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William R. Hauk Jr.

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Endogeneity Bias and Growth Regressions

William R. Hauk, Jr.*

University of South Carolina

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Abstract

The problem of regressor endogeneity stemming from reverse causality is one that has plagued economists working in the field of empirical economic growth for some time. This paper attempts to address the relevant magnitude of this issue in the context of growth regressions based on the Solow growth model. The paper develops a method of running Monte Carlo simulations that allows us to generate simulated data that match the moments of observed real-world data typically used in such regressions while simultaneously allowing us to impose arbitrarily high correlations between the steady-state determinants of the Solow model and the unobserved residual term of the data-generating process. After running simulations that represent a wide sample of the mathematically-possible correlations, we conclude that a between estimator or a random effects estimator will deliver a lower average absolute bias across all coefficients than alternative estimators in almost all of our simulations. Conversely, estimators that use within-country variation will generate lower biases when looking solely at rates of convergence. Furthermore, we conclude that these results are robust when restricting our sample of simulations to several subsets of the assumed parameters and to changing our assumptions about country fixed-effects terms.

JEL Classifications: O4, O47, C23

Keywords: Solow growth model, panel data, endogeneity bias, Monte Carlo simulation

*Department of Economics, Moore School of Business, 1014 Greene St., Columbia, SC 29208, USA. Email: hauk@moore.sc.edu. Phone: +1-803-777-6044. The author thanks Daniel Henderson, John McDermott, and Romain Wacziarg for many helpful comments, as well as seminar participants at the University of South Carolina, Wake Forest University and the Southern Economic Association annual meetings. A comment by an anonymous referee from another paper helped to inspire this line of research. All errors are the author's.

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