

Exogeneity in the Solow Growth Model: A Macroeconomic Analysis of Variables Determining
Agricultural Technological Progress

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Abstract

The Solow neoclassical growth model identifies technological progress as a condition for increased productivity and considers it to be exogenously determined (Makiw, 2013). This study identifies the determinants of technological progress that are necessary for economic growth, with agricultural output as the dependent variable. The study observed developed and developing countries over a fourteen year period from 1997-2014. This model is characterized by its panel data. Estimating the robust Hausman indicated that the fixed effects model was the appropriate specification for this study. For developing countries, the five statistically significant variables were: Gross National Income per capita, arable land, permanent crop land, gender and year. The macroeconomic analysis expands the current literature which is largely limited to micro-level studies.