

duction of products containing these drugs, drastic price competition in their sale, and, frequently, sizeable losses.

The situation was chaotic from the producers' point of view. With many firms manufacturing items of generic equivalence and selling them under generic labels, the only form which competition could take was in price. The major firms soon realized that shifting the basis of competition to some form other than price and reducing the extent of competitive rivalry were the keys to increased profitability. Thus each of the large firms turned its attention to the production of "specialties," i.e., differentiated and hopefully, exclusive items. The emphasis on specialties had two manifestations: the increased reliance on obtaining patents covering new drug discoveries, and a shift to the use of trade-names for the items, both old and new, in company catalogues. Both of these pursuits have been impressively successful. Few of the many drugs discovered and developed since 1950 have not been protected by patents awarded to private firms; and reliance on trade-names in prescribing drug products has become the rule rather than exception, particularly in the dominant private-prescription market, in which private physicians prescribe medicines for patients, to be purchased at drug stores.

As a consequence of the shift to specialties, the three dozen largest firms in the industry, which represent about five percent of the total number of firms but account for over 95 percent of all research activity and selling outlays, have come to dominate the industry. These few firms account for virtually all the significant research advances coming from within the industry; have acquired patents on the large majority of new drugs; and have successfully induced physicians to make product choices in trade-name terms. The growth of patents and of trade-name use have effectively changed the nature of competition in most of the industry's markets from frequent and substantial price competition to competition in product development and promotion and advertising. Price competition is quite a rare phenomenon in all but a few limited instances. Presently, only institutional purchasers—mainly hospitals and government agencies—employ generic designations to any substantial extent. "Specialties" have accomplished their primary purpose.

B. The industry's research effort

The high rates of new-product introduction and rapid obsolescence that characterize most drug markets give testimony to the size and effectiveness of the industry's research effort. Even in those cases where discoveries were made in universities (e.g., Salk vaccine) or government-sponsored research (e.g., penicillin), it usually has been the developmental work done by drug firms which made the product commercially available. This is not surprising. The drug industry is the most research-conscious of all non-defense industries, with more company-financed research and development in relation to sales than any other industry. In 1964, the all-industry totals for research and development expenditures as a percent of sales was 4.4 percent; for drugs and medicines, 4.7 percent. For company-financed research and development, moreover, the all-industry total was 1.9 percent, as compared to 4.5 percent for drugs and medicine.⁴ For the period 1956 to 1964, the average annual increase in research and development expenditures for the drugs and medicines industry was 13 percent, compared to an economy-wide increase of slightly less than 10 percent in total industry expenditures and between six and seven percent in total company-financed expenditures.⁵

Furthermore, while it is true that most research and development expenditures in the drug industry are for applied research and product development, the drug industry devotes a greater proportion of its research budget to basic research than does the economy as a whole or the industrial sector.

For the drug industry, then, research and development expenditures have shown marked increases in recent years, compare quite favorably with expenditures in other industries in relation to sales, and are devoted to basic research, not just product development. The research and development record of the drug industry is commendable.

⁴ National Science Foundation, *Basic Research, Applied Research, and Development in Industry, 1964*, Washington, D.C.: U.S. Government Printing Office, 1966, p. 62. There are several industries that have greater research and development expenditures relative to sales than the drug industry. These industries, however, are in scientific, military, and engineering fields and receive the bulk of their funds from the government.

⁵ *Ibid.*, p. 62.