Technological Dependence and the International Pharmaceutical Industry ——A Case Study

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In its efforts to improve the understanding of problems faced by the developing countries in acquiring advanced technology from the developed countries UNCTAD commissioned a series of studies on this subject. In the field of pharmaceuticals, Dr. Sanjaya Lall of the Institute of Economics and Statistics, Oxford University, did much researching on this subject on behalf of UNCTAD. His findings have been published in several recent reports and papers which are proving of great significance to Third World countries. He has shown that the features of the world pharmaceutical industry have major implications for the transfer of technology to developing countries. They not only raised the direct financial costs and indirect financial costs, but also create important structural constraints upon the establishment of pharmaceutical industries in developing countries, primarily through the control of the required technology by the leading transnational drug companies.

The pharmaceutical industry today is one of the most international of all the industries emanating from the developed world. The leading fifty or so drug companies, which account for the bulk of drug production in the non-Socialist countries, are directly engaged in the production, formulating and sale of pharmaceuticals in practically every developed or developing economy, and have been among the first firms to undertake import substitution in countries which used tariffs and quotas to encourage such activity. Though these firms are not exceptionally large by MNC standards (only 41 firms had drug sales over $10 billion in 1970, and the largest, Roche, had sales of $840 million), the degree of multinationality of their operations, the social importance of their output, their pervasiveness and their political economic strength makes them an ideal subject to illustrate the nature and consequences of technological dependence. The basic characteristics of the drug industry highlight the inherent features of all multinational industries, albeit in a form clearer and somewhat more exaggerated than other industries; it has, moreover, the added advantage that recent concern with its practices has led to a great deal of valuable research on it in several countries.

Industry's Background

Before starting on our analysis, let us briefly describe the industry's background:

(i) The total world market for pharmaceuticals has been estimated at about $15 million in 1967, of which the U.S. accounted for 30% the socialist bloc countries for 13%, other developed countries for 43% and less-developed countries together for only 14%. A later estimate puts the total at $23 billion in 1973. A recent study by the author (Lall, 1975) prepared for UNCTAD, calculated world drug production to be $21 billion in 1971, of which the developed capitalist countries accounted for 86%. South European countries (including Spain) for 4% and less-developed countries as a whole for the remaining 10%.

(ii) Production is highly concentrated in a few firms. Of the total OECD market of about $10 billion in 1970, served by nearly 5,000 firms, a mere handful (around 50) probably supplied up to 80% of the total market. The same sort of concentration appears in most developing countries for which we have data.

(iii) Though these firms are really 'multinational' in terms of their activities, their ownership tend to be closely held in their countries of origin. Even in developing countries with stringent local participation requirements such as India this industry was among the ones in the least dilution of foreign equity and control.

(iv) The drug industry is highly research-intensive, with the leading firms spending around 10% (sometimes more) of their turnover on Research and Development. Most of this R and D is however, concentrated in their countries of origin, and practically no research worth the name is conducted in less developed countries. This concentration is also reflected in the ownership of pharmaceutical patents, which are heavily dominated by the multinational companies, in developed as well as less developed countries. Thus, in the UK less than 10% of new drug patents filed in past decades have been national, while in such developing countries as India, Chile or Colombia this ratio is probably under 5% for the total stock of outstanding drug patents. The extent of concentration in R and D expenditure is even greater than that in production; in the US, for instance, the 20 largest firms account for 95% of total private R and D, and in the UK the 4 largest firms account for over 70% of the total.

Enough has been said to give a general picture of the industry's structure: that of a highly oligopolistic and widespread industry, with a few relatively enormous companies, mainly from 5 or 6 countries, dominating the entire non-socialist world system of investment, production, and research. There is little need to belabour the facts about the existence of technological dependence in pharmacenticals. With a few exceptions the developing countries have contributed nothing to technological progress in the pharmaceutical industry, and have relied almost exclusively on research done in the home countries of the drug MNCs. (This is not to denigrate the great contributions to medication made by indigenous systems of treatment; however, the focus of this paper is on the 'industry' which produces modern allopathic drugs).

