ROMANIA AND BULGARIA AFTER ONE DECADE IN EU – AN ASSESSMENT OF THE ECONOMIC PERFORMANCE

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Abstract

Romania and Bulgaria faced the same economic history after the World War II. Both countries on the bank of Danube struggled in a prolonged transition towards the market economy after 1989, being the laggards in terms of development, European convergence and implementation of the acquis communautaire.

After joining the EU in 2007 these economies were surprised in an overheating mood by the Great Recession. There followed a prolonged and severe macro-economic adjustment, with consequences in terms of economic development.

This paper employs the Cobb-Douglas methodology and data from Eurostat, IMF and Bloomberg in order to assess the economic performance of Romania and Bulgaria over the past decade.

The results show that Romania performed better than Bulgaria after 2007, an evolution determined by several factors, including a better dynamics of the total productivity factor and more flexible labour markets.

However, both countries continue at the end of the EU classification in terms of real economic development.

Key words: *potential GDP, economic development, SEE economies, Great Recession*

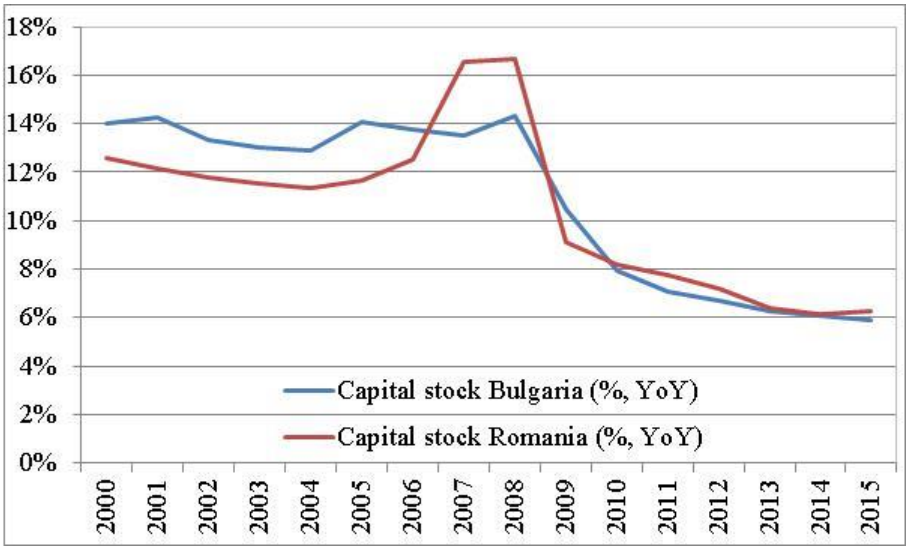
1. INTRODUCTION

The Romanian and Bulgarian economies faced a similar history over the past centuries. At the end of the communist regime in 1989 both countries embarked on a severe transition process from state economy to market economy. This process was underpinned by the agreements with IMF signed during 1990s.

After failing to qualify for the first wave of the Eastern enlargement these countries intensified the reforms in order to get the EU passports. These efforts represented a confidence vote for the private sector, which decided to increase the investments either in Romania or in Bulgaria. In fact, the investors expected these countries to join the EU later and tried to be present on these markets in order to gather the fruits of the economic convergence process towards the EU average.

As can be noticed from the following graph the capital stock presented double digit growth paces in these countries in the first half of the past decade, with Bulgaria in pole position, as the fixed exchange regime conferred a credibility plus.

