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Agenda item 6: Population projections

**POPULATION FORECAST AND THE IMPACT  
ON THE LONG TERM GROWTH POTENTIAL**

**Invited Paper**

Submitted by Romania<sup>1</sup>

**1. General considerations**

Romania – as the majority of the new EU Member States – has many socio – economic gaps as against the European average, gaps that represent the potential negative factors for the future development of the Romanian economy and also for the European economy as a whole. Fulfilling the objectives from the Lisbon Strategy, namely the European Union to become the economy with the highest competitiveness degree in the world, requires a higher contribution of each member state to the European economy development.

As a consequence, both for the less developed countries and also for the European Union, the national economies convergence and the gaps decrease represent the main objectives. Only with a higher contribution of the member states for the European economic growth and with an improvement of the competitiveness for each economy, the Lisbon Strategy objective can become a reality.

For Romania, an accelerated progress requires a permanent assessment of the production factors and based on this, promoting the economic policies in order to use in an efficient and balanced way the resources.

Starting from the truth that the labour force represents the most important production factor, Romania's progress and competitiveness targets can't be achieved if the labour force is not fully efficient, not only from the quantitative point of view, but especially from the qualitative one.

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In order to use efficiently the human potential, it is necessary to be taken into account the fact that the human resource in Romania has many specific characteristics, especially structural and qualitative.

The main particularities in Romania regarding the labour resource are: a relatively low participation on the labour market and an occupational structure below the potential.

The labour market in Romania is characterized by a relatively high inactivity rate, high unemployment rates especially for 15-19 and 20-24 age groups, a high percent of early retirement and a significant employment rate in the agricultural sector, which is characterised by employment relationships unregulated by tax provisions.

Taking into account also the signals regarding the ageing process, it results that in Romania, as compared to the other countries, the pressures from the human factor on the long term economic growth are not so high.

Consequently, the NCEF forecast is not pessimistic like forecasts exacerbating the demographic trends role.

## **2. Potential GDP – an answer for measuring the impact of the human resources on the economic growth**

Ensuring a sustainable economic growth on the long term, in accordance with the existent potential and without affecting the main economic correlations represents one of the fundamental objectives of the European Commission. The Lisbon Strategy itself is an answer for this objective. From this point of view, the Stability and Convergence Programmes want to put in evidence those macroeconomic policies that ensure the medium and long term sustainability of the public finances, as a premise of a durable economic development.

The potential growth can be defined as the growth ratio corresponding to the maximum utilization of the production factors, supposing that only the labour factor is limited on the long term.

The structural method for the estimation of the production functions supposes, generally, that the production technology can be written as a 1<sup>st</sup> degree homogenous function of an efficient employment, so including the technical progress. The technical progress is supposed to save both the labour and the natural resources. An efficient work corresponds to the multiplication between the labour productivity and the employment, and can be written taking into account the active population and the unemployment rate.

From this perspective the potential GDP and the output gap assessment became a demanded process in the methodology elaboration of the Convergence Programme. Furthermore, in the latest years the European Commission has been preoccupied with the establishment of a unitary computing method, in order to facilitate the comparison between countries. Based on the Ecofin Council conclusions from 12<sup>th</sup> of July 2002 and 11<sup>th</sup> of May 2004, the production function method has become the reference method for the output gap reckoning.

An analyse of the potential GDP evolution during 1997-2006 based on historical data regarding the production factors, namely the labour force and the capital stock, reveals the fact that in the labour force evolution, expressed through employment, there is a suddenly decrease in 2002, due to the discontinuity point in the data series, this as a consequence of the statistical estimation methodology change. In the same period the series regarding the physical capital had an increasing trend after 1999, materialised in positive increasing rhythms of the GDP starting

2000. In these conditions, we may appreciate that in the latest years the Romanian economy potential improved mainly due to the modernisation of the capital stocks.

Regarding this, there are relevant the following trends:

- The domestic investments and especially the private ones recorded high dynamics, with 2 digit values; for example in 2005 the investment from the private sector increased by around 25% and in 2006 by about 18%; the investment rate has started to reach the maximum value from the developed countries or from the countries that have succeed in reducing the economic gaps (countries from Asia, and also Spain, Portugal), namely almost 25% in 2006;

- Romania has started to be one of the most important destinations for the capital inflows; in the last 3 years the foreign direct investments surpassed EUR 20 billion, as against EUR 10 billion during 1990-2003;

- The important restructure of the industrial output towards the capital goods, which is already accepted as a second Romania's industrialisation; the cars building industry not only has increased its contribution to renew the capital stocks, but it has also become the main activity for the Romanian export.

On medium and long term the potential GDP depends more on the labour productivity and active population growth rhythms. The human factor intensity – including here the qualitative pluses brought by education and research – is as more important as the demographic constraints will be higher in Romania, too.

The model proposed in order to analyse on the long term the impact on the potential growth uses the methodology also used by the European Commission, which is based on the production function. So, we have considered that the Cobb - Douglas production function suits the best with the demand of this analyse.

As far as the labour force is involved, the potential employment has been computed based on NAIRU applied to active population (labour force). NAIRU results from the Hodrick – Prescott filter application to the unemployment rate series.

$$\ln Y = a \ln N + (1-a) \ln K + \ln PTF$$

or:  $y = an + (1-a)k + ptf$ , in a logarithmic form, where:

$Y$  – potential GDP;

$N$  – potential working age employment;

$K$  – capital stock;

$PTF$  – total factors productivity.