The main channel for the transfer of pharmaceutical technology has been direct investment in wholly foreign-owned or foreign-controlled subsidiaries. While a number of licenses have been sold to locally owned firms in developing countries, the bulk of recent and valuable (and so profitable) technology has been closely held by the MNCs, who have naturally preferred to exploit it directly than by licensing local firms. It should be noted however, that cross-licensing between MNCs is quite common, either because a particular firm does not possess an adequate marketing outlet in a particular country or because markets can be conveniently divided in this way. This does not benefit locally-owned firms unless they have already established a powerful market position in a developing country, though the Argentinian example suggests that once a firm does reach this position foreign MNCs attempt to buy it.

What are the economic implications of this sort of international structure of the drug industry? An instructive way to analyse them would be to use the concept of *market power*—the commercial power of firms to dominate a market and earn greater profits than would be possible in a competitive

situation—and to see whether the drug MNCs have great market power, what the sources of this market power are, and the costs that its exercise imposes on society. In the following sections we shall deal with these questions in turn, and shall also consider the policies that are open to developing countries to reduce the costs of the market power which technological dependence exposes them to. In the final section we shall draw the main conclusions of this paper.

MARKET POWER IN THE PHARMACEUTICAL INDUSTRY

It is imperative to note from the start that the existence of market power in the international drug industry arises from certain characteristics of its mode of operation in *developed as well as less-developed countries*, and its costs therefore apply to *both*. We shall argue that the social costs in less-developed countries are higher than in developed ones, but this must not be taken to imply that the former are the sole sufferers. This being said, however, we must also note that the operation of the drug industry in developed countries implies a social welfare loss as well as an internal redistribution (within the developed world as a whole) in favour of the large firms, while in less-developed countries it implies a social welfare loss as well as a redistribution of income abroad (from the less-developed world as a whole). We shall return to this in which it deals with the effects of market power. Let us first describe the indicators of market power and its sources.

Indicators of Market Power

Most of manufacturing industry in the modern world is oligopolistic, with a few large firms dominating production, and the level of concentration is tending to increase over time. In such a situation almost all these firms can be said to possess market power in comparison with an economically ideal competitive situation. Furthermore, the new theories of direct investment and the growth of MNCs argue that the possession of some special source of market power is a necessary condition for any firm to go abroad. These general considerations would lead us to expect the drug MNCs to possess a certain 'normal' level of market power in relation to other manufacturing industry. A glance at some indicators of market power, however, shows that this is not the case. The drug MNCs possess *abnormally high levels of market power*, hardly exceeded in manufacturing industry over a long period by any other industry (though a few individual firms may have held tighter technological monopolies for some considerable time).

We may use four convenient indicators of market power for the drug industry, concentration, profitability, price differentials, and product differentiation and marketing expenditures.

Concentration

We have already described the extent of concentration in the production of pharmaceuticals. The previous figures do not, however, convey a true picture: the drug market is not a homogeneous one, and there are several sub-markets which are quite distinct from each other. Large firms tend to specialise in particular sub-groups and in each of the major groups the largest 4 firms account for 60-80% of production. Furthermore, this concentration has tended to remain stable over time, though there are indications that with a general slowing down of new innovations the major firms are branching out into related lines. The world's largest drug firm, Hoffman La Roche of Switzerland, account for over 70% of the anti-anxiety drug market in countries for which there is information; we remark on this because we shall be using the Roche example in other contexts.