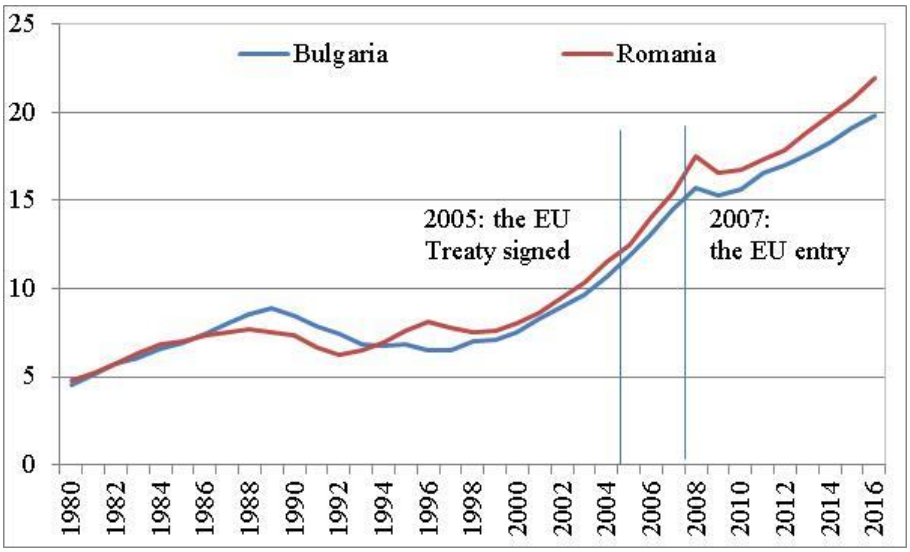
Figure 1. Capital stock dynamics in Bulgaria and Romania (%, YoY)



Source: author estimates based on the Eurostat database, 2016

The significant increase of the fixed investments before the incidence of the Great Recession determined a broad-based economic growth (the first market economy cycle since the end of the World War II) and the acceleration of the convergence process towards the EU average. In fact, after stalling during the 1990s the GDP per capita started to increase at the beginning of the 2000s in both countries, with Romania in a leading position, as can be noticed in the figure 2. This evolution was strongly influenced by the massive human capital outflows, Romania being the most affected.

Figure 2. GDP/capita (International dollar 000) (PPP)

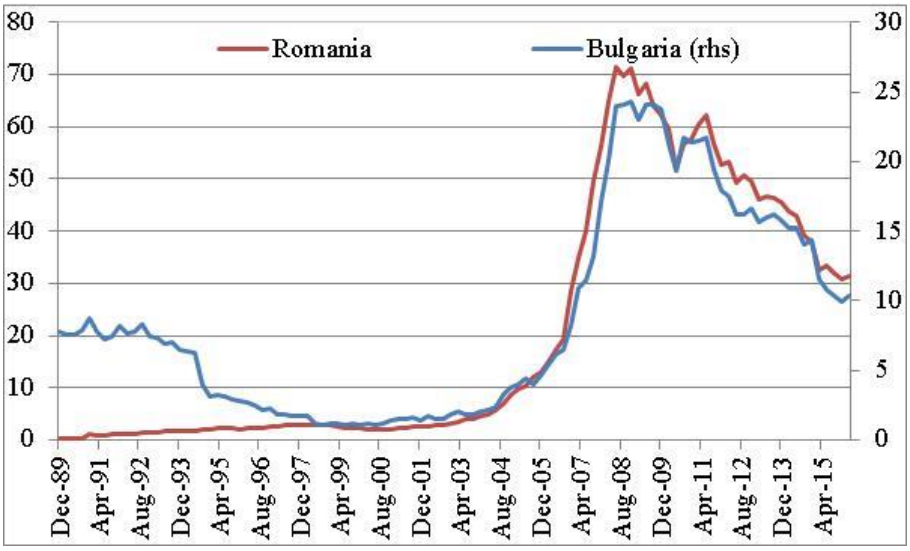


Source: IMF Database, 2016

These countries signed the EU Treaty in 2005 paving the way for the EU entry in 2007. After getting the EU passport the foreign capital strongly entered these markets, as can be noticed on the following figure (3): the foreign banks' exposure to Bulgaria increased from less than USD 4bn at the end of 2004 to almost USD 25bn in 2008; in Romania this indicator rose from less than USD 9bn in

December 2004 to more than USD 70bn in December 2008. The massive capital inflows determined the overheating of these economies before the crisis, with important disequilibria in terms of the current account (around 14% of GDP in Romania and close to 24% of GDP in Bulgaria in 2007). However, the incidence of the Great Recession determined an important macro-financial adjustment process, as the foreign banks significantly diminished their exposure on these economies (towards the pre-crisis levels).

