

This Week's Citation Classic®

Rosenberg N. *Technology and American economic growth*. New York: Harper and Row, 1972. 211 p. (Republished by Sharpe. Armonk, NY. 211 p.) [Department of Economics. Stanford University. CA]

This book provides an exploration of the relationship between technological change and the long-term economic growth of the American economy. It offers a conceptual framework and the basic historical facts for understanding how technology has transformed the organization of economic life and raised the standard of living of a growing population. [The SSCI® and the SCI® indicate that this book has been cited in more than 240 publications.]

Introducing Technology into American History

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Technological change had long been subjected to a peculiar treatment—or perhaps more accurately to a peculiar neglect—by the economics profession. Until the 1950s the contribution of technological change to long-term economic growth had been almost totally ignored by orthodox economists. In the 1950s a number of economists—Jacob Schmookler, Moses Abramovitz, and Robert Solow, in particular—attempted to provide a quantitative answer to a fundamental question: How much of the long-term economic growth of the American economy could be attributed to (1) the use of more resources, or (2) generating more output from a given quantity of resources? In spite of significant differences in methodology and coverage, these studies pointed forcefully to the conclusion that economic growth has been overwhelmingly attributable to the ability to extract more and more output from each unit of resource. This conclusion suggested that improvements in technology were the most likely factors accounting for the growth in the productivity of resource use; they were the Prince of Denmark, without which *Hamlet* would be an exceedingly unsatisfying play.

My book, *Technology and American Economic Growth*, had its specific origins in annual meetings of so-called New Economic

Historians, or "cliometricians" as they were, and still are, fond of calling themselves. Cliometrics originated with a group of young scholars in the late 1950s and 1960s who were determined to apply the more rigorous techniques of economic analysis and econometrics to the study of American economic history.

For a number of years in the 1960s this group held its annual meetings in late January at Purdue University in West Lafayette, Indiana, where I was a professor of economics. One outcome of these meetings was a collective decision to rewrite the story of American economic growth armed with the specific methodology and insights of modern economics. The result was *American Economic Growth*.¹ History should record that this book owed more than a little to midwestern storms that, on several occasions, left a number of my coauthors stranded in my house on the banks of the Wabash for days after the formal meetings had ended!

The subtitle of that book was significant: *An Economist's History of the United States*. I contributed the chapter on technological change. In doing so, it soon became clear that the subject was entitled to more lengthy treatment because, surprising as it may seem, up to that time very little had been written specifically from the economist's perspective on the role played by technology in American history. The result was *Technology and American Economic Growth*.

But technological change also turned out to be a rather intractable phenomenon from the economist's point of view. It is, for one thing, not a single phenomenon, but many. This is why economists continue to have so much difficulty modeling it. Technological change has a number of dimensions, and it takes different forms in different industries. Consequently, *Technology and American Economic Growth* has turned out to be the starting point, rather than the terminus, in my treatment of the subject. Since its publication I have continued to explore the subject, in a variety of different contexts, in three books.^{2,3,4} A fourth book, also with Cambridge University Press, will appear in autumn 1993.

1. Davis L. Easterlin R & Parker W, eds. *American economic growth: an economist's history of the United States*. New York: Harper and Row, 1972.

2. Rosenberg N. *Perspectives on technology*. Cambridge, England: Cambridge University Press, 1976. (Republished by Sharpe. Armonk, NY.) (Cited 240 times.)

3. *Inside the black box*. Cambridge, England: Cambridge University Press, 1982. (Cited 265 times.)

4. Rosenberg N & Mowery D. *Technology and the pursuit of economic growth*. Cambridge, England: Cambridge University Press, 1989.

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