Profitability

This provides one of the clearest indications of an industry's market power, and certainly there is little doubt that the drug industry has been one of the most profitable manufacturing industries for a very long period in all areas of its operation. In the US, for instance, drug firms as a whole earned 21% on capital employed in 1966, as compared to less than 13% for all manufacturing. Moreover, it seems that the largest firms are significantly more profitable than small ones, and the industry as a whole has shown exceptional stability in its earning capacity over long periods. In India, medium and large drug firms recorded profits before tax on capital employed of over 20% in every year from 1965 to 1971, as compared to under 10% for medium and large firms as a whole; the drug industry was consistently the most profitable of 23 manufacturing and non-manufacturing sectors in this 6 year period, with one exception in 1970 - 71 when mineral oils exceeded it slightly. Roche earned on its leading tranquillisers over 70% (including transfer-pricing profits) on capital employed in the UK in 1966-72 on conservative estimates of the Monopolies Commission (1973), when its prices in England were among the lowest in the world; on this basis it may well have been earning 150-200% on its worldwide operations. In India, its *declared* profits came to over 65% of net worth and over 60% of net capital employed, well above the average for other drug companies.

Furthermore, the 33 *leading foreign-controlled drug firms in India were always more profitable than the 6 main local ones, and also more profitable than all other types of foreign-controlled enterprises* While transfer pricing problems reduce the reliability of these stated profitability figures, an adjustment for hidden remittances would only serve to *raise* profits, since this is the main industry which appears to use this channel for remission (we shall return to this below).

Price Differentials

The ability of market leaders to higher prices than other producers and to practice discriminatory pricing between different markets can also be used as an indicator of market power. Both sorts of differentials are notorious in the drug industry. Brand named drugs, mostly produced by large firms, tend to be much more expensive (up to 1000 per cent) than generic equivalents, and this situation persists, even if there is no patent protection, without affecting the large firms' market shares. Thus Roche's Librium has competitors in the UK and Italy which sell at 25-30% less without making headway in the market; in India small firms are able to supply equivalents at prices 90% lower. The same drug is sold at greatly differing prices in the same

country—thus Librium was sold in different US markets at price differentials reaching 243%—or between different countries—Roche's Valium cost twice as much in Australia and 6 times as much in Switzerland, as it did in the UK (before its price was cut to 25% its original level by the Monopolies Commission).

Product Differentiation and Marketing Expenditures

These can be taken both as indicators and sources of market power: in an industry with homogeneous products large firms would not be able to create positions of special privilege by differentiating their brands and promoting them by advertising. In the drug industry there is considerable product differentiation even among medicines with identical pharmacological properties. In the US, for instance, about 700 drugs are sold under some 35,000 names, a very similar situation obtains in all countries in which the international drug companies operate freely. Marketing expenditures are very high in the pharmaceutical industry, ranging in the US from three to four times its R and D expenditures and accounting for about one-third of the value of sales sometimes exceeding the cost of goods sold. The level of marketing costs are somewhat lower in the UK, but still high enough for the Sainsbury Committee (1967) to remark that firms had failed to measure up to the "appropriate responsibility". In 1967 the drug industry accounted for the largest single share 17% of advertising of the total of 27 US industries; its sales in the same year came to less than 5% of the total. While data on promotion expenditures are not available for most less-developed countries, some evidence on India, Argentina and Colombia shows that the pattern is very similar. The scale of marketing expenditures may be judged from the fact that these expenditures in the US alone exceed the total value of drug consumption in India by over 3 times.

On all counts, therefore, the drug industry emerges as one with a very high level of market power, concentrated in the few multinationals dominating it and preserved intact over a very long period in all areas of their operation. The evidence is, of course, far from complete and still only indicative: but there is little reason to doubt this general conclusion or to think that it would be repudiated by fresh findings.

Sources of Market Power

There are two main sources of market power in the pharmaceutical industry, technology and marketing. Other factors, such as access to a scarce resource, or economies of scale, which may contribute to market power in other industries, are of little or no significance in the drug industry, since most of the materials used are synthesised or relatively abundant, and economies of scale in production are practically absent.

TECHNOLOGY

We started by noting that this was a research-intensive industry. The leading firms are often, but not always, major innovators in terms of turning out a stream of marketable new drugs, though it is sometimes argued that very large research establishments are not as productive (in terms of innovations measured against R and D expenditures) as medium-sized ones. Be that as it may, the contribution to the market power of the large firms can be traced to three sources:

(a) R and D expenditures within the firms, which, as we pointed out, were very highly concentrated among the market leaders.