Figure 3. Foreign banks' exposure (USD, bn)



Source: Bank for International Settlements (BIS), 2016

In this paper I employ the Cobb-Douglas methodology in order to assess the performance of the Bulgarian and Romanian economies during the period 2001-2015. The rest of the paper has the following structure: chapter 2 briefly presents the methodology employed; the results are presented in chapter 3, while the conclusions are draw in chapter 4.

2. METHODOLOGY

This paper employs the Cobb-Douglas production function in order to estimate the contribution of the production factors to the dynamics of the potential GDP for Bulgaria and Romania during 2001-2015. According to this classical production function the output can be represented by the following relation:

$Y_t = \alpha \times L_t + (1 - \alpha) \times K_t + TPF_t$. **(1)**

The potential GDP can be derived from relation (1) and expressed in relation (2):

$Y_t^* = \alpha \times L_t^* + (1 - \alpha) \times K_t + TPF_t^*$. **(2)**, where

Y_t represents the real GDP (%, YoY), Y_t^* is the potential GDP (%, YoY), L_t constitutes the labour factor (%, YoY), L_t^* represents the potential labour factor (%, YoY), K_t is the capital stock (%, YoY), TPF_t constitutes the total productivity factor, TPF_t^* is the total productivity factor (potential) and α represents the output elasticity of labor.

From the relations (1) and (2) the TPF is derived:

$TPF_t = Y_t - \alpha \times L_t - (1- \alpha) \times K_t$ **(3)**

The labor factor (L) was computed by applying the following formula:

L = labor force * labor participation ratio * (1 – unemployment rate) * average number of worked hours **(4)**

As regards the capital stock (K) the paper employs the perpetuity inventory method. Starting from the 1995 capital stock levels (as estimated by Derbyshire et al. (2010)) we applied a 5% annual depreciation ratio.

A factor α of 0.65 is considered in this paper, as is also applied by other economists (for instance Dobrescu (2009)).

In order to distinguish between the structural and cyclical components of the production factors (except for the capital stock) the paper employs the Hodrick-Prescott filter.

This method is described by formula (5), where the smoothness parameter λ was applied a value of 100, the same as in the Hodrick-Prescott (1997):

$$\text{Min} \sum_{t=1}^{T} (Y_t - Y_t^*)^2 + \lambda \sum_{t=2}^{T-1} ((Y_{t+1}^* - Y_t^*) - (Y_t^* - Y_{t-1}^*))^2 \quad \textbf{(5)}$$

This method is often used by the literature, as it is simple and direct, despite the shortcomings (the leakage and compression effects: one cannot perfectly distinguish between the structural and trend components, especially for the beginning and ending years in the sample).

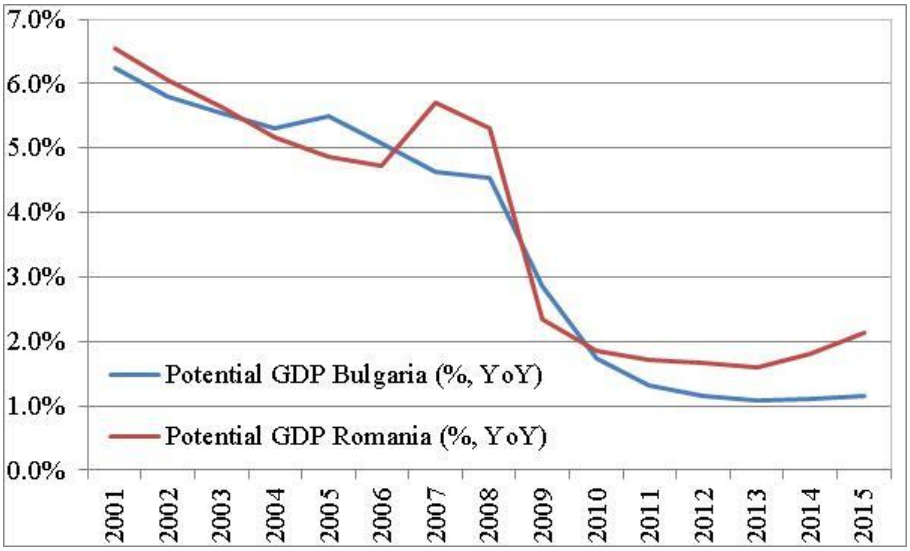
The annual data employed in this analysis were taken from the Eurostat, Ameco, International Monetary Fund, World Bank, Bank for International Settlements and Bloomberg. The software used was E-Views (version 4.1).

