

Book Review

Application of Econometrics in Economics

Dante A. Urbina

University of Lima.

© The Author, 2018. This article is published with open access at Sumy State University.

Bhowmik, D. (2017). *Applications of Econometrics in Economics*. New Delhi: Synergy Books, 332 pages, 1695 rupees, ISBN 978-93-82059-49-3.

According to Karl Popper, one of 20th century's greatest philosophers of science, "theories are nets cast to catch what we call 'the world': to rationalize, to explain, and to master it". And that is right. Scientists and researchers seek to catch reality by mean of theories. In the case of economics, we seek to catch "economic reality". We have economic theories. In fact, there are several approaches within economic theory (neoclassical economics, behavioral economics, institutionalism, post-Keynesianism, etc.). But we need specific tools and methods in order to evaluate in a rigorous way the connection between our theories and economic reality. In that context, econometrics become a very important aspect of research in economics.

So, in the book *Applications of Econometrics in Economics*, which is a compilation of Debesh Bhowmik's papers, we can find several demonstrations of this in practice since Dr. Bhowmik shows how econometrics can be used in several ways to perform interesting and relevant research with respect to different aspects of economic reality (namely, growth, inflation, employment, productivity, crisis, international trade, globalization, financial integration, poverty, inequality, etc.). In that vein, he writes: "Nowadays, quantitative economics plays an important role in theory and in practice where econometric models and their applications in the economic analysis have acquired both the educational values and policy prescriptions" (p. xvii).

Basically, the econometric applications in the book are focused on time series analysis. For example, in the paper "Causes behind the euro crisis", Bhowmik uses ARIMA and GARCH models and he find that "nominal euro/dollar exchange rate is stationary, convergent and volatile during 1999Q1-2015Q2" (p. 1). In addition, there are several papers which use cointegration analysis like "An analysis of convergence and cointegration of sectoral shares and growth in India", "Cointegration between world trade, gold and SDR" and "Convergence and cointegration of credit deposit ratio and Indian economic growth". Relevant tests as the Granger causality test are also applied and interesting results are obtained. For instance, in the paper "Economic growth, foreign direct investment and financial crisis" it is found that "FDI does not cause Granger financial crises but financial crises do cause Granger FDI" (p. 57). The book also includes applications of VAR models, which have the important advantage that they allow to avoid endogeneity problems given that in this kind of models all the variables are considered as endogenous. Thus, in the paper "Cointegration and VAR analysis in Indian growth-unemployment-inflation linkages" it is concluded that "the policy makers should choose either inflation or unemployment as the target variable to achieve specified growth rate and formulate other macroeconomic policies" (p. 191). We can also find applications of the specific variant known as vector error correction model (VECM). For example, in the paper "Is there any relation between gold price and inflation in India" one of the main results is that "the estimated VECM states that the first difference gold price is significantly related with the change of inflation rate (percentage change in CPI) and the change of WPI [wholesale price index] of the previous periods and even related with the change of gold price of the previous period significantly" (p. 231).

However, it must also be said that the book has limitations. As was mentioned previously, it has several applications of time series analysis. But there are no detailed applications of data panel analysis (in general this is only mentioned in the section "Literature review" of some papers). So, I am very much of the opinion that it would be valuable to include that in a next edition of the book because data panel methods (random effects models, fixed effects models, Arellano-Bond estimators, panel cointegration analysis, etc.) are very important in applied research.

By other hand, Bhowmik's discussions also include valuable comments about the conditions for a rigorous application of econometric tools. For example, in the paper "Poverty, inequality and globalization with special reference to India", he says: "India's database is very poor in comparison to other developed nations. The collection, compilation and interpretation data through NSS should be more scientific and modernized. More

emphasis must be given in collecting time series data in poverty, inequality and globalization so that policy prescription through measuring modern tools can be applied in the framework of planning” (p. 278).

Thus, it is clear that Dr. Bhowmik’s book is of considerable importance for applied econometricians because it addresses very diverse topics using different econometric tools with great mastery. Of course, like any econometric analysis and result, what is presented in this book is debatable because it depends on numerous methodological and procedural choices. But this is something that affects every work of applied econometrics. The point is that, if we have the data (which would be our quantitative connection with reality), we can validly discuss different methodological approximations in order to “catch” economic reality in quantitative models with relevant qualitative meaning. In that context, the book explains in detail how data is processed and this allows the discussion. And from discussion comes out the light. So, this book will help to illuminate our path to a better and deeper understanding of economic reality.