

Volumes of Evidence:

Examining Technical Change Last Century Through a New Lens

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Abstract

Although technical change is central in much of modern economics, traditional measures of it are, for a number of reasons, flawed. We present in this paper new indicators based on data drawn from the MARC records of the Library of Congress on the number of new technology titles in various fields published in the United States over the course of the last century. These indicators, we argue, overcome many of the shortcomings associated with patents, research and development expenditures, innovation counts, and productivity figures. We find, among other things, the following: the pattern and nature of technical change described by our indicators is, on the whole, consistent with that of other measures; they represent innovation not diffusion; a strong causal relationship between our indicators and changes in TFP and output per capita; innovations in some sub-groups have had a greater impact on output and productivity than others and, moreover, the key players have changed over time. Our indicators can be used to shed light on number of important issues including the empirical relationship between technology shocks and employment, the role of technology in cross-country productivity differences, and the part played by technological change in growing skills premia in the U.S. during the last few decades.

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