

of social value.²⁰ It should be recognized, however, that these gains are on a very different scale from those related directly to significant advancements in medical science and to dramatic improvements in public health.

IV

During the investigations, the Kefauver Committee proposed a major revision in economic policy toward the drug industry. This proposal, however, was rejected by the parent Committee on the Judiciary and was not included in the 1962 Drug Act. The change would have instituted compulsory licensing at reasonable royalty rates three years after a patent had been granted. It is useful here to note the implications of this change in the light of the analysis presented above.

Although this proposal was intended to produce more competitive levels of prices and profits, the industry maintained that it would also lead to much reduced research expenditures. This position seems to be generally correct. The primary motive for large research efforts in this industry has been the drive to achieve effective product differentiation.²¹ With compulsory licensing, there would be a sharp decline in the extent of differentiation based currently on chemical differences among products.

Nevertheless, it is not at all certain that compulsory licensing would significantly lower the rate of introduction of the most important new products. The largest proportion of these come originally from non-industry laboratories. It is true that pharmaceutical companies would have less incentive to undertake projects of a long-term nature, such as many of those in basic research, because of the diminished prospect for large gains over a prolonged period of time. These firms account, however, for only a minor share of the work which currently is done, and they also appear to lack a comparative advantage in pursuing basic research in an extensive manner.

Even with compulsory licensing, research and development would still comprise an important element of industry behavior. There would still be gains from achieving product differentiation. New drugs that embody a large element of therapeutic improvement are also likely to provide a high degree of product differentiation. Having developed a differentiated product, not only would firms benefit substantially from a head start in promotion and selling, but also this advantage would last for the initial, prelicense period of patent protection, during which time monopoly gains could still be attained. In addition, patent royalties might become an important element of the rewards resulting from successful research.

Compulsory licensing appears on balance to be a useful and desirable policy to adopt. While the magnitude of research would decline, it does seem probable that projects of limited medical value and of lowest industry comparative advantage would be eliminated first. There are substantial social gains to be derived from industry research, but the marginal social productivity of research may well decline rapidly after a certain level has been reached. We should be wary of believing that much is to be gained from ever higher levels of research and development, and it is quite possible that the present effort may exceed that required to fulfill the major research functions and responsibilities of the industry. So long as the decline in research expenditures was not of overwhelming proportions, it may well be a small "price" to pay for a more competitive determination of pharmaceutical prices and profits.²²

²⁰ This is in contrast to the Soviet pharmaceutical industry. Bauer and Field state that "the testimony of the well-informed Soviet sources is that the separation of research from production tends to produce substantial delays in the availability of drugs to physician and patient" (Bauer and Field, *op. cit.*, p. 94). At the same time, however, excessively rapid process leads to new drugs that have not been adequately tested, and this charge has been laid on the doorsteps of the American pharmaceutical industry. This point was commented on by a medical educator who noted sharply: "There is no short cut from chemical laboratory to clinic, except one that passes too close to the morgue" (*Administered Price Hearings*, Part XVIII, p. 10418).

²¹ The role and function of product differentiation and its relation to research and development activities is discussed in William S. Comanor, "Research and Competitive Product Differentiation in the Pharmaceutical Industry in the United States," *Economica* (November, 1964), pp. 372-84.

²² Smaller research facilities may also lead to increased efficiency in pharmaceutical research and development. When research output is measured in terms of private rather than social gains, there appear to be substantial diseconomies of scale in research within the larger firms in this industry. See William S. Comanor, "Research and Technical Change in the Pharmaceutical Industry," *Review of Economics and Statistics* (May, 1965), pp. 182-90.