

APPENDIXES

APPENDIX I—CORRESPONDENCE BETWEEN MR. BENJAMIN GORDON AND DR. P. M. COSTELLO RE TECHNOLOGICAL PROGRESS IN THE PHARMACEUTICAL INDUSTRY

MARCH 6, 1968.

DR. P. M. COSTELLO,
Department of Economics, Smith College,
Northampton, Mass.

DEAR DR. COSTELLO: It is my understanding that you have done considerable research concerning technological progress in the pharmaceutical industry.

I should be very grateful if you would submit to our Monopoly Subcommittee a brief summary of your findings in this field. Your contribution on this aspect of the subject would be very useful in our study of this industry.

Your cooperation is appreciated.

Sincerely,

BENJAMIN GORDON,
Staff Economist.

SMITH COLLEGE,
Northampton, Mass., March 13, 1968.

MR. BENJAMIN GORDON,
Staff Economist, Select Committee on Small Business,
U.S. Senate, Washington, D.C.

DEAR MR. GORDON: In reply to your letter of the 6th, I am enclosing a paper which examines the pace of technological progress in the ethical drug industry. This study was developed from research for my doctoral dissertation which considered the narrower question of patents in the antibiotic segment of the industry.

Sincerely,

P. M. COSTELLO.

TECHNOLOGICAL PROGRESS IN THE ETHICAL DRUG INDUSTRY*

(By P. M. Costello, Assistant Professor of Economics, Smith College,
Northampton, Mass.)

One critical test of an industry's market performance is its rate of technological progress. For the ethical drug industry this dimension of performance is of added significance in view of the increasing role played by drugs in the management of human diseases. This paper examines a sample of 528 new drugs innovated between 1945 and 1965. The first section presents estimates, based upon medical evaluation and opinion, of the proportion of these innovations that represent significant advancement in the art of chemotherapy. The second section considers the problems of constructing an adequate criterion to judge the pace of advancement from the antibiotic segment of the industry.

I. THE RECORD OF TECHNOLOGICAL PROGRESS

The sample of new drugs introduced to the market between 1945 and 1965 was compiled mainly from the American Medical Association's New and Nonofficial Drugs. In general the drugs selected for analysis were new chemical structures excluding combinations of old drugs and new dosage forms. The exclusion of the latter two categories was founded on the assumed lower order of scientific ability required to produce such products. But even within the category of new chemical structures major differences in the effectiveness of these drugs were immediately apparent.

*An earlier draft of this article received valuable comment from Professors Joel B. Dirlam and Robert Britt.