



International Conference on Applied Economics (ICOAE) 2014

Assessment of Impact of Domestic and External Demand Factors on Economic Growth in Russia on the Basis of Model of Multiple Regression Analysis

Kirshin I.A.^{a*}, Maleev M.V.^b, Pachkova O.V.^c

^a*Kazan Federal University, kia1125@mail.ru, Kazan, 420008, Russia*

^b*Republic Clinical Hospital, Kazan, 420064, Russia,*

^c*Kazan Cooperative Institute, Kazan, 420045, Russia*

Abstract

A multiple regression model of economic growth in Russia based on the statistics of the structural elements of the Russian Aggregate Demand from 2001 till 2013 was developed in this article. The results of multiple regression analysis provided compelling evidence that the greatest impact on a real Russian GDP growth has domestic demand. It has been found that consumption of households is the key elements of domestic demand. The authors also justify the action of the multiplicative interaction mechanism of domestic and external demand of the Russian economy.

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Selection and/or peer-review under responsibility of the Organizing Committee of ICOAE 2014

Key words: Economic growth; elasticity; multiple regression analysis model; multiplier effect, GDP

1. Introduction

Conducted on the basis of multiple regression analysis model of economic growth Russian research have questioned the widespread hypothesis of unilateral nature of modern Russia's economic growth is largely dependent on world market prices of energy recourses. Occurring structural changes of Aggregate Demand (AD) of domestic economy transform model of economic growth and cause a relevance of the present

* Corresponding author. Tel.: +7(917)3919336

E-mail address: kia1125@mail.ru

research. The developed model has allowed to reveal decrease in effect of direct impact of export on rates of economic growth in Russia.

2. The scientific hypothesis

The scientific hypothesis of research consists in justification of domination of a impact of consumption of households on the economic growth of Russia throughout all analyzed period. The maximum value of the coefficient of elasticity of a growth rate of real consumption of the households ($\varepsilon = 0,467$) confirms justice of our hypothesis.

3. Model specification

For the measurement and modelling of economic growth should be used not only quantitative characteristics of the GDP growth, but also the quality of economic growth, determined by structural changes occurring in the aggregate demand.

For an assessment of extent of impact of real volume of elements of used GDP (on the basis of quarter data for 2001-2013) on growth of GDP we have constructed multiple-factor regression model (1):

$$Y = b_0 + b_1C + b_2G + b_3I + b_4EX + b_5IM, \quad (1)$$

where Y – a growth rate of real GDP (%);

C – a growth rate of real volume of Consumption of households (%);

G – a growth rate of real volume of Government spending (%);

I – a growth rate of real volume of Gross Investment (%),

EX – a growth rate of real volume of export (%),

IM – a growth rate of real volume of import (%);

b_0 - free coefficient of regression;

b_1, b_2, b_3, b_4, b_5 - coefficients of regression which can be interpreted as factors of elasticity of real GDP on the corresponding components of the Russian economy AD.

The free member (b_0) - characterizes average influence of all factors which are not included in research, and partial influence of the considered factors which depend on correlation degree with the specified factors.

With reference to the offered model elasticity is the analytical characteristic which reflects a ratio of rates of a growth rate of dependent (Y) and factorial (x_i) of signs. Feature of factor of elasticity is that it represents abstract number. It is not influenced by units of measure of factorial and dependent features.

Total (general) elasticity of factors is in following formula (2):

$$\sum_{i=1}^5 \varepsilon_i = \varepsilon_1 + \varepsilon_2 + \varepsilon_3 + \varepsilon_4 + \varepsilon_5. \quad (2)$$

It shows, on how many percent the dependent indicator (Y) will change at simultaneous increase in all factorial signs at 1%.

4. Empirical results and discussions

With application of the multiple regression analysis the equation of multiple-factor regression model for

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