

## CURRENT CRISIS AND ECONOMIC CONVERGENCE IN THE EU

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*The paper is intended to be primarily a factual developments illustrate the main economic indicators in the context of Romania's crisis by creating a digital picture to illustrate the main effects of the country. The idea started more from a personal desire to make a passage highlighted "the crisis, where some of it not felt it directly, seem to be amplified in an unduly by the media". Secondly, we proposed the application of an econometric model using as a set of macroeconomic indicators compiled data for Romania for the period 2000 to 2008. This will allow certain scenarios and forecasting developments in the context of model assumptions.*

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*JEL Classification: E01, E17, E20, E32, E40*

### **Introduction**

In early 1960, Federal Deposit Bank of St. Louis (Bari 2002) developed in an economic analysis model, which stressed the role of monetary aggregates. Initial analysis of economic data was performed using diagrams that after 1960 will be used regression techniques as a tool of analysis. Some of the quantitative research efforts were consolidated in 1970 with publication of what followed is known as "The St. Louis Model"

### **The model St. Louis**

The first theoretical consideration that underlies the development model was the modern quantitative theory of money. The emphasis of the modern quantity theory is the behavior of economic units in response to changes in the stock of money. Moreover, the existing stock of money must be held by someone. As a result, a change in the stock of money will induce a discrepancy between the current owner and interested possession of money that will change because alternate portfolio of assets. Included in this adjustment is a change in spending on goods and services.

The second theoretical issue that has been implicit in the construction of the model, although not explicitly recognized by those who developed the model at the time, was the search and information costs on economic behavior. Information on the equilibrium price is not to gather cost and thus economic units should seek balance in market prices. As a result, prices do not necessarily have been adjusted instantaneously to the new equilibrium level in response to a step change in total spending.

As a result of these theoretical considerations, the relative impact of fiscal and monetary measures requires careful assessment. This assessment includes the differentiation between short and long, and granting special focus methods are to finance government expenditure.

Model *St. Revised Louis* "allows analysis and forecasting economic fundamentals following developments: nominal national income; level of prices; real national income; rate of employment.

### The Structure of the Model

Main assumption in developing the model equations is that the evolution of nominal national income depends on the evolution of monetary and budgetary. In other words, changes in national income depend on monetary and fiscal policy. Thus, the merit of this model is that it provides information on developments in the basic macroeconomic variables in different ways of combining measures of monetary and financial policy, which allows the design of monetary policy in line with the overall objectives of economic policy in terms of income national employment and prices.

Equation of nominal national income:

$$\Delta Y_t = f_1(\Delta M_t, \dots, \Delta M_{t-n}, \Delta E_t, \dots, \Delta E_{t-n}) \quad (1)$$

Equation of price level:

$$\Delta P_t = f_2(D_t, \dots, D_{t-n}, \Delta P_t^A) \quad (2)$$

Identity equation:

$$D_t = \Delta Y_t - (X_t^F - X_{t-1}) \quad (3)$$

Identity equation of total expenditure (nominal national income):

$$\Delta Y_t = \Delta P_t + \Delta X_t \quad (4)$$

Equation of exchange rate:

$$R_t = f_3(\Delta M_t, \Delta X_t, \dots, \Delta X_{t-n}, \Delta P_t, \Delta P_t^A) \quad (5)$$

Equation predicted prices:

$$\Delta P_t^A = f_4(\Delta P_{t-1}, \dots, P_{t-n}) \quad (6)$$

Equation of unemployment rate:

$$U_t = f_5(G_t, G_{t-1}) \quad (7)$$

Deviation of GDP actually from potential GDP:

$$G_t = \frac{X_t^F - X_t}{X_t^F} \quad (8)$$

The relationship model is a fundamental equation of total expenditure. Total expenditure is determined by the actions of monetary and fiscal (spending financed from taxes or borrowing from the public). Although no details are known is that such actions affect costs. Change in total

revenue is combined with an estimate of potential production that leads to the modification application. An estimate of the anticipated price change is combined with the modification request to determine a change in the price level. To describe the model, its characteristics are summarized in relation to four key assumptions money. They are: 1. monetary actions are the dominant factor contributing to economic fluctuations; 2. Monetary actions have little, if any, lasting effect on real variables, with effects lasting only for nominal variables; 3. Fiscal actions, defined as changes in government spending with a given stock of money, have only a transitory impact on economic activity; 4. The economy is in a private stable inert.

