Transnational Corporations in Electrical Industry

TRANSCONTINENTAL CORPORATIONS (TNCs) are producing an ever greater share of the world's output of electrical goods. They also account for a very large share of the international trade in such goods, much of which is on an inter-firm basis. A study prepared at the request of the UNCTAD Secretariat by Richard S Newfarmer examines how the behaviour of TNCs in the electrical industry affects the development and trade of developing countries. "The International Market Power of Transnational Corporations: A Case Study of the Electrical Industry" by Richard S Newfarmer: UNCTAD/ST/MC.(13). Excerpts from the summary and conclusions of the study are reproduced below.

The general objective of this study has been to show how electrical transnational conglomerates mobilise and use economic power in international and foreign markets and to understand its effects upon developing countries. In particular, it has focused attention on formal and informal interdependent behaviour whereby concerted market tactics and uneasy oligopolistic equilibriums replace vigorous price competition in many markets.

International Organisation of the Industry

The electrical industry encompasses a great variety of capital and consumer goods. Capital goods include equipment for the generation, transmission and distribution of electricity, as well as motors to drive machinery. Consumer products range from familiar household appliances to the newest electronic products. The leading firms usually produce the full range of these diverse products. The companies are huge by any standard, and their sales and production activities straddle the globe. Because they produce in dozens of national markets, they can be termed transnational conglomerates.

The salient characteristic of the international electrical industry is its concentration. Although exact measurement is not possible, it is safe to conclude that the first ranking of major TNCs generate the bulk of the industry's sales and control much of its advanced and patented technology. The leading diversified firms meet each other in many national and product markets. Mergers and acquisitions, often encouraged by home governments wanting to restructure home industries, have accelerated concentration within the industry. Besides their multiple contact points in many markets, the electrical TNCs have several extra-market ties. These take the form of equity holdings of each other's stock, joint ventures around the world, licensing arrangements to share the industry's most advanced technology, and consortia and cartels.

Historical Forms of Rivalry and Interdependence

Foreign markets attracted the attention of the dominant firms very early in the development of the industry. After a brief period of expansive foreign investment and trade activity lasting roughly from 1880 to 1900, enterprises began to appreciate the advantages of restraining international competition. From about 1900 to 1930, the world's major firms relied increasingly on restrictive clauses in cross-licences of patented technology for the purpose of dividing up the world market into territories among themselves. The companies attempted to improve the flow of technology and industry to non-producing areas in order to preserve their shared world monopoly.

When the Great Depression came and demand weakened, frantic competition for export markets could only be curtailed by formal international cartels. Major firms entered into "notification and compensation" agreements that successfully cartelised much of the world's industry trade. The cartels included most of the world's dominant firms and lasted at full strength well into the 1940s.

Pre-1945 Restrictive Practices

The market allocation arrangements through licences and cartels after 1900 retarded development in many of the non-producing countries up to the early 1940s. The most severe proviso of the cross-licensing contracts among the industry's majors raised barriers to entry that were virtually insurmountable to outside firms, including domestic firms in developing countries. First, even if entrepreneurs in developing countries had had favourable economic conditions and a comparative advantage in production, they would have had great difficulty in obtaining the necessary technology. The companies wanted to prevent the growth of independent firms in the non-producing countries which were the export markets. Agreements restricted the diffusion of technology and manufacturing operations. Furthermore, the agreements ensured that exports would not disturb their home markets — including possible future exports from developing countries. Second, if domestic firms in developing countries had been able to obtain the technology through licences, they still would have experienced an absolute cost advantage (ceteris paribus) by an amount equal to their royalty payments.

Third, even large firms in developed countries using licences of others were prevented from using the group's technology to begin manufacturing in most of the developing world. In the case of the AEG and GE, only when markets were cut off by trade restrictions during the Depression and the Second World War did these two companies permit each other to begin manufacturing in developing countries under their respective parent. Effectively, there appeared to be a tacit recognition that developing countries should remain importers from the industrialised world.

