

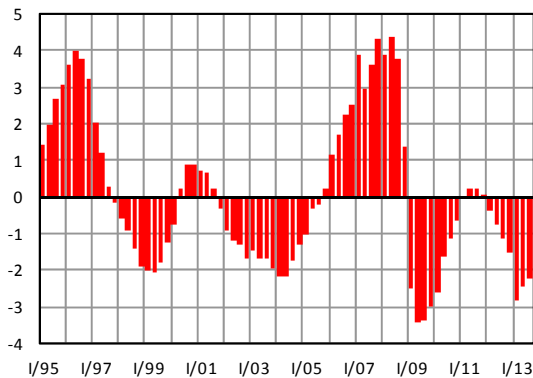
## B Economic Cycle

### B.1 Position within the Economic Cycle

Potential product, specified on the basis of a calculation by means of the Cobb–Douglas production function, indicates the level of GDP to be achieved with average utilisation of production factors. Growth of the potential product expresses possibilities for long-term sustainable growth of the economy without giving rise to imbalances. It can be broken down into contributions of the labour force, capital stock, and total factor productivity. The output gap identifies the cyclical position of the economy and expresses the relationship between GDP and potential product. The concepts of potential product and output gap are used to analyse economic development and to calculate the structural balance of public budgets.

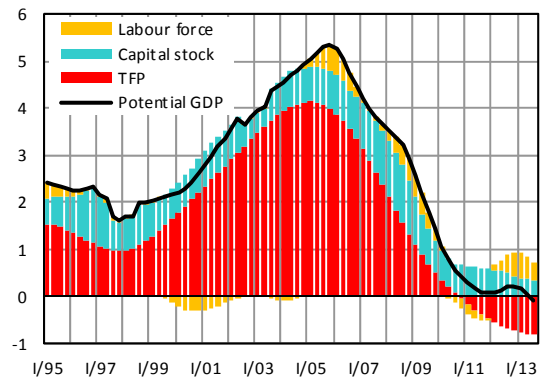
Under current conditions, when abrupt changes in the level of economic output have occurred, it is very difficult to distinguish the influence of deepening of the negative output gap from a slowdown in potential product growth. The results of these calculations display high instability and should be treated with caution.