### Crisis in Romania

Under the model assumptions can build national income equation in the form of a linear econometric model multi-factorial:

$$I^{PIB} = \alpha_1 I_{t/1}^{ChGuver} + \alpha_2 I_{t/1}^M + b \quad (9)$$

Where the indicators used are: real GDP index, index of real monetary, government spending index. Therefore, we interpret the estimated parameters as to an increase of 1% of government expenditure, national income has increased in the review, on average, 0.84211%, respectively an increase of 1% of average monetary income of national increased in the range examined, on average, 0.20644%, which confirm the theoretical results of the influence of fiscal and budgetary policy.

Linear correlation coefficient is defined in the interval  $[-1,1]$ , that the value 0.964 obtained indicates a stronger linear correlation between the two variables. Test Fisher - Snedecor shows that the results are significant, with a significance threshold of 5%..

$$F_c = 39,7768 > F_{0,05;2;6} = 10,43$$

So, we can say that the model is good. Checking the significance of default and correlation coefficient of linear correlation is done using the test Fisher - Snedecor:

$$F_c = \left( \frac{n-2-1}{2} \right) \frac{R^2}{1-R^2} = 3 \cdot \frac{0,9298}{0,0702} = 13,24 > F_{0,05;2;6} = 10,43$$

Therefore, the model correctly describes the dependence of the three variables, the independent in explaining the proportion of 93% of total variation in the dependent variable.

The effects of economic crisis - evolutionary scenarios

If the equation of our revenue to perform a forecast for next year after the 2 scenarios: optimistic, and pessimistic.

**If** we consider the following *scenario optimistic* assumptions: government expenditure will increase in real terms by 3% and average money will increase in real terms by 5%.

**For the pessimistic scenario**, consider the following assumptions: government spending will decrease in real terms by 3% and average money will remain constant. Substituting the above equation for each scenario in part refrained forecast for the period 2008-2011.

Thus:

- In the optimistic scenario where the pace of growth will be 2.5%.
- If pessimistic scenario was obtained a decrease in growth of 2.5%.

Exchange Rate equation is:

$$R = \alpha_1 IPC + \alpha_2 I^{PIB} + \alpha_3 I^M + b \quad (10)$$

Where the indicators used are: interest rate, index of consumer prices, monetary mass average GDP dynamics.

The interest rate is influenced by positive and negative dynamic pricing dynamics of GDP and the monetary. All influences are analyzed in accordance with economic theory. Romanian

economy to the equilibrium interest rate is 10.12%. Influences factors are analyzed as follows: for each percentage increase in the CPI rate increases by 1.73% for a percentage of GDP growth rate falls to 0.0771% for each percentage increase in monetary leads to lower interest rates with 10.73%. The lowest influence has therefore GDP.

Coefficient of linear correlation shows that there is a strong linear correlation between variables (0,9147). Test Fisher - Snedecor shows that the results are significant, with a significance threshold of 5%.

$$F_c = 8,54 > F_{0,05;3;5} = 7,3$$

Significance F = 0.02 < threshold of significance (0.05). Checking the significance of default and correlation coefficient of linear correlation is tested using the Fisher - Snedecor:

$$F_c = \left( \frac{n-3-1}{3} \right) \frac{R^2}{1-R^2} = \frac{5}{3} \cdot \frac{0,8367}{0,17} = 8,2 > F_{0,05;3;5} = 7,3$$

Therefore, the model correctly describes the dependence of the four variables in explaining the independent proportion of 83% of total variation in the dependent variable.

