A Statistical Approach to Empirical Macroeconomic Modeling with Practical Applications

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(ABSTRACT)

Most of empirical modeling involves the use of Ordinary Least Squares regression where the residuals are assumed normal, independent, and identically distributed. In finite samples, these assumptions becomes critical for accurate estimations, however, in macroeconomics in particular, these assumptions are rarely tested. This study addresses the applications of statistical testing methods and model respecification within the context of applied macroeconomics.

The first application is a statistical comparison of Gregory Mankiw, David Romer and David Weil's *A Contribution to the Empirics of Economic Growth*, and Nazrul Islam's *Growth Empirics: A Panel Data Approach*. This analysis shows that the models in both papers are statistically misspecified. When respecified, the functional forms of Mankiw, Romer, and Weil's models change considerably whereas Islam's retain the theoretical structure. The second application is a study of the impact of inflation on investment and growth. After instrumenting for inflation with a set of political variables, I find that between approximately 1% and 9% inflation, there is a positive correlation between inflation and investment--the Mundell-Tobin effect may be a valid explanation. I further this analysis to show that treating investment as an exogenous variable may be problematic in empirical growth models.

Dedication

I would like to dedicate this dissertation to my mother, Ann, my wife, Catherine, my daughter, Ashley, and the rest of my family and friends. Their steadfast support throughout my 'mood swings' during the completion of my Ph.D. created an atmosphere of caring that kept me going when times got hard, and made me feel like I could do anything that was thrown my way. I could not have done this without you. Thank you, and I love you all for everything you have done for me.

Sincerely,

Jeff

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