**Graph B.1.1: Output Gap**  
in % of potential GDP



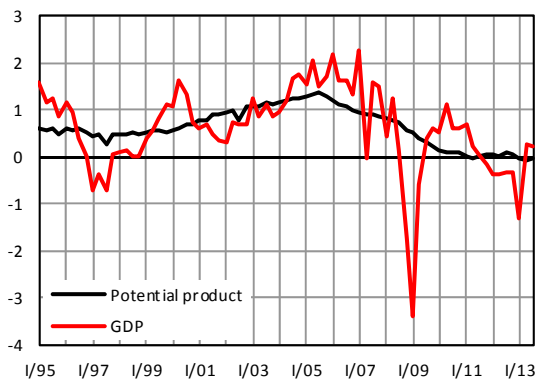
Source: CZSO, own calculations

**Graph B.1.2: Potential Product Growth**  
in %, contributions in percentage points



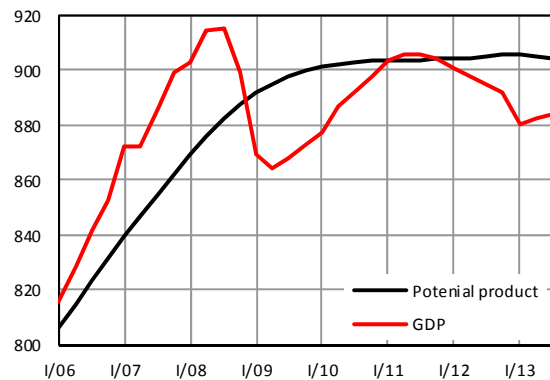
Source: CZSO, own calculations

**Graph B.1.3: Potential Product and GDP**  
QoQ growth rate, in %



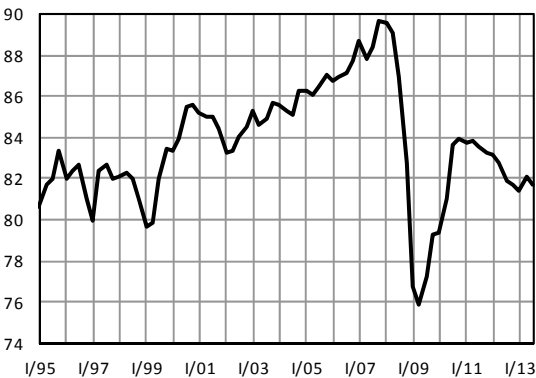
Source: CZSO, own calculations

**Graph B.1.4: Levels of Potential Product and GDP**  
in bill. CZK of 2005



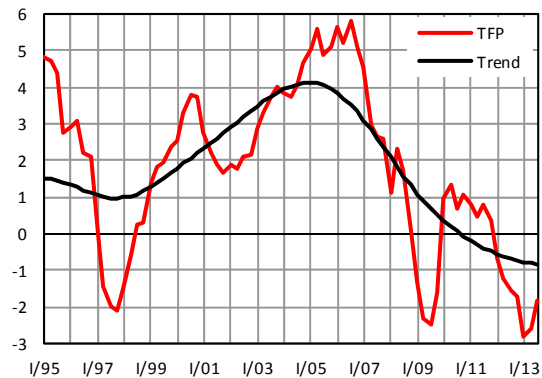
Source: CZSO, own calculations

**Graph B.1.5: Capacity Utilisation in Industry**  
in %



Source: CZSO

**Graph B.1.6: Total Factor Productivity**  
YoY growth rate, in %



Source: CZSO, own calculations

Table B.1: Output Gap and Potential Product

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 Q1–3
<b>Output gap</b>	<i>per cent</i>	-1.8	-0.3	1.9	3.7	3.3	-3.1	-1.5	0.1	-1.0	-2.5
<b>Potential product</b>	<i>growth in %</i>	4.7	5.2	4.9	3.9	3.3	2.0	0.7	0.1	0.1	0.0
<b>Contributions:</b>											
–Trend TFP	<i>perc. points</i>	4.0	4.1	3.6	2.7	1.7	0.8	0.1	-0.3	-0.7	-0.8
–Fixed assets	<i>perc. points</i>	0.7	0.8	0.9	1.1	1.2	0.8	0.6	0.6	0.5	0.4
–Participation rate	<i>perc. points</i>	-0.2	0.2	0.2	-0.2	0.0	0.3	0.2	0.3	0.8	1.0
–Demography <sup>1)</sup>	<i>perc. points</i>	0.2	0.2	0.2	0.3	0.4	0.1	-0.2	-0.4	-0.5	-0.5

Source: CZSO, own calculations

<sup>1)</sup> Contribution of growth of working-age population (15–64 years)

The recent recession lasting from Q4 2011 to Q1 2013 again plunged the Czech economy into a large negative **output gap**. By the end of the recession it had deepened to –2.8%. The following two quarters of slow recovery mitigated the figure to –2.2% in Q3 2013. Utilization of economic potential was low, comparable to that during the so-called great recession at the turn of 2008 and 2009. At present, the negative output gap is reflected in the economy by record-breaking registered unemployment, low utilization of capacities and a slow increase in prices and wages.

Due to long periods of recession or sluggish economic growth, according to our calculations growth of **potential product** has more or less come to a halt. However, these estimates in our opinion underestimate the reality.

The most seriously affected component of potential product is **total factor productivity** (TFP). In Q3 2013, TFP was 4.5% lower than at the peak of the cycle in Q3 2008. Trend component of TFP, derived from the Hodrick-Prescott filter, has been decreasing since the beginning of 2010, which is reflected in the appreciably negative contribution of TFP to potential product growth. The fact that labour as a production factor enters the calculation in the form of the number of employed persons and not in the form of the number of hours worked plays a certain role here.

The long-lasting decline in gross fixed capital formation, which has continued unabated since 2008, has led to a decline in the contribution of **capital stock** from 1.2 pp in 2008 to 0.3 pp in Q3 2013.

**Labour supply** is affected by a reduction in the working-age population, caused by the population ageing process and by zero net migration (see Chapter A.5). In Q3 2013, demographic development slowed potential product growth by 0.6 pp.

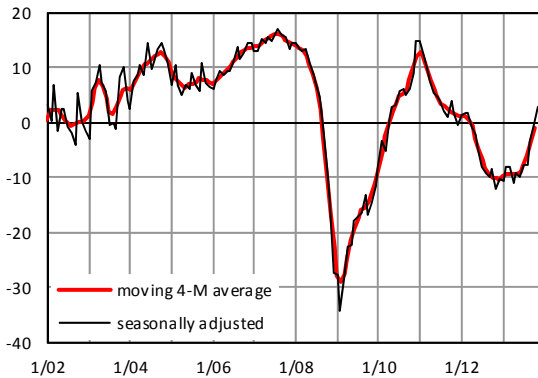
Nevertheless, not only is the size of the labour force nondecreasing under these conditions, it is even growing at a relatively dramatic pace – in Q3 2013 by 0.9% YoY. The negative impact of the decline in working-age population on labour supply is more than compensated by a sharp increase in the **participation rate** (ratio of the labour force to the population aged 15–64 years).

The effects within the age structure of the labour force are reflected here, with the structural proportions of age groups with high or growing participation increasing. We can also see an increased motivation to work under difficult economic conditions supported by postponement of the retirement age. With a contribution of 0.9 pp, the participation rate remained the most important factor for potential product growth in Q3 2013.