It is clear that the dominant firms wanted to impede the spread of technology to the non-producing countries to preserve their shared monopolies. Consequently, growth in the domestic electrical industry of the two-licensing and most other domestic manufacturing industries in developing countries by 1930 and even in the 1940s.

Besides exploiting an industrial organisation that set the stage for post-1945 control of foreign markets by TNCs, the early restrictive practices allowed these corporations to receive the bulk of historical gains from trade. Territorial divisions of world markets reduced competition and undoubtedly resulted in above normal profits on the latter. Curtailed pricing for cables, lamps and heavy equipment had the same effects. The absence of vigorous price competition transferred income from consuming groups in developing countries to the owners of capital and their managers. In other words, the concentrated structure of international production and concomitant restrictive practices served to shift investible surplus from the developing periphery to the industrialised centre.

Era of transnational conglomerates

In the late 1940s and early 1950s, the major TNCs of the day began to invest heavily in the developing countries, following the course of other oligopolistic, technology-intensive industries. Much of this investment was made defensively to maintain a share of markets newly protected by tariffs. Manufacturing abroad replaced trade in some final products. Thus the organisation of the post-war industry soon came to revolve around production units in several countries under the centralised direction of a score of industrial giants. Parents often supplied subsidiaries with intermediate products to be manufactured into final products locally as well as with the latest final products from home to be sold locally. Foreign investment became "the handmaiden of trade".

Strategies of Transnational Corporations

Trade expanded rapidly after 1945, pari passu with foreign investment. An increasing proportion of exports from developed to developing countries, however, consisted of sales by
parent TNCs to their world network of subsidiaries. By 1970, about 26 per cent of electrical equipment imports from the United States were intrafirm transactions of TNCs. As a result, corporate planners enjoyed considerable flexibility in transferring profits around the world through non-market prices. A second change in the organisation of world trade in electrical equipment was the growing importance of the growing markets of the developing countries. Nearly one-quarter of electrical exports from home countries went to developing countries by 1973.

Competition in exports to developing countries continues to be characterised by varying forms of inter-firm competition and practice. Despite a more hostile legal environment for cartels, the home countries' tolerance continues to permit the cartelisation of exports. Electrical export cartels are officially registered in industrialised countries such as the Federal Republic of Germany, Japan and the United States. Many of the registered European cartels are international in scope and appear to be closely tied to the International Electrical Committee (IEA).

Although secrecy surrounds most cartel arrangements, reports and cartel contracts of the IEA reveal extensive collusion in at least nine major product groups of the heavy equipment industry and include at least 37 producers. The cartel is organised into "Product Sections", including Steam Turbines to Drive Generators (Section A), Steam Turbine Driven Alternators (Section B), Water Turbine Driven AC Generators (Section E), Synchronous Condensor (Section F), Circuit Breakers (Section G), Transformers (Section H), Rectifiers (Section K), Rolling Mill Equipment (Section P) and Water Turbine (Section W). The most common provision is a notification clause. Under this clause producers agree to notify each other of any Secretariat upon learning of a tender, so that the prospective bidders may collectively set prices and determine which producer will submit the lowest bid. In addition, five of nine agreements contain provisions setting common minimum prices or reference prices. Three agreements contain provisions for the pooling of profits among member cartel members. Three contain formal allocation procedures and quotas for the apportionment of bids.

Other cartels covering electrical products exist outside the IEA. The most notable are the electrical cable cartel, called the International Cabling Development Corporation (ICDC), and the British electrical cable cartel, called the International Telephone Cable Association. Reports on these industries indicate that the cartel sets prices, allocates markets, sets quotas for members as well as engage in predatory practices against outsiders. One of the most recent developments appears to be the collective review and approval of new investments in foreign countries undertaken in the ICDC. In this case at least the export cartel plays the part of an "investment cartel".

Explicit forms of market regulation often are combined with informal understandings. Trade patterns show definite spheres of influence, especially evident in the case of cables and transformers. These understandings eliminate any chances of effective competition in the international market and replace it with a virtually shared world monopoly.