As an unobservable macroeconomic indicator, the potential GDP is used in the macroeconomic policies analyse and projection, not directly, but through the output gap. The output gap represents the difference between the effective GDP and the potential GDP, seen as a share in the potential GDP. In other words, the output gap represents the percent deviation of the effective GDP from its potential level and has the following formula:

$$\text{Output gap} = (\text{Effective GDP} - \text{potential GDP}) / \text{potential GDP} - 100$$

There are two types of output gaps if we take into consideration the sign of the difference (effective GDP – potential GDP):

- Expansionist output gap ( $\text{effective GDP} < \text{potential GDP}$ );

- Recession output gap (*effective GDP > potential GDP*).

### **3. The utilisation of the labour resources and the long term economic growth**

The macroeconomic forecasts for the period 2007-2020 take into account a positive vision regarding the domestic and international environment. The business environment keeps stable and the economic growth of Romania's main trade partners will not follow a descending trend. Romania's EU accession will accelerate the social and economic development. Both the domestic potential of the capital and of the labour force will favour a continuous and sustainable economic growth. The important investment process from the previous years and also the forecasted one has been reflected in the modernization and the increase of the production factors.

For the assessment of the correlation between the labour market potential and the durable economic growth, the following hypotheses have been considered (exogenous variables):

- Demographic perspective which aren't encouraging; even with the perspective of improving the reproduction health and infant health, Romania's total population will decrease by about 700 thousand persons in the forecasting period;
- The ageing population process will be a constant phenomenon, but not so relevant at the beginning of the period; however, it was taken into consideration that the population over 64 years old will be higher in 2020 by about 400 thousand persons, as against 2007;
- Maintaining the economic growth rhythm at a certain level in order to ensure at the end of the period a value close to EU average level; such an objective is possible if the economic growth will exceed 6% annually, in accordance with the potential GDP.

In Romania there are two phenomena, relatively divergent: a decrease of the labour resources and an increase of the employment necessary. The NCEF forecast - based on the potential GDP model - shows that during 2006-2020 the working age population will decrease by about 200 thousand persons and the labour force necessary will increase by 700 thousand persons.

Nevertheless, it is possible that the labour force deficit to maintain the 2006 value, 450 thousand persons respectively and even to have a light decrease (by about 10 thousand persons). The trend, representing an improvement of the activity rate, is possible because of the fact that nowadays in Romania there is an important number of the working age population that are not active. There are about 5.5 billion people.

Another positive element in order to improve the activity rate until 2020 from 63.7% in 2006 is represented by the labour resources flows stopping towards the more developed European countries. We foresee that in the second part of the period (probably after 2015) the labour force international movement sold will become positive, also because the main coverage resource of the deficit will become an external labour resource, as against the actual situation when the deficit is covered by the population over 64 years old.

In this context is worth to be mentioned that the global deficit is not a sum of the territorial deficits or the occupational deficits. From this perspective, if the progresses regarding the labour market mobility won't be significant it is possible that the labour force necessary and the deficit to be higher. The increased mobility (the occupational flexibility) - due to a more efficient implementation of the employment policies - will represent the major factor in order to

ensure the structural improvement of the employment and based on this a higher qualitative contribution of the human factor to the economic growth.

For the next period it is foreseen an orientation of the rural area population towards the non agricultural activities. The process will be stronger due to the increase of the economic performances in the output and services sector but also due to the opportunities provided by the diversification of the intervention instruments in order to ensure the competitiveness in these areas. In this context, it is estimated that the balance point between the employment rate in the rural area and the one in the urban area will be reached in 2009.

Due to the structural changes, the share of the employment in agriculture has decreased and in the services and constructions sector it has increased. For the next period, these trends will continue. The employment in agriculture will have a 16% share in the total employment in 2020 as compared to 30.5% in 2006, meaning a more qualitative utilization of about 1.3 million persons.

The forecast of the labour resources utilisation on the long term is as follows:

-thousand persons-

	2006	2013	2020	Changes 2020/2006	
				persons	%
Working age population	15057	14975	14870	-187	-1.2
Available labour resources	9588	10110	10273	685	7.1
Working age active population	9588	10110	10273	685	7.1
Labour force deficit	-453	-415	-347	106	- 23.4
Working age employment	8860	9470	9709	849	9.6
Working age population activity rate - %-	63.7	67.5	69.1	-	-
Working age population employment rate - %-	58.8	63.2	65.3	-	-

Both the activity rate and the employment rate will improve in the next period. If in 2006 the working age population activity rate was 63.7%, for the period 2007-2020 it is foreseen an increase of 5.4 percentage points as against 2006.

The working age population employment rate will increase from 58.8% in 2006 to 65.3% in 2020, due to the durable job creation process and due to equilibrium between the occupational flexibility and working place security.

The decrease of the unemployment rate was and will be, too one of the main preoccupations of the Romania's Government. In 2006, the unemployment rate was 7.3% and will follow a descending trend in the future until 4.8% in 2020. This decrease will be possible due to a more efficient implementation of the labour force employment policies.

Consequently, from the potential growth perspective, the long term evolution is characterised through:

- An increase of the employment rate of at least 8 percentage points during the considered period;
- A decrease of the unemployment rate to the levels closed to those considered to be the natural unemployment rate;
- A constant and sustained increase of the total factors productivity, as a result of the process of assimilating the performing technologies and amplifying the innovation capacity of the Romanian economy; Keeping the high level of redistribution of the national income in the population's advantage in order to achieve the income convergence and thus the standard of living from the European Union.

The impact of this evolution - measured through the direct contribution of the human factor to the growth potential – can reach 0.3 - 0.4 percentage points as compared to 0.1 percentage points in 2006 and also to the negative contribution until 2005. There can be also added the effect of the labour productivity and implicitly the total factors productivity, as an expression of a higher quality labour force.

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