Cointegration, error correction representation and the import demand function with implications in International Finance and Accounting Research

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Augustine C. Arize Ph.D.[1] & Gordian Ndubizu Ph.D.[2]

Abstract

This paper uses the relatively new procedures of cointegration and error-correction modeling to examine the import demand function of three developing economies. The empirical results suggest that the error-correction model performs well and that the poor results of previous studies are attributable to the inappropriate use of the Cochrane-Orcutt procedure and the complete absence of diagnostic testing, especially with respect to parameters stability, autocorrelation, and variable omission.

References

Arize, A., "An Econometric Investigation of Export Behavior in Seven Asian Developing Countries."*Applied Economics*, 891–904, (July 1990).

Arize, A., “An Econometric Investigation of Money Demand Behavior in Four Asian Developing Economies.”*International Economic Journal*, 79–93, (Winter 1989).

Arize, A., “The Supply and Demand for Imports and Exports in a Simultaneous Model.”*Applied Economics*, 1233–1247, (September 1987a).

Arize, A., “Past Inflation Variability and the Stability of Demand for Money Function: The Nigerian Experience.”*Atlantic Economic Journal*, 31–41, (March 1987b).

Bahmani-Oskooee, M., “On the Effect of Effective Exchange Rates on Trade Flows.”*Indian Journal of Economics*, 57–67, (July 1984).

Bahmani-Oskooee, M., “Determinants of International Trade Flows: The Case of Developing Countries.”*Journal of Development Economics*, 107–123, (January-February 1986).

Barnhart, SW, and A.C. Szakmary, “Testing the Unbiased Forward Rate Hypothesis: Evidence on Unit Roots, Cointegration, and Stochastic Coefficients.”*Journal of Financial and Quantitative Analysis*, 245–267, (June 1991).

Briguglio, Lino, “The Impact of a Devaluation of the Maltese Trade Balance with Special Reference to the Price and Income Reversal Effects.”*Applied Economics*, 325–337, (March 1989).

Brown, R. L., J. Durbin, and J. M. Evans, “Techniques for Testing the Constancy of Regression Relationships over Time.”*Journal of the Royal Statistical Society*, Series B, 27(2), 149–163 (1975).

Google Scholar

Brown, S., and J.B. Warner, “Measuring Security Price Performance.”*Journal of Financial Economics*, 205–258, (September 1980).

Brown, S., and J.B. Warner, “Using Daily Stock Returns: The Case of Event Studies.”*Journal of Financial Economics*, 3–31, (March 1985).

Crockett, A.D., “Determinants of Exchange Rate Movements: A Review.”*Finance and Development* 18, 33–37, (March 1981).

Google Scholar

Davidson, J.E.H., David Hendry, Frank Srba, and Stephen Yeo, “Economic Modeling of the Aggregate Time Series' Relationship between Consumer Expenditure and Income in the United Kingdom.”*The Economic Journal* (London), 80, (1978).

Dickey, D.A., and W.A. Fuller, “Distribution of Estimator for Autoregressive Time Series with a Unit Root.”*Journal of American Statistical Association*, 427–431, (June 1979).

Dickey, D.A., and W.A. Fuller, “Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root.”*Econometrica* 49, 1057–1072, (July 1981).

Google Scholar

Dolado, J.J., T. Jenkins, and S. Sosvilla-Rivero, “Cointegration and Unit Roots.”*Journal of Economic Surveys* 4(3), 249–273 (1990).

Google Scholar

Dyckman, T., T. Philbrock, and J. Stephan, “A Comparison of Event Study Methodologies Using Daily Stock Returns: A Simulation Approach.”*Journal of*

Accounting Research, 1–30, (Supplement 1984).

Easton, P., T.S. Harris, and J.A. Ohilson, “Accounting Earnings Can Explain Most of Security Returns: The Case of Long Event Windows.” Working paper*Columbia University*, New York, NY 10027 (October 1989).

Google Scholar

Engle, Robert F., “Autoregressive Conditional Heteroscedasticity with Estimates of the Variance of the United Kingdom Inflation.”*Econometrica*, 982–1007, (June 1982).

Engle, Robert F., and C.W.J. Granger, “Cointegration and Error Correction: Representation, Estimation and Testing.”*Econometrica* 55, 251–276, (1987).

Google Scholar

Engle, Robert F. , and Byung Sam Yoo, “Cointegrated Economic Time Series: A Survey with New Results.” University of California, Discussion paper (October 1989).

Farley, J.Y, M.J. Hinich, and T.W. McGuire, “Some Comparisons of Tests for a Shift in the Slope of a Multivariate Linear Time Series Model.”*Journal of Econometrics*, 297–318, (August 1975).

Fuller, W.A.,*Introduction to Statistical Time Series*. New York: John Wiley and Sons, (1976).

Google Scholar

Ghartey, Edward, “Devaluation as a Balance of Payments Corrective Measure in Developing Countries: A Study Relating to Ghana.”*Applied Economics*, 937–947, (July 1987).

Godfrey, L.G., “Testing Against General Autoregressive and Moving Average Error Models When the Regressors Include Lagged Dependent Variables.”*Econometrica*, 1293–1302, (November 1978).

Goldstein, M., and M.S. Khan, “Large Versus Small Price Changes and the Demand for Imports.”*IMF Staff Papers* 23, 200–225, (March 1976).

Google Scholar

Gordon, Robert J., “The Short-Run Demand for Money: A Reconsideration.”*Journal of Money, Credit and Banking* 16, 403–434, (November 1984, Part 1).

Google Scholar

Granger, C.W.J., and P. Newbold, “Spurious Regressions in Econometrics.”*Journal of Econometrics*, 111–120, (July 1974).

