

Vector Autoregressive Modelling of Economic Growth Indicators: A Case Study of Ethiopia

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Abstract: Modeling economic growth mostly requires clear understanding of the relationship among the determinant factors of growth. Macroeconomic variables such as capital investment, export and import are among the variables that influence economic growth. The objective of this study was to investigate the effect of capital investment, export and import on real economic growth of Ethiopia as measured by real gross domestic product. Vector autoregressive (VAR) and vector error correction (VEC) models were employed. A quarterly data set on the variables of interest for the period of 1990 to 2013 obtained from National Bank of Ethiopia was used. The VAR model analysis suggests that the lagged variables have a significant effect in predicting the economic growth of the country. The VEC model analysis indicates significant existence of long-term bi-directional causation of GDP with import. Short as well as long-term bi-directional causation of GDP with export were also observed. The results also indicate that there is no causal relationship between capital investment and GDP. The impact of shock to investment capital, export and import on GDP induces a mix of positive and negative effects in short-term and the effects converge to zero in the long-term of the study time horizon. Short as well as long-term planning process aimed at bringing about economic growth of Ethiopia should employ extensive analysis of the relationship among the determinant factors of growth, specifically capital investment, export, and import.

Keywords: Vector autoregressive model; Vector error correction model; impulse response function; Bi-directional causation.