3. RESULTS

One of the main results of this analysis is presented in the following figure (4): the severe deterioration of the dynamics of the potential GDP in both Bulgaria and Romania during 2007 – 2012, as the positive forces of the EU integration process were counterbalanced by the impact of the waves of the Great Recession.

The potential GDP dynamics stabilized in 2013 and followed divergent evolutions afterwards (upward trend in Romania to more than 2% YoY in 2015 vs. stagnation in Bulgaria to around 1.1% YoY last year), as can be noticed in the figure 4.

Figure 4. The dynamics of the potential GDP (%, YoY)

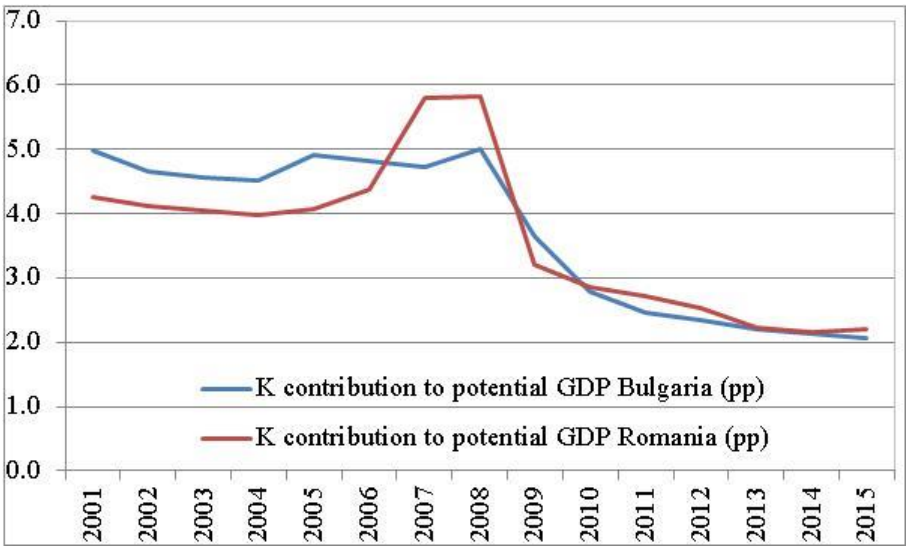


Source: macro-econometric estimates according to the methodology

The severe deterioration of the potential GDP dynamics was mainly determined by the strong decline of the fixed investments in a context of massive capital outflows, as the sudden stop on the international capital markets surprised these economies in an overheating mood, with strong macroeconomic disequilibria (especially current account in Bulgaria and both current account and public finance in Romania), with a huge dependence on foreign financing.

As can be noticed on figure (5) the contribution of the capital stock to the dynamics of the potential GDP declined from 5 percentage points in 2008 to 2.1 percentage points in 2015 in Bulgaria and from 5.8 percentage points in 2008 to 2.2 percentage points in 2015 in Romania. In fact, this evolution expresses that the acceleration of the investments before the crisis (determined by the EU entry expectations) was not sustainable, as many investments were directed to non-tradable sectors in both countries. The recent stabilization of this indicator reflects the entry of these countries in the post-crisis economic cycle. Overall, after the countries entered EU in 2007 the contribution of the capital stock to the dynamics of the potential GDP deteriorated in both countries, to the lowest levels since the 1990s transition.