(b) Patents on products or processes, or both. The technology of production in the drug industry is not as in many other research-intensive industries, very difficult to copy, and once a new drug is produced it is quite easy to imitate. The role of patents is, therefore, of great importance in this industry, which is now perhaps the only major industry which depends on patent-generated monopoly to protect its innovations. Patents are a source of market power not only because they prevent rival producers from stealing innovation, but also because they can be used to monopolize imports and prevent local production in countries in which the firm concerned does not start production and because the high level costs of contesting patent infringements acts as a deterrent to smaller firms who might have a legitimate case.

(c) State support for research. It is not generally realized that government expenditure on 'basic' research concerned in the pharmaceuticals is very large, and in the US and UK exceeds total private R and D by 200-330 per cent. The results of this sort of research are generally provided for free or at very low cost to the drug firms for further development, thus giving the R and D leaders a subsidised input for profitable exploitation. While there may be some rationale for separating 'basic' research from market-orientated testing and development, it is not at all clear that the 'division of labour' as it *stands at present* is either natural or socially optional. On the contrary, it has arisen simply because in a private enterprise system the most profitable sections of research are kept within private firms and official institutions are not geared to producing finished drugs. We shall argue below that the little evidence that exists does not show that state-sponsored R and D is necessarily less efficient than private R and D. As matters stand, however, a part of state research does not contribute to the market power of the private firms.

Defenders of the drug industry often point to the riskiness and lengthy gestation period of its R and D activity to justify its high profitability. Certainly it must be admitted that many individual research projects are risky and a large proportion of them never achieve fruition; it must also be admitted that due to the state of scientific knowledge in the field as a whole the level of innovative activity has slowed down in the past decade. This does not, however, prove that a large and well-diversified research programme is very risky; in fact, the leading innovators seem to come up with a fair amount of successful results over long periods. Neither does it provide a justification for high profits, because both econometric

analysis and an examination of individual firms fail to show that risk is a significant factor in explaining profitability. Furthermore, the pharmaceutical industry appears to have a relatively short period between 'invention' and 'innovation' (i.e. product development) as compared to other industries, so that the justification for exceptionally high profits based on gestation periods is rather suspect.

MARKETING

The role of marketing in promoting the industry's market power can hardly be overemphasised; it may well be a more important source of such power than technology. There are three reasons why this is so:

(a) Separation of buyer and decision-maker. The fact that the actual decision about which drug to buy is made by the doctor and the expense is borne by the patient or a national / private health scheme means that there is no *direct* pressure on the former to 'economise' in the normal sense of the word. Most doctors do not in fact place much importance on prices, and it is up to the one who pays to attempt to find the best deal. A private patient, for obvious reasons, is hardly in a position to do anything substantive. National health systems do attempt to economise, but not with very great success, either because the political power of the drug manufacturers is too great or because doctors insist on prescribing by brand names. In developing countries with few health care systems, it is the patient who pays and the doctor who decides.

(b) Difference between brand and generic names. The fact that drugs can be sold under brand names means that it would pay firms to differentiate their products heavily and concentrate on trying to persuade doctors to prescribe their brands. This introduces a strong monopolistic element quite separate from that created by patents, and the fact that leading brands (such as Librium) have the same share of the market in a non-patent observing country like Italy as in other countries is an indication of its power.

(c) Lack of other sources of information. The speed of introduction of new products coupled with a deplorable lack of official provision of systematic information on their prices, uses and efficacy has made the medical profession totally dependent on the drug firms for information. This is a system obviously liable to use for profit maximising and not simply objective informing, and it is hardly surprising that doctors are inundated with glossy literature, free samples, gifts, banquets, visits from representatives and all the paraphernalia of high pressure marketing from a highly sophisticated industry. These are described in great detail in the US Senate hearings Klaas (1975) and Coleman (1975).

