VECTOR ERROR CORRECTION MODELLING TO ESTIMATE THE LONG-RUN AND SHORT-RUN EFFECTS OF MACRO ECONOMIC VARIABLES FOR

FDI PREDICTION IN INDIA

P. VERMA[1] & U. VERMA [2]

[1]PG Scholar, IIT Kharagpur, India

[2]CCS Haryana Agricultural University, Hisar, India

ABSTRACT

This work examines the role of various macro-economic factors such as GDP, inflation, exchange rate, export, import, energy generation, capital account as percentage of GDP, coal generation and trade balance in estimating the foreign direct investment (FDI) in India. The statistical approaches; Regression, Autoregressive Integrated Moving Average(ARIMA), ARIMAX and Vector Error Correction Modeling (VECM) have been used to obtain the suitable/causal relationships within/among the variables under study. Regression equations with an apparently high degree of fit, as measured by the coefficient of multiple correlation R^2, but with a low value of the Durbin-Watson statistic, couldn't provide adequate predictive accuracy because of the non-stationary behaviour of most of the series. To improve the predictive accuracy, the analysis was further extended by following ARIMA, ARIMAX and VECM approaches. The emphasis is given to see whether ARIMA model including other time series as input variables or VECM helps in estimating FDI as ARIMA models alone (unlike regression) couldn't provide convincing results. Thus, for this empirical study, we found that VECM model with energy generation, coal exraction and capital account as explanatory variables outperformed the Regression/ ARIMA/ARIMAX models for estimating the value of FDI in India. However, ARIMA(1,1,0) model with GDP as explanatory variable showed the superiority over Regression/ ARIMA models for estimating the same.

KEYWORDS: Multiple Linear Regression, Dummy Variable, ARIMA, ARIMAX, VECM, FDI Forecasts