

Box 2

Potential GDP and output gap

In the long run, the economy exhibits a tendency to grow, measured by the increase of the real Gross Domestic Product (GDP). However, this growth is not constant over time; during the business cycle, periods of expansion with rapid growth are followed by periods of slowdown with lower or even negative growth. The fluctuations of economic activity are irregular, with amplitude and duration varying from country to country as well as from one period of time to another in the same country. As a result, the identification and measurement of these fluctuations is not a simple task.

Fluctuations of GDP are the result of aggregate demand or supply shocks (i.e. impulses of change). Aggregate demand shocks change the disposable income, being generated, for instance, by fiscal policy measures (changes in the government spending and/or taxation), changes of the incentives to save and borrow (interest rate movements), or fluctuations in the international trade (exports and imports). The aggregate supply shocks usually originate in changes of producer costs (raw materials prices, wages). Given that the quantities sold (by domestic producers) cannot be different from the quantities purchased (by domestic and foreign consumers), every demand or supply shock leads to a change in the total amount of goods and services traded in the economy as measured by the GDP.

The level of GDP depends on the productive capacity of the economy which, in turn, hinges upon some fundamentals like the level of the capital stock, demographic and educational factors affecting the labour force in the economy, the technology, and the degree of economy organization. Most of these factors change only slowly over time. The most flexible factor is the number of working hours that can be hired in the labour market. Therefore, in the short run the quantity of goods and services produced in the economy can be increased (decreased) mainly by employing a higher (lower) number of working hours.

The working hours employed together with the available capital stock are combined to produce a certain amount of goods and services. If the part of the aggregate income devoted to spending increases, the previously produced amount is no longer sufficient to meet the higher demand. This additional demand requires an increase in the number of working hours employed (given the slow adjustment of the capital stock). As the amount of working hours available for hire is naturally limited and the producers compete for labour, the price on the labour market (i.e. the wage) increases. In addition, as long as the increased amount of labour employed is not matched by a corresponding upward adjustment of the capital stock, productivity decreases, with output growing less than in proportion with the working hours employed.

Both the competition among producers on the labour market and the decrease in marginal productivity due to additional working hours being employed lead to increasing unit costs. As a result, inflationary pressures start building up. For various reasons, the producers may decide to postpone the increase of their prices. As long as this is the case, GDP increases are not accompanied by actual inflation. However, once the old prices start to squeeze heavily the profits, the producers proceed to increase prices. As a result, previously accumulated inflationary pressures will give rise to actual price increases. *Ceteris paribus*, higher prices decrease the purchasing power of consumers and therefore the amount of goods and services bought in the economy (i.e. GDP). Since the quantity sold cannot exceed the quantity purchased, the output (and the quantity of labour employed) starts to adjust towards an equilibrium level where inflationary pressures fade away.

This equilibrium level of GDP at which the ratio between the capital stock and the amount of labour employed generates no inflationary pressures is called the **potential GDP**. As the potential GDP increases over time as a result of technical progress and accumulation of physical and human capital, the resulting GDP time series is known as the **GDP trend**.

As highlighted above, in the short run the actual GDP can be higher than its potential level, which implies an accumulation of inflationary pressures. Since these pressures tend to increase as output grows while prices do not change (or they increase slower than output), **the output gap**, computed as the difference between actual and potential GDP, is used as a synthetic measure of the inflationary pressures in the economy. A positive output gap (when GDP is above the potential level) reveals the existence of inflationary pressures. Conversely, a negative output gap shows deflationary pressures (downward pressures on prices). In the long run, the accumulated pressures are released, prices become flexible, and output gap always tends to zero, bringing GDP to its potential level (GDP trend).

Since inflationary pressures imply that the actual GDP level is above potential, and given that the actual GDP level equals the amount of goods and services demanded at the prevailing prices, a positive GDP gap is also called excess demand. The excess demand can be reduced or eliminated by implementing macroeconomic – monetary, fiscal or income - policies. Monetary policy can influence the excess demand by various instruments, a typical measure being to raise interest rates. The purpose of this measure is to create incentives to increase savings, so that a smaller proportion of income would be assigned to spending in the current period. Moreover, higher interest rates raise the borrowing costs, reducing expenditures financed by credit. A slower pace of spending income in the current period leads to lower demand pressures on the production, thus reducing or eliminating the output gap. As a result, the source of potential future price increases is eliminated.

Estimating the output gap is a difficult task, mainly because potential GDP is not an observable variable. Thus, knowing the actual level of total real GDP, it is not possible to directly determine what proportion of the total GDP represents potential GDP and what proportion is output gap. Excess demand is estimated indirectly, using both statistical methods and expert knowledge. This unavoidable uncertainty in estimating the potential output and the output gap is augmented by the fact that statistical data regarding the actual level of GDP are subject to revisions.

For the current projection horizon, the NBR estimates the growth rate of GDP consistent with price stability in the Romanian economy to be around 5.5 percent.