

Because of the segmented nature of demand, it is misleading to consider the market for pharmaceuticals as a single entity; the relevant market does not span the entire industry but, rather, is limited to individual therapeutic classifications.¹⁸ And it is within these therapeutic classifications that the rapid rate of product introduction has developed into vigorous product competition. New products have replaced older ones, and in this process the ranking of the leading firms in particular therapeutic markets has changed frequently. In only nine out of twenty such markets did the same firm persist as the leading firm between 1951 and 1960; and in most cases the same five firms did not retain completely the five leading positions.¹⁹ While past position tends to be an advantage in determining present market shares, it is not of crucial significance, and the measure of market control derived from a single product appears to be limited to a relatively short period of time.²⁰

NEW PRODUCTS OR NEW PROCESSES

Research laboratories in the pharmaceutical industry have been concerned largely with the introduction of new products rather than with the development of new processes²¹ for old products.²² Given the nature of competition, this is what we should expect. Where product rivalry is high and the effective life of individual products is correspondingly short, firms are unwilling to invest large amounts towards reducing production costs. By the time new techniques have been developed, it is quite likely that demand for the product concerned will have dropped to a relatively low level. Even with regard to products which have fairly long lives, moreover, or to processes used to produce many products, it is unlikely that a large research effort is undertaken in the direction of reducing production costs. To the extent that rivalry is based on price, the introduction of new processes will place the firm at a competitive advantage by enabling it to price below its rivals without reducing its profit margins. When, however, price behaviour is largely non-competitive, a reduction of costs will increase profit margins without immediately affecting the firm's position relative to those of its rivals. While this may enable the firm to undertake larger selling or research expenditures, or to raise funds more advantageously in the capital market, the competitive effect will not be immediate or direct.

The introduction of new products affects the competitive position of the firm in a quite different manner. To the extent that rivalry takes the form of competition between products which are priced at the same or similar levels, the number and character of new products which are introduced directly affect the demand for the firm's output. If the firm introduces new products which do the job "better", then its output and total profits may be higher even if the costs of the new products are greater than those of their predecessors and profit margins correspondingly reduced. The firm that falls behind in the race to intro-

¹⁸ Relatively high cross-elasticities of demand will be found when competing products treat the same or similar ailments or have similar therapeutic effects. Between therapeutic classifications, on the other hand, these elasticities will approach zero. While cases will remain in which a specific product is required to treat a certain condition, the gap in the chain of substitutes will appear at the boundaries of therapeutic classes. Although high cross-elasticities of supply will exist across these boundaries, we still find it appropriate for our purposes to define the relevant markets in terms of therapeutic classifications.

¹⁹ Data describing the market shares of the leading five firms within twenty therapeutic markets for the years 1951 and 1960 are presented in Arthur D. Little, Inc., *op. cit.*, pp. 11-30.

²⁰ This conclusion is corroborated by McKie who reports the following: "In all cases it is clear that the period of 'dominance' of any one product is short—four or five years at most—and that a firm which fails to bring out improvements or new substitutes will find its share of the market rapidly passing to others". James W. McKie, "An Economic Analysis of the Position of American Home Products Corporation in the Ethical Drug Industry", in United States Senate, *Administered Prices in the Drug Industry*, Hearings before the Subcommittee on Antitrust and Monopoly, 86th Congress, 2nd Session, 1960, Part 17, p. 9957. The latter document will be cited as *Administered Price Hearings*.

²¹ The distinction between products and processes cannot be based on characteristics of the good in question. Where intermediate products are concerned, a product for one firm may be a process for another. The distinction is actually relevant only within the firm. A product is a good which is offered for sale in the normal course of business. A process, on the other hand, is only infrequently offered for sale, and is used within the firm to facilitate production of other commodities.

²² This emphasis was sufficiently great for a survey of research budgets of pharmaceutical firms to allocate total outlays among four categories without providing one for new process research. The categories were: new products, product improvements, new applications, and basic research. See *Chemical and Engineering News*, March 17, 1958, p. 52.