Hendry, D.F., “Econometric Modelling with Cointegrated Variables: An Overview.”*Oxford Bulletin of Economics and Statistics* 48, 201–212, (August 1986).

Google Scholar

Hendry, D.F., “Predictive Failure and Econometric Modelling in Macro-Economics: The Transactions Demand for Money.” In P. Ormerod (ed.),*Modelling the Macro-Economy*, London: Heinemann, 217–242, (1980).

Google Scholar

Hendry, D.F., A.R. Pagan, and J.D. Sargan, “Dynamic Specification.” In Z. Griliches and M. Intriligator (eds.),*Handbook of Econometrics* 2, North Holland Publishing Co., 1023–1100, (1984).

Hendry, David F., and Grayham F. Mizon, “Serial Correlation as a Convenient Simplification, Not a Nuisance: A Comment on a Study of the Demand for Money by the Bank of England.”*The Economic Journal* 88, 549–563, (September 1978).

Google Scholar

Jain, P., “Analyses of the Distribution of Security Market Model Prediction Errors for Daily Returns Data.”*Journal of Accounting Research* 24, 76–96, (Spring 1986).

Google Scholar

Jarque, Carlos M., and Anil K. Bera, “Efficient Tests for Normality, Homoscedasticity and Serial Independence of Regression Residuals.”*Economics Letters* 6, 255–259, 1980.

Google Scholar

Jenkinson, T.J., “Testing Neo-Classical Theories of Labor Demand: An Application of Cointegration Techniques.”*Oxford Bulletin of Economics and Statistics* 48, 241–251, (August 1986).

Google Scholar

Johnston, J.,*Econometric Methods*, Third Edition. New York: McGraw Hill, 1984.

Google Scholar

Kubursi, A.A., “The Import Structure of Lebanon: A Quantitative Analysis.”*The Journal of Developing Areas*, 87–98, (October 1974).

Lev, B., “On the Usefulness of Earnings: Lessons and Directions from Two Decades of Empirical Research.”*Journal of Accounting Research* (Supplement 1989).

Madalla, G.S.,*Introduction to Econometrics*. New York: MacMillan Publishing Company, (1988).

Google Scholar

Melo, Oscar, and M.G. Vogt, “Determinants of the Demand for Imports of Venezuela.”*Journal of Development Economics*, 351–358, (April 1984).

Nelson, C.R., and C.I. Plosser, “Trends and Random Walks in Macroeconomic Time Series: Some Evidence and Implications.”*Journal of Monetary Economics*, 139–162, (September 1982).

Newey, W.K., and K.D. West, “A Simple, Positive Definite, Heteroskedasticity and Autocorrelations Consistent Covariance Matrix.”*Econometrica* 55, 703–708, (1987).

Google Scholar

Perron, Pierre, “Trends and Random Walks in Macroeconomic Time Series: Further Evidence from a New Approach.”*Journal of Economic Dynamics and Control* 12, 297–332, (1988).

Google Scholar

Phillips, P.C.B., “Understanding Spurious Regressions in Econometrics.”*Journal of Econometrics*, 311–340, (December 1986).

Phillips, P.C.B., “Time Series Regression with a Unit Root.”*Econometrica* 55, 277–301, (March 1987).

Google Scholar

Phillips, P.C.B., and P. Perron, “Testing for a Unit Root in Times Series Regression.”*Biometrika* 75, 335–346, (June 1988).

Google Scholar

Ramsey, J.B., “Tests for Specification Errors in Classical Linear Least Squares Regression Analysis.”*Journal of the Royal Statistical Society* B 31, 351–371 (1969).

Google Scholar

Said, S.E., and D.A. Dickey, “Testing for Unit Roots in Autoregressive Moving Average Model of Unknown Order.”*Biometrika*, 599–607, (December 1984).

Sargan, J.D., and A. Bhargava, “Testing Residuals from Least Squares Regression for Being Generated by the Gaussian Random Walk.”*Econometrica* 51, 153–174, (1983).

Google Scholar

Sargan, J.D., “Wages and Prices in the United Kingdom: A Study in Econometric Methodology.” In P. Hart, G. Mills, and J. Whittaker (eds.)*Economic Analysis for National Economic Planning*. London: Butterworths, (1964).

Google Scholar

Sarmad, Khwaja, “The Determinants of Import Demand in Pakistan,”*World Development* 17, 1619–1625, (October 1989).

Google Scholar

Schwert, G.W., “Effects of Model Specification on Tests for Unit Roots in Macroeconomic Data.”*Journal of Monetary Economics* 20, 73–103, (July 1987).

Google Scholar

Stock, J.H., “Asymptotic Properties of a Least Squares Estimator of Cointegrating

Vectors."*Econometrika* 55, 1035–1056, (1987).

Google Scholar

Tegene, A., "On the Effects of Relative Prices and Effective Exchange Rates on Trade Flows of LDCs."*Applied Economics* 21, 1447–1463, (November 1989).

Google Scholar

Thursby, Jerry, and Marie Thursby, "How Reliable Are Simple Single Equation Specifications of Import Demand."*Review of Economics and Statistics*, 120–128, (February 1984).

Wallis, K.F.,*Models of the UK Economy No. 3: A Third Review by the EXRC Macroeconomic Modelling Bureau* (edited). New York: Oxford University Press, (1986).

Google Scholar

Warner, Dennis, and Mordechai Kreinin, "Determinants of International Trade Flows."*Review of Economics and Statistics* 65, 96–104, (February 1983).

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Author information

Authors and Affiliations

Department of General Business, College of Business and Technology, East Texas State University, ET Station, 75429, Commerce, TX

Augustine C. Arize Ph.D.

Department of Accounting, College of Business Administration, Drexel University, 19104, Philadelphia, PA

Gordian Ndubizu Ph.D.

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