Furthermore, most doctors do not like to, or do not have the time to, read serious literature, and there are grave deficiencies in traditional methods of pharmacological training, so that the drug firms activity fills the gap in a powerful (and pleasant) manner, leaving little room for objective assessment of efficacy or cost on a wide scale, rational comparison of different drugs or an evaluation of the firms' claims. Recent investigations in the US and the UK show that hundreds of drugs commonly prescribed lack of evidence of effectiveness. While the US authorities attempt to regulate this, the UK government (and most LDC governments) do nothing to check the cause.

In developing countries the contribution of these practices to market power is *even greater* than in developed ones. Not only are doctors trained along the lines of developed countries (or in the developed countries) and so are used to the international brand names, there is also a strong prejudice in favour of foreign brand names, sometimes justifiably reinforced by the fear that some small local manufacturers adulterated drugs.

These are the sources of market power in the international drug industry. Let us now look at its effects.

Cost of Market Power

The costs inflicted on society by the exercise of market power in the drug industry can be grouped into direct financial costs and indirect costs. Though both categories of cost are relevant to both developed and developing countries, we can indicate where the latter may suffer relatively more than the former by virtue of their weaker bargaining and regulatory position.

DIRECT COSTS

There are three kinds of direct financial costs of the oligopolistic mode of operation of the drug MNCs:

(i) Excessive profits. It is now becoming more accepted in developed as well as developing countries, at least by those who are not open supporters of the industry, that profits in the drug industry are 'too-high' and that drugs are 'overpriced' with reference to a more competitive situation. The problem of the 'right' level of profits is, of course, impossible to resolve in any rigorous way. It involves assessing the 'proper reward' for risk-taking and such matters, but the recent crop of investigations in several countries into particular drug companies (especially Roche) reveals that many governments feel that the drug industry has been sheltering too long behind a profitable smoke-screen of high risk, uncertainty and social service. For less developed countries the question of profits is rather different: it does not revolve round the right reward needed to induce risk-taking, since drug innovation does not depend upon sales in the developing world, but around the question of how little they can pay in order to get the necessary technology. This will be discussed in the next part.

A problem intimately related to that of excessive profits is that of *transfer pricing*. The drug is highly integrated in terms of its international operations, and trade in intermediate chemicals between different units of MNCs is very common. Since the real 'technology' of drug production is embodied in the intermediate products, and since they are not openly available on world markets, their arm's length price is extremely difficult to determine. This, coupled with the ability of the firms to make exceptional profits, provides an ideal

channel for remitting profits clandestinely from countries with high effective tax rates (taking into account the tariffs on imported inputs), limitations on remittances, political and trade union pressures and policies for local equity participation. Most of the investigations of transfer pricing have used evidence from the pharmaceutical industry, where for instance Roche has been found to be overcharging for its imports in the UK by 4,000 - 4,500 per cent (and declaring only 12% of its true profits) and in Colombia by 5,000 - 6,000 per cent (and declaring a loss). Again, there are conceptual problems in defining what a correct arm's-length price *should* be, taking R and D costs into account, but the extent of overpricing (spread over 10 - 12 years for Librium and Valium) is such that no conceivable justification can plausibly be found.

While the evidence indicates that excessive profits and transfer pricing are applicable to developed and less developed countries, we may argue that the latter pay more heavily because the market power of the MNCs is greater, local competition is usually negligible, the costs accrue in scarce foreign exchange and the checks to transfer-pricing are less.

(ii) Misallocated R and D expenditures. The nature of pharmaceutical R and D aiming at producing patentable products, leads to a great deal of waste because a lot of research goes into 'molecule manipulation', imitative patenting and similar practices for a product differentiation. There are some real medicinal benefits to be gained from new compounds and dosages, which makes it difficult to separate the useful from the unnecessary research, but this does not invalidate the point that there is considerable social waste involved. We have also noted that patenting practices work in favour of the large firms against small ones, and also enable them to monopolist markets in less-developed countries without working the patents.