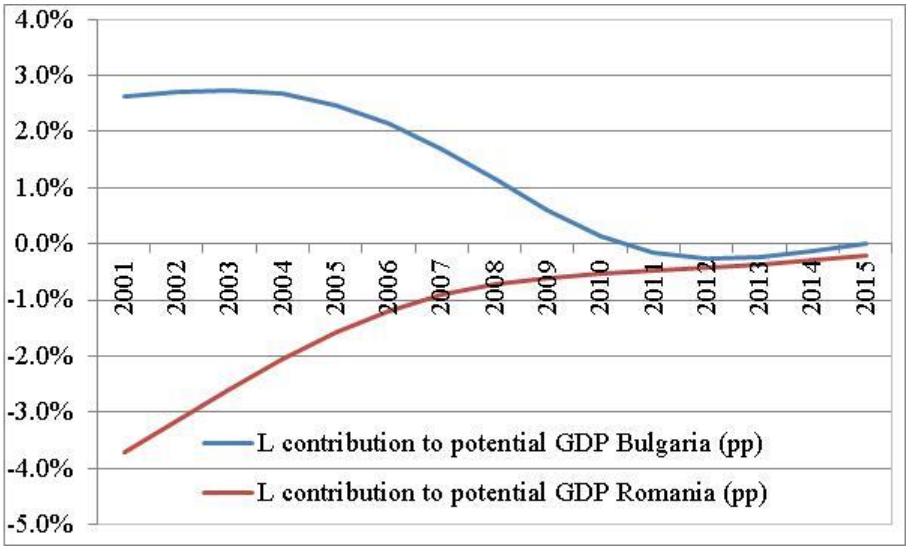
Figure 5. The contribution of the capital stock (K) to the dynamics of the potential GDP (pp)



Source: macro-econometric estimates according to the methodology

As regards the contribution of labor to the potential GDP dynamics there can be noticed a divergent evolution over the past 15 years in these countries on the bank of Danube (as reflected by figure 6). On the one hand, in Bulgaria this indicator deteriorated severely, from almost 3 percentage points at the beginning of the 2000s to negative values during 2011-2014. On the other hand, in Romania this indicator constantly improved since 2001, from almost -4 percentage points to neutral levels at present. This divergence reflects several structural differences in terms of rigidity/flexibility in job creation/destruction and in terms of human capital migration in these countries. For instance, in Romania the massive restructuring of the state-owned companies during the 2000s and the migration of human capital determined a negative contribution of labor to the dynamics of the potential GDP. However, the reforms under the IMF agreement signed in 2009 determined an improvement of this indicator in Romania (given the increasing flexibility in terms of job creation/destruction). These results also express that after 2007 the contribution of labor to the dynamics of the potential GDP deteriorated in Bulgaria and improved in Romania.

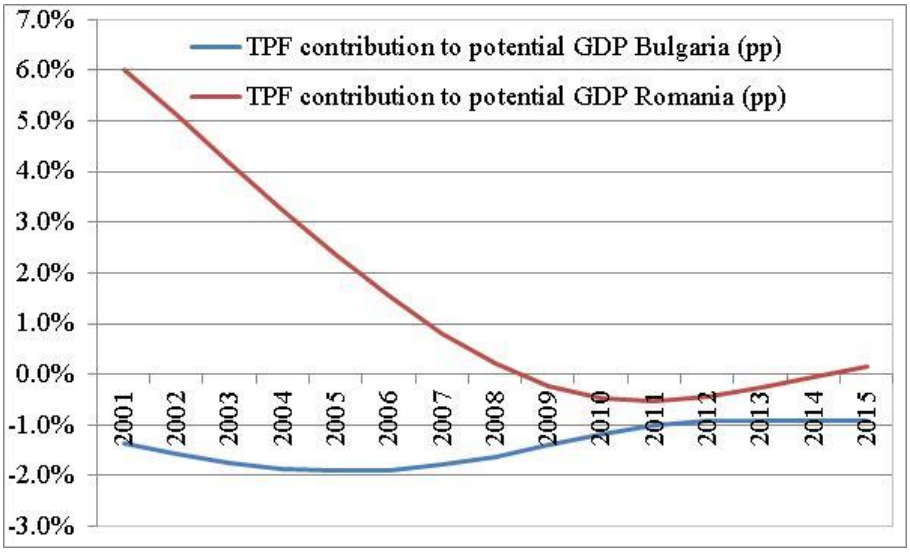
Figure 6. The contribution of labor (L) to the dynamics of the potential GDP (pp)