**Economic Consequences for Developing Regions**

From the viewpoint of developing countries, market co-ordination tactics are perhaps more harmful because they are most prevalent in products crucial to industrialisation such as in the heavy equipment side of the industry. Allowing for intrafirm trade, international and national exports, and informal concerted behaviour, it is estimated conservatively that at least 35-40 per cent of the international market in manufactured products with developing countries is subject to some form of market power exerted by TNCs.

This market power and trade restrictions affect industrialisation in developing countries through both prices and the national economic structure. Competitive restricting behaviour permits TNCs to raise prices of exports above competitive price levels. Prices of imports into developing countries therefore exceed those that would be charged in the absence of the restrictive practices.

The structural consequences of formal and informal market agreements are perhaps more deleterious to developing economies than the short-run consequences of higher prices. As did the carriers of technology, today's cartels raise barriers to the entry of outsiders in particular markets. They are especially effective against home-owned firms in developing countries. The financial base of domestic firms is far smaller than that of cartel members, and because they are less diversified they cannot cross-subsidise losses for prolonged periods. Moreover, cartels often stifle entry by providing predatory practices against outsiders. Clauses containing rules for predation were reported in the transformer agreement of the IEA, in the cable agreements of the ICDC, and in the local cartel in Brazil. Finally, notification, compensation and allocation of bids among cartel member firms give them a competitive advantage over non-members.

Besides making formal and informal agreements, large TNCs protect their spheres of influence when necessary with aggressive price-cutting. If the threat of potential entry is ever present, leaders may price their goods below entry-inducing levels, but well above marginal costs as possible. If the threat is especially severe, pricing tactics may include selling below cost for the purpose of driving potential entrants into a market, usually the most powerful being excluded. As a consequence, existing producers are able to raise prices and share their reduced monopoly levels with less fear of provoking new entry. Mutual invest-
ment forbearance should be added to the list of market-distorting factors that explain why transnational corporations tend to recreate the same concentrated market structures in developing countries that are found in the home countries.

Takeovers and denationalisation in developing countries. Related to the decision to invest is the decision how to invest, whether by acquisition or by building a new plant. Acquisitions by TNCs in developing countries are responsible for the ownership of social resources in the electrical industry. This is especially true as development advances and domestic firms come into the market. In Latin America, for example, 42 per cent of United States electrical transnational corporations established their subsidiary operations by acquiring existing domestic firms in the 1958-1968 period. In Mexico, 60 per cent of the United States electrical transnational corporations established their operations through acquisitions. These takeovers accounted for nearly all the substantial increase in the foreign share of Brazil's electrical industry in the 1960-74 period. Moreover, a few of the largest takeovers in Brazil had considerable anti-competitive effects. These examples can probably be paralleled in other developing countries at similar stages of development.

Concentration and product differentiation. Once TNCs have established operations in the protected markets of developing countries, they often capture a large market share and advertise heavily to create an image for their trademarked products. The power of TNCs to extract above-normal profits is closely related to the level of concentration and industry advertising. Evidence for developing countries, such as Pakistan, Mexico, and Brazil shows that the higher the level of market concentration, the higher a firm's profits, other things being equal. Product differentiation through advertising makes it a powerful factor in raising rates of return. Data for Brazil's electrical industry by itself demonstrates that as the degree of concentration and product differentiation rises so do profits generally increase.

Industrial performance in developing areas is adversely affected by the same distortions that market power commonly carries in any market economy. Market power reduces the efficiency of resource allocation and the allocative function of the price mechanism. Moreover, market power shifts income from consumers to managers and stockholders of firms, usually concentrating income. Also, administered prices appear to exacerbate inflation, especially cost-push inflation.

When high market concentration and product differentiation are associated with high denationalisation (or foreign control), market power leads to an additional distortion in industrial performance. Producers who receive the above-competitive levels of earnings are foreign-based and the flow of domestic resources come under their control. If TNCs remit earnings abroad, then market distortions consume valuable foreign exchange. On the other hand, if TNCs reinvest their profits, they strengthen their position in the market. Increased denationalisation has consequences for industrial performance because foreign owners may behave differently from domestic firms.