The major social cost of misallocated R and D accrues to the countries where research is undertaken, in the sense that the same amount of useful research could be produced in non-competing laboratories at a lower cost. The cost to the developing countries accrues directly in the form of high profits and indirectly in various forms discussed below.

(iii) Marketing costs. The direct costs of heavy marketing expenses are clear enough, it is not difficult to imagine an alternative system of information for doctors which cost far less, which also enabled the large firms to earn far smaller profits.

INDIRECT COSTS

There are several indirect (or less easily quantifiable) costs of the drug industry's operations:

(i) Suppression of small firms. A large element in the large drug firms advertising consists of warning doctors against prescribing the products of small firms. This form of denigration prevents small firms, usually quite unfairly, from expanding into markets where patents have expired, or compulsory licenses granted, despite far lower prices. In less-developed countries it can have the more pernicious effect of suppressing entrepreneurship as a whole in an important industry.

(ii) Misprescribing and overprescribing. A phenomenon which has recently started creating concern is that of overuse and misuse of drugs. Ivan Illich in his brilliant polemic *The Medical Nemesis* (1975) argues that medicines themselves have become one of the major causes of illness in modern times, a proposition amply supported by evidence given in recent US Senate hearings and documented in medical literature. It is now well known that billions of wasted dollars, hundreds of thousands of unnecessary hospitalisations for adverse drug reactions, and thousands of lives needlessly lost are the price society pays for the promotional excesses of the drug industry. According to the testimony of Dr. S. M. Wolfe, Director, Health Research Group, Washington DC, before the US Senate's Subcommittee on Health's Examination of the Pharmaceutical Industry 1973-74.*

While the drug firms 'promotional practices cannot be held solely to blame, they certainly contribute to the problem by using high-pressure tactics, playing down of adverse side effects (especially in unrecorded talks by representatives), offering material incentives for more prescribing and for based reporting on tests* and generally creating an impression of greater effectiveness for their wares than is justifiable. In developing countries this effect may be much worse because of fewer controls on advertising and much greater faith in 'foreign technology'.

(iii) Restrictive business practices. The transfer of technology in the drug industry is generally accompanied by a host of restrictive practices, ranging from export restrictions and tie-in clauses to pre-empting the results of local research, market sharing agreements with other MNCs, and 'kick backs' paid in foreign exchange to local dealers. We cannot go into these in any detail here, but the costs to developing countries do not need to be belaboured.

(iv) Inequalities in treatment. The high price of foreign drugs in less developed countries, couples with the lack of social health-care systems and the widespread incidence of illness, leads to a great concentration of the benefits of modern medicine at the top levels of the population. This unequal distribution is considerably exacerbated by the fact that institutional medical and hospital facilities (sometimes extremely modern) are located in the towns, while the mass of the people who live in the villages are almost toally deprived even of simple preventive and curative treatment. The resulting inequities in social health care may well be considerably higher than those shown by per capita income figures, and are certainly much more reprehensible. The drug MNCs are not

*"Some reputable journals, including for example the British Medical Journal, published reports written by advisers working full-time for a drug company. Many apparently independent authors have infact sold themselves to the industry and agreed to do research for rewards of one kind or another, whether that reward be a trip abroad, a piece of equipment, a few dinners, a series of published papers or simply money". Coleman, (1975).

responsible for this state of affairs, but their pricing and marketing policies do worsen the consequences of an initially undesirable situation.

(v) Effects on indigenous research. An important effect of the total dependence on foreign drug technology is that very little effective research into local problems and solutions is undertaken even in those developing countries, such as India, which have pharmacological departments at universities and some R and D facilities in local government and private drug firms. Rangarao (1975) notes for India that academic and industrial work on pharmaceuticals are quite divorced from each other, the curricula offer theoretical rather than practical training, the trainees usually become drug inspectors and salesmen rather than researchers, and the total volume of R and D is less than 1% of sales. Furthermore, in some cases where local private efforts are successful, the results states Rangarao, are picked up by the large industrial R and D establishments abroad and converted into technological realities to be imported to India after a few years. These are, of course, classical symptoms of technological dependence and are common to several industries and countries. In the drug industry, however, it should be noted that R and D conducted by government establishments in India has yielded some valuable new drugs, indicating that there is no necessary comparative disadvantage in doing R and D in developing areas, contrary to the expectations of those who defend the heavy concentration of R and D in developed countries on these grounds. If present trends in the international drug industry continue, however, it is very likely that most developing countries will never be able to develop their research potential at all.

