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Procedia Economics and Finance 15 (2014) 184 – 191

Procedia Economics and Finance

www.elsevier.com/locate/procedia

Emerging Markets Queries in Finance And Business

Economic growth-supply and demand perspective

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Abstract

The definition of economic growth says that economic growth can be seen as an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. The aim of this paper is to compare the economic growth in selected countries of EU. We used two ways of economic growth calculation - demand perspective based on the GDP and its components and supply perspective based on the neoclassical production function (the connection between Cobb-Douglas`s production function and productivity).

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Keywords: Economic Growth, Demand, Supply, GDP

1. Introduction

The influence of demand and supply on real product and economic growth is the basic macroeconomic assumption which is documented on many macroeconomics publications. The economic growth and these sources are often studied from view of the aggregate supply factors. Burda Wyplosz (2003) state that essentially four main factors explain economic growth: savings, population grow, resulting in an increased number of workers, technological progress and finally productivity increases. Begg, Fischer, Dornbusch (1999) summarize the various factors of economic growth, like basic models based on growth of production factors, technical progress, innovations but also endogenous growth model built on externalities in human and technical capital formation. Schiller (2004) notes, that the growth rate of total output is equal to the rate of labor growth and productivity growth.

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Selection and peer-review under responsibility of the Emerging Markets Queries in Finance and Business local organization
doi:10.1016/S2212-5671(14)00476-6

There are some authors who show that aggregate demand can have also an effect on economic growth. Dutt, Ros (2006) state, that economic growth may be altered by large demand shocks, due to increasing returns and hysteresis effects in labor markets and balance of payments constraints. The findings of Hartley, Whitt (2002) show that permanent or temporary demand shocks have been the dominant source of variance in output growth in Germany, France, United Kingdom, Italy, Netherlands, USA during the post-war era. In the largest of European countries, Germany, demand shocks account for 76 per cent of the variance of output growth, leaving only 24 per cent for supply shocks. Different results present Gavosto, Pellegrini (1998). They investigate the impact of three different kinds of disturbances - aggregate demand, technology and the labour supply on industrial output in Italy. They concluded that output variability is significantly affected by technological shocks. Labour supply disturbances are also relevant, while demand shocks have a minor impact on the series.

Based on the studies of Optimum currency area and beholding the current situation in EMU the necessity to study the influence and similarity of demand and supply shocks mainly in last accession countries is growing. Horvath, Rátfai (2004) show that shocks among EMU accession (V4, Slovenia, and the three Baltic States) and incumbent (Germany, France and Italy) countries, in particular Germany tend to be uncorrelated. Another study of Fidrmuc, Korhonen (2003) find that some accession countries have a quite high correlation of the underlying shocks with the euro area. However, even for many advanced accession countries, the shocks remain significantly more idiosyncratic. Some papers also study the similarity of particular components of aggregate demand (investments) within the last accession countries of EU (Dugasová, 2011). Mura, Buleca (2012) study the connection between investment and labor market. There is also some interesting connection between investment and labor productivity (Pavliková, Siničáková, 2012). Bartóková (2011) concludes that investments in accession countries were equally affected by development in western countries, such as lower interest rates or rates of investment returns and attempts of western European investors.

2. "Demand and Supply perspective"

2.1. Data

In order to analyse the impact of the demand components on economic growth we estimate a VEC – vector error correction model, the special case of VAR – vector auto regressive model for variables that are stationary in their differences. This method allows consistent estimation of the relationships among the series and takes into account the cointegrating relationships among the variables.

The base form of VAR model can be represented in the form of a vector moving average random components consisting of *n* non-stationary variables of order p:

$$Y_t = \mu + A_1 Y_{t-1} + A_2 Y_{t-2} + ... + A_n Y_{t-n} + \varepsilon_t \qquad (1)$$

where Yt (Yt = [yt, ct, it, gt, nxt]) is a N x 1 vector of the endogenous non-stationary macroeconomic variables (yt - real output, ct - households consumption, it – investments, gt - government expenditures, nxt - net export), μ is N x 1 vector of constants, *A*i represent N x N polynomial variance-covariance matrix, εt ~ *Nn* (0,Σε) is a normalized vector of model exogenous shocks reflecting unexplained changes in the evolution of the endogenous variables in the form N x 1. If at least two endogenous variables integrated of order 1 (I(1)) are mutually cointegrated, then VAR representation of the previous relation can be rewritten by dividing by Yt-1 in the following VEC model:

$$\Delta Y = \mu + \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-1} + \varepsilon_t \qquad (2)$$

where *Δ*Yt is N x 1 vector of stochastic variables Yt expressed by the first-difference,

$$\Pi = \sum_{i=1}^{p} A_i - \Pi\Gamma_i = -\sum_{j=i+1}^{p} A_j \qquad (3)$$