

"... the very fact that the timing, phasing, and likely duration of a disarmament program would be known well in advance to policy makers places the whole problem of providing for adequate demand offsets on a considerably more certain and favorable basis than is normally available for the development of counter-cyclical policy."

In connection with the problem of structural adjustment the report is equally realistic:²⁰

"Actually the economy is constantly experiencing structural changes as a result of technological developments, the introduction of new products and services, population developments, and other factors."

Apparently this is also the view of Gardner Ackley, Chairman of the Cabinet-level Committee on the Economic Impact of Defense and Disarmament. In testimony before the Senate Commerce Committee on June 22, 1964, Dr. Ackley said,²¹

"Some people misunderstood and exaggerate the potential impact of changes in defense spending, whether major or minor, and—particularly—underestimate our ability to deal with them."

THE SPECIAL PROBLEM OF RESEARCH AND DEVELOPMENT

About 15 per cent of our defense outlays are for research and development (R & D), and more than half of R & D expenditures (including AEC military outlays but excluding NASA work) is financed by defense agencies. This is a novel and potentially disturbing aspect of the present defense program, since not only would a significant slide-off in defense outlays curtail employment of highly skilled manpower but also a sizeable cutback could deprive the civilian economy of the external economics flowing to it from military research with peacetime applications.²²

Based on the relative importance of governmental R & D expenditures, Dr. Richard Nelson has estimated that the percentage drop in R & D outlays would be about half as great as any drop in military expenditures. He has estimated further that "while a 50 per cent decline in defense spending would lead to a 23 per cent cutback in R & D spending, it would lead to only a 12 per cent cutback in employment of scientists and engineers," since the defense R & D dollar hires a lesser number of R & D scientists and engineers than the nondefense R & D dollar, the difference being accounted for by a heavier materials outlay in military research.²³

As an additional optimistic note, Dr. Nelson has called attention to the fact that the impact of disarmament is likely to be considerably less on basic research (carried on outside government) than on applied R & D and that "the freeing of R & D resources would be one of the most important economic benefits of disarmament."²⁴ This latter point reflects Dr. Nelson's belief that

"a significant increase in R & D resources could be used in the civilian sector, with large benefit to society. . . . The civilian economy would benefit especially from increased long-range research and experimentation with advanced technological possibilities of the sort that the research teams presently employed by defense industries have conducted so successfully."

In this connection a 1963 University of Denver Research Institute study on the value of space-related technology to the civilian economy showed that intangible spin-off (the transfer of technical information) is far more important than tangible spin-off (the transfer of products, processes, or materials).²⁵

This same optimism is sounded by Dr. Charles T. Stewart, Jr. of George Washington University who declares that "reduced spending for defense should release resources and income to satisfy a great number of nondefense wants, both private and public."²⁶ He also makes the significant point regarding transferability of scientists and engineers from defense to civilian production that they are younger, better educated, more mobile, and, therefore, more adaptable to job conversion than are workers in other industries. However, as is mentioned

²⁰ *Ibid.*, p. 11.

²¹ *Washington Post*, June 23, 1964, p. D-6.

²² Richard R. Nelson, "The Impact of Arms Reduction on Research and Development," *American Economic Review*, Proceedings, May 1963, p. 435.

²³ *Ibid.*, p. 439.

²⁴ *Ibid.*, p. 446.

²⁵ J. G. Welles and R. H. Waterman, Jr., "Space Technology: Pay-Off from Spin-Off," *Harvard Business Review*, July-August 1964, p. 106.

²⁶ Stewart, *op. cit.*, p. 67.