(vi) Inadequate regulation. An unfortunate result of the relative laxity of official controls over drug selling in developing countries is that the MNCs are able in some cases to get away with far more potentially harmful *sales tactics* than in developed ones. The case of Chloromycetin, one of the most widely used antibiotics, today is instructive. Its manufacturer, the American multinational Parke-Davis, has had a running battle with the US authorities over undesirable side-effects of the drug, and has repeatedly been accused of negligence for failing to give adequate warnings and for overpromotion. It has paid out nearly a million dollars in damages on this count, yet it continues to promote and sell the drug heavily in the US as well as other countries. In the US, however, Parke-Davis is now required to warn against six conditions in which chloromycetin should not be used: and in several developing countries none at all. This information is taken from Raphael (1974 b.). It should be pointed out that the overuse of antibiotics generally is one of the major health hazards created by modern drugs (as mentioned above); in many developing countries antibiotics can be bought without a doctor's prescription, making the consequence of promotion even more dangerous. Thus the MNCs may well be content to leave the regulation of risky drugs to ill-informed authorities in developing countries while themselves being fully aware of the dangers inherent in selling their products.

A similar problem arises from the fact that a large number of drugs are *ineffective*, in the sense that they do not produce the benefits claimed for them. In the US, the food and Drug Authority has banned several hundred drugs as 'lacking evidence of effectiveness' yet a recent survey reveals that many of them, costing "at least several millions of pounds" are still on sale in Britain. This was discovered in a survey conducted by The Guardian and reported by Raphael (1974 a), who also noted the complaint by some Labour MPs that the only official body in the UK capable of evaluating drug effectiveness was disbanded in 1970 under pressure from the drug industry. There is now no comparable body in the UK with the power to evaluate the effectiveness of medicines. Most developing countries do not attempt to check on the real effectiveness of drugs sold by MNCs. The Indian authorities for instance, seem to be unaware of this problem, and so presumably pay heavily for extremely dubious contributions to their well being.

(vii) Other costs. There two other undesirable consequences of the drug MNCs' activities which may be mentioned briefly. First, the tightening of controls by developed countries' (particularly the US) authorities on *clinical testing* of new drugs has "forced most of them to move a large part of that function overseas.* Since these authorities undoubtedly have sound reasons for restricting clinical testing, the 'overseas' countries (which are notably developing ones) have to bear a disproportionate share of the risk of MNC innovation. Second, the promotion of drugs via the giving of free samples to doctors sometimes leads to these drugs being resold in the market for the doctors' financial benefit. In such cases, 'promotion' comes very close to profit-sharing with the doctor—at the patient's cost—and creates an undesirably close identity of interests between the MNCs and the medical profession. The social cost of this is not simply higher profits, higher prices and over prescribing, but also a powerful and entrenched elite group opposed to reforms of the present system.

To sum up the section on the costs of market power in the international drug industry, therefore, it seems clear that its present mode of operation involves heavy social costs in developed and less developed countries. These costs arise mainly from its oligopolistic structure based upon technological innovation and marketing, and are reflected not merely in financial waste (for society) but also in various indirect effects of considerable importance. The extension of this oligopolistic structure into developing economies raises most of the costs encountered in developed ones, and introduces several new ones which arise from the technologically dependent character of the former (if we may define dependence to include weakness of technical facilities to regulate the industry's practices).

(To be concluded)

Business Week, (1974), p. 67. For reports on how potentially harmful contraceptive devices were tested on poor (and often non-white) women in several LDCs by drug multinationals see various issues from 1972-1974 of the *American Journal of Obstetric Gynaecology*.