### Scenarios development

The interest rate equation in our model build a forecast for next year after the 3 scenarios: optimistic, pessimistic and average. *If we consider the following scenario optimistic* assumptions: government expenditure will increase in real terms by 3% and average money will increase in real terms by 5% and a CPI of 4.5%. *For the pessimistic scenario*, consider the following assumptions: government spending will decrease in real terms by 3% and average money will remain constant while the CPI is 3%. Substituting the above equation for each scenario in part refrained forecast for the period 2009-2011. Solutions in the short term trends indicate libratory interest rate. Thus, the optimistic scenario where the interest rate would record a level of 8.87% in case of moderate 10.21% while the pessimistic scenario it will rise to 12.27%.

### Convergence sigma and beta

A commonly used indicator for measuring convergence is the variation coefficient on the level of GDP/capita, denoted by  $\sigma$ . This indicator is used to measure Sigma convergence. It can be used to evaluate the real convergence level by measuring the dispersion of GDP/capita over a one year period, using for this purpose cross series (countries and regions). In this case, the relevance of the convergence indicator appears only when making comparisons.

In our study, we have used this indicator to measure and predict the real convergence level for some EU countries, specifically the group of EU 12. Data series refers to the 1998-2007 period. They will be symbolized with UE12 and are: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia.

Sigma convergence values for this period are: 0,6656; 0,6774; 0,6427; 0,6098; 0,5817; 0,5692; 0,5398; 0,4918; 0,4512; 0,3841.

By analyzing the level and trend of the variation coefficient, we can conclude the following:

- The considered indicator concerning the GDP/capita variation coefficient of the EU countries shows an increase during 1998-1999. This increasing process reveals a divergent growth of the economies inside this group of countries, with the real possibility that every less developed country will strive for higher levels of development;
- During 2000-2007 the evolution of the variation coefficient of GDP / capita is a decreasing one, which indicates the tendency of increasing convergence of the economies of the mentioned countries.

Besides Sigma indicator, expressed by the variation coefficient or standard deviation, there were numerous concerns within econometric research, a significant place being occupied by the Beta parameter estimation and interpretation of growth regression equation.

Beta indicator estimated by using the regression equation, expresses the speed (rate) with which different countries achieves convergence to a steady state. This indicator studies sigma convergence in terms of evolution over time. Beta indicator's values are increasing throughout the period 1999-2007, compared to 1998: they range from 0.06889 to 0.2866. This means that if in 1998 the indicator's GDP / capita would have increased by 1 unit, in 2007 it would have reached values of 0.2866 or higher.

### **Conclusions**

Current economic crisis, burst into the U.S. (Daianu 2008) to quickly propagated globally affecting international economic system. Put on the irresponsible policies of financial institutions, the crisis raises worrying questions about the security. Transmission of the crisis was not only geographically but also in society, the financial plan in the real economy, both social and gradually installed and psychological level. The latter seems to be the most dangerous contaminants, whereas the frozen actions practically blocking economic growth for fear and mistrust. The effects of the crisis are felt in Romania. This is seen primarily at economic indicators, which after a period of growth began to come together with this crisis on a downward trend. Regarding short-term evolution of economy and living standards in Romania, according to evolutionary scenarios outlined in the model St. Louis reviewed the pessimistic scenario (which is most likely in the current context) GDP will decrease by 2.5% and interest rate (real) will be an average of 12.27%.

This paper has reviewed a number of methods and instruments developed for the analysis of economic and/or social inequalities and that can be used for examining disparities among EU12 countries. One objective of the paper was to produce an update analysis of the convergence process among EU countries. Another was to show that instruments vary significantly in terms of their specificities and qualities and that it is therefore important to be aware of their limits when measuring the extent and evolution of countries disparities within the EU. These results also underline that the analysis of convergence is in fact complex.

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