V

PRODUCTIVITY ADVANCE: A CASE OF SUPPLY AND DEMAND?

In Chapter III we asked whether men are led to invent by the intellectual events which make their inventions possible. We found that this is usually not the case. In this chapter we consider the belief that the characteristic ultimate decline in the number of inventions in a field reflects the exhaustion of the field's technical possibilities. This idea, which apparently owes its origin to Julius Wolf,[1] provides the keystone of a recent work by W. E. G. Salter, who explains differential rates of growth of different industries thus:

> An industry may be born around some new scientific principle. . . . Subsequently, there is a great potential for improvements around the same basic principle. A new specialized technology arises and, for a period at least, brings forth a continuous flow of significant improvements and modifications. . . . At any one time, some industries are in this stage of rapid improvement, while others, more mature, find significant advances less frequent and less rewarding.[2]

Simon Kuznets, who advanced substantially the same explanation for retardation in the rate of industrial growth thirty years earlier, was more explicit on the nature of the exhaustion of the inventive potential:

> The stimulus for technical changes in other processes of the industry is thus present from the moment the first major invention is introduced. . . .
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> While the stimulus for further inventions appears early, the number of operations to be improved is limited and gradually becomes exhausted.

[1] See his *Die Volkswirtschaft der Gegenwart u. Zukunft* (Leipzig, 1912), pp. 236–237, cited by Simon Kuznets, *Secular Movements in Production and Prices* (Boston: Houghton Mifflin Co., 1930), p. 11.

[2] W. E. G. Salter, *Productivity and Technical Change* (Cambridge: Cambridge University Press, 1960), pp. 133–134.