Vertical integration and exports. One area in which foreign firms behave differently from domestic firms appears to be that of vertical integration. Electrical transnational corporations generally have less economic incentive to integrate forward or backward than do domestic firms. The case of the copper exporting countries appears to bear out the view that the internationally integrated foreign-owned industry has no incentive to establish a domestic industry making cables for export. None of the four major copper exporters—Chile, Peru, Zaire or Zambia—has developed an integrated cable industry, in spite of their privileged access to the chief raw material. In fact, the four are all net cable importers. Foreign trade in vertical integration from refined copper to cables has not proceeded.

Another form of local vertical integration, in this case backward, is import substitution. Data for Mexico and Brazil show that transnational corporations generally have a lower ratio of value added to sales than domestic firms in the industry. Likewise, subsidiaries of TNCs in Peru and Brazil have a much higher ratio of imports to total sales than have domestic firms. As transnational corporations strive to maintain open access to markets of developing countries, foreign investment is a vital means of increasing the home country's exports along with local sales. Foreign ownership and international market power may affect export behaviour as well. First, an increasing portion of sales by subsidiaries of TNCs abroad is using subsidiaries of the same parent organisation. As a result, host countries are vulnerable to abusive transfer pricing. Companies may under-price exported components in order to accumulate earnings in the home countries, diminishing the foreign exchange earnings of the host country.

Second, "export platforms" or "off-shore assembly operations" may be only a temporary blessing vulnerable to the move of a pin on the world map of a home office planner when wages rise. More importantly off-shore assembly operations benefit only a few countries and do not augur well for increases in electrical exports for the vast majority of developing countries.

Finally foreign ownership may influence the direction of the exports of subsidiaries. Although evidence is not abundant on this point, it is arguable that a foreign subsidiary's sales abroad away from their own markets and in some cases away from markets of their principal rivals to avoid unleashing competition.

Enlightening Case of Lamps

The lamp industry illustrates how a handful of producers can use foreign capital and foreign investment to control the world market in one product group. The lamp business set the initial pattern of interdependent behaviour among large electrical firms, beginning with the early Phoebus cartel in 1924. The upheavals of the early 1950s brought to light the complex system of international planning and market regulation. It appears to have been replaced with an informal and perhaps less stable equilibrium among producers.

After the demise of the lamp cartel, market concentration increased and new price competition did not ensue in many of the developed countries. Data for the United States, Britain, France, the Federal Republic of Germany and other EEC countries indicate that the leading lamp manufacturers have established dominant positions in these markets. Moreover, in the pre-OPEC era, parallel pricing was evident in the 1950s and 1960s in markets of the EEC countries. Because of the defined areas of production established by producers in the EEC, price discrimination is still evident, despite the absence of tariffs. Besides the informal consensus of price forbearance, quantity rebates bind purchasers to domestic suppliers. These are often agreed upon in manufacturers' associations. They also make it difficult if not impossible, for independent lamp producers in developing countries to capture market shares in the developed countries. Foreign direct investment has been an important element of market control in the lamp industry. General Electric, Osram, Philips, and GEC are responsible for the great majority of foreign investment in lamps. While Latin America remains the principal area of GEC's investment, Osram and Philips, GEC holds a privileged position in Commonwealth (or former Commonwealth) countries. Joint ventures and other co-ordinating production and pricing strategies in developing countries raise returns to transnational corporations. Evidence from India and Brazil indicates that producers use joint ventures and manufacturing associations in order to control output and prices. In the case of India, agreements among the principal suppliers effectively tied purchases of imports to certain producers, undoubtedly raising their cost to India. At the same time, Indian subsidiaries were debarred from exporting to the main industrialised markets of the world. Thus, in the case of lamps, foreign investment and international cartels have buttressed the control of the world market held by the international lamp oligopoly, and not threatened it.

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