal connection between changes in one independent variable and changes in another, dependent, variable where the latter is also determined by a host of other independent factors; in statistical language, the problem of hidden correlation. Except in exceptional circum-

stances, i.e., for certain commodities on certain routes, there is almost certain to be a large stochastic element present in any correlation function, since final prices of exports in international trade are determined by many elements of supply and demand, of which the cost of ocean transport is only one.

Cause and Effect

Fortunately, the cases of incidence which are interesting, i.e., those where the incidence of an increase (or decrease) in freight rates is almost completely on the exporter or importer, are those which are more amenable to statistical investigation. In these cases the magnitude of incidence is greater since only one of the two dependent variables is involved (sellers' costs or imported prices), and thus it is less likely to be swamped by simultaneous changes in independent variables, other than freight rates. These are the cases of maximum adversity described at the beginning of this article, or of maximum advantage depending on whether freight rates increase or decrease. The potential conditions for a most adverse incidence following on freight rate increases appear to apply to the primary and secondary exports of developing countries. There is probably a good expectation of a significant result in examining the incidence of increased freight rates on clearly identified commodities on specific routes out of developing countries.

This selection of cases would not illuminate the problem of the marginal exporter facing a freight rate increase in a highly competitive market where a small increase in costs or selling prices is crucial to competitive existence in overseas markets. Where the seller is forced out of the market and no longer quotes his product, a simple correlation of freight rates and commodity prices would not pick up this event. This selection of cases has more importance to balance of payments considerations. When freight rates are proportionately a large part of selling prices, a large change is involved and a large change in a country's overseas transport costs becomes possible.

It is worth noting finally that the direction of causal connection between changes in freight rates and changes in fob commodity prices is not proven. Since liner freight rates are administered prices they are likely to lag behind movements in market forces to which commodity prices, arrived at in more com-

petitive markets, are more speedily responsive. Thus, changes in liner freight rates may be the effect of changes in commodity prices rather than the other way round. With an accepted system of "charging what the traffic will bear", this is not illogical. Ignorance of what is cause and effect in setting up a statistical relation between changes in freight rates and changes in commodity prices could render the results of such an exercise invalid.

Conclusions

The full implications of changes in liner freight rates on exporters and importers can only be shown by empirical investigation. But such statistical investigations are likely to prove very difficult both by reasons of data and by the nature of the relationships involved. Pragmatically, if a most adverse incidence is suspected, or can be shown statistically, i.e., if exporters are forced to absorb the whole of any increase in freight rates or importers are unable to avoid payment of higher landed prices (from a single country viewpoint), this would strengthen those arguments in favour of greater incursion by shippers or their governments into policy matters in the overseas shipping market. The effects of an adverse incidence may be softened or overcome by setting up shipper bodies or strengthening existing shipper councils to negotiate freight rate changes with shipping conferences. The establishment of a national flag fleet may overcome the problem altogether, but such a venture is a complex one, involving the opportunity costs of national resources as well.

The possibility of a most adverse incidence of freight rate increases appears to be strongest in the case of the exports of developing countries. It could be crucial where such countries are engaged in export expansion programmes by the diversification of exports. On a number of manufactured exports, profit margins are small and alterations in freight charges could remove the competitive positions of such goods in overseas markets. Also, for developing countries which rely on export sales to generate a large proportion of GNP, the total cost of such an adverse incidence could be large. It is the developing countries who appear to be in the position of having difficulty in shifting either of the two effects of an adverse incidence of rising freight rates — the effect on the balance of payments and the effect on export competitiveness.



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