

New Technology Indicator for Technological Progress

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Paper Abstract: Economists rely on the multifactor productivity (MFP) to measure technological progress. Empirical studies, however, show no straightforward link between MFP and technical changes, and MFP measurement is a point estimate without robustness. As countries start capitalizing R&D, the latest U.S. study shows that the resulting change of the MFP growth may cause more puzzles than reflect the true nature of technological progress. This paper proposes a new technology indicator, R&D depreciation rate. Based on data for four high-tech industries over five countries, the new indicator shows promising results. The country ranking by the new indicator is consistent with Forbes' global ranking. In the U.S.-Japan comparison, static MFP and the new indicator have the same industry comparison results. Moreover, unlike MFP, the time-varying new indicator tells a consistent story with the historic U.S.-Japan industry studies. Lastly, the new indicator is easier to calculate and requires much less data for cross-country comparisons.