Source: macro-econometric estimates according to the methodology

Last, but not least, there can be noticed a divergent evolution of the contribution of the total productivity factor to the dynamics of the potential GDP in these countries (see figure 7). On the one hand, in Bulgaria this indicator presented negative values over the past 15 years, with a slight improvement after the restructuring process determined by the crisis. On the other hand, the indicator presented a downward trend in Romania from 6 percentage points at the beginning of the 2000s to negative values during 2009-2014. We can also notice that after the EU entry in 2007 the indicator deteriorated in Romania and improved in Bulgaria.

Figure 7. The contribution of the total productivity factor (TPF) to the dynamics of the potential GDP (pp)



Source: macro-econometric estimates according to the methodology

4. CONCLUSIONS

Bulgaria and Romania continue at the end of EU classification in terms of development, being noticed several similarities and also structural divergences over the past 15 years. Among the common points there can be mentioned the fundamental contribution of the capital stock to the potential GDP over the past decades, as these countries present important potential in terms of development.

On the other hand, the divergences in terms of labor contribution and total productivity factor contribution to the potential GDP dynamics over the past 15 years were determined by differences in terms of policy – mix (more discipline in Bulgaria given the fixed exchange rate regime vs. flexibility in terms of currency and fiscal profligacy in Romania until the severe adjustment determined by the waves of the crisis).

At present, Romania seems to be in a better position to address the post-crisis challenges, as reflected by the dynamics of the potential GDP.

The results of this analysis also show that the reforms implemented for the EU passport had positive results in terms of development and convergence process of these countries to the EU average.

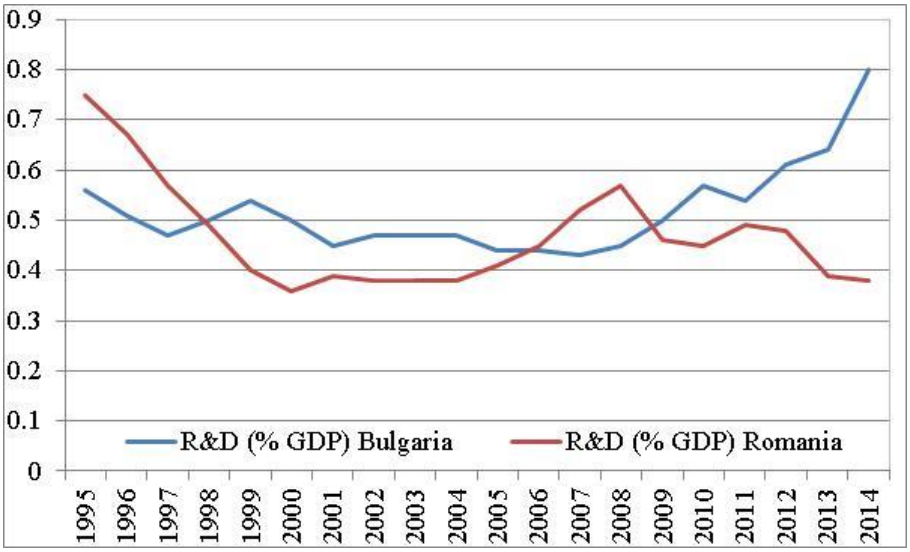
However, the reforms did not present continuity in these countries, which entered the Great Recession with important macroeconomic disequilibria.

Bulgaria and Romania can learn from the past in order to accelerate the development process and the convergence process towards the EU average. This analysis shows that both countries need to implement further reforms in order to improve the contributions of the total productivity factor and of the labor to the potential GDP.

The countries also need to invest more in infrastructure and R&D in order to improve the potential GDP. They can accelerate the investments, as they present low levels of the public debt – to – GDP ratios (less than 30% in Bulgaria, below 40% in Romania).

In this context, we point out that Bulgaria has significantly increased the investments in R&D since 2012, while in Romania the opposite happened, as can be noticed in figure 8.

Figure 8. R&D investments (% GDP)



Source: Eurostat

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