

# **CAPITAL USE INTENSITY AND PRODUCTIVITY BIASES**

by

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## **ABSTRACT**

Measures of productivity growth are often pro-cyclical. This study focuses on measurement errors in capital inputs, associated with unobserved variations in capital utilization rates, as an explanation for the existence of pro-cyclical patterns in measures of agricultural productivity. Recently constructed national and state-specific indexes of inputs, outputs, and productivity in U.S. agriculture for 1949-2002 are used to estimate production functions in growth rate form that include proxy variables for changes in the utilization of durable inputs. The proxy variables include an index of farmers' terms of trade and an index of local seasonal growing conditions. We find that utilization responses by farmers are significant and bias measures of productivity growth in a pro-cyclical pattern. We quantify the bias, adjust the measures of productivity for the estimated utilization responses, and compare the adjusted and conventional measures.