## B.2 Business Cycle Indicators

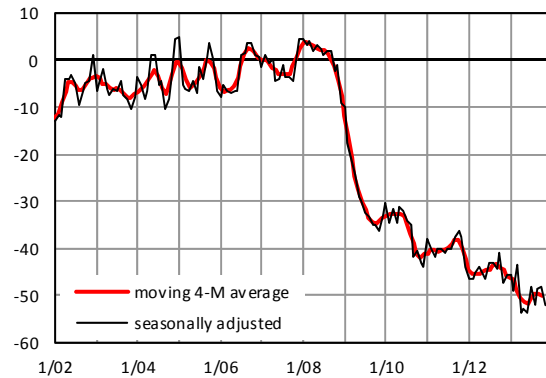
Business cycle indicators express respondents' views as to the current situation and short-term outlook and serve to identify in advance possible turning points in the economic cycle. Their main advantage lies in the quick availability of results reflecting a wide range of influences shaping the expectations of economic entities.<sup>1</sup>

Graph B.2.1: Industrial Confidence Indicator



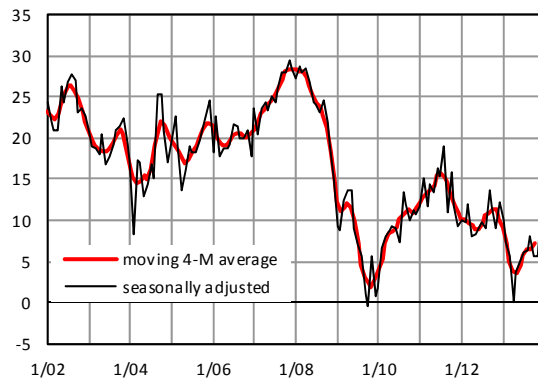
Source: CZSO

Graph B.2.2: Construction Confidence Indicator



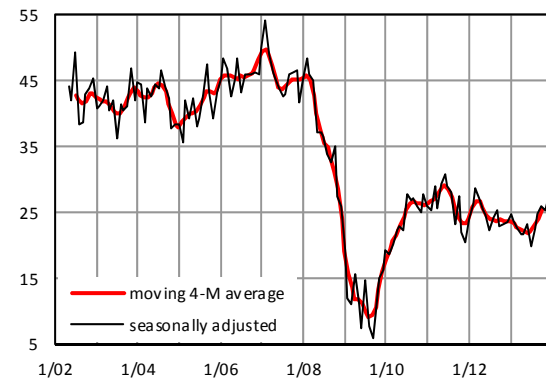
Source: CZSO

Graph B.2.3: Retail Trade Confidence Indicator



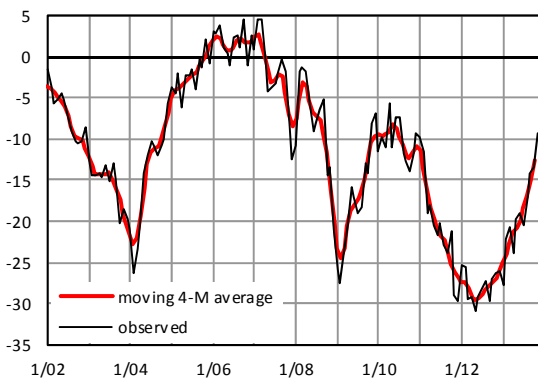
Source: CZSO

Graph B.2.4: Selected Services Confidence Indicator



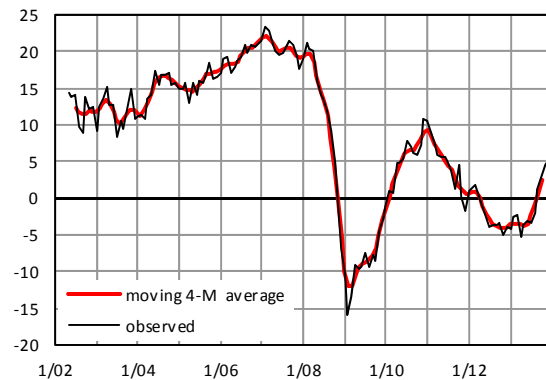
Source: CZSO

Graph B.2.5: Consumer Confidence Indicator



Source: CZSO

Graph B.2.6: Aggregate Confidence Indicator



Source: CZSO

<sup>1</sup> For the business cycle research methodology, see CZSO: [http://www.czso.cz/eng/redakce.nsf/i/business\\_cycle\\_surveys](http://www.czso.cz/eng/redakce.nsf/i/business_cycle_surveys).

The composite confidence indicator and confidence indicators in industry, trade and selected services increased on a quarterly basis in Q4 2013. They suggest possible improvement of the economic situation in the Czech Republic.

The consumer confidence indicator also continued its convincing growth path. Unlike the industry confidence indicator, however, here the replies of respondents were still predominantly negative. In contrast, the confidence indicator in construction showed a further slight decrease in its value in the given period.

Further, the relationship between the development of confidence indicators and the CZSO's monthly statistics is described for industry, construction, trade and services (the latest available data as of the Forecast's closing date were for November 2013).

The positive development of the industry confidence indicator is qualitatively in line with the development of the seasonally adjusted index of industrial production, which started increasing in annual terms, both for industry as a whole and specifically for the processing industry, in August 2013.

It is also possible to observe the relationship between a decrease in the confidence indicator in construction and a decrease in the construction work index, whose value was decreasing in annual terms in all months from January to November 2013. In total for this period, the construction work index decreased both for buildings and civil engineering works.

In the 11 months of 2013 under consideration, retail sales in constant prices increased in annual terms, especially thanks to the section Sale, maintenance and repair of motor vehicles and motorcycles. However, a small increase can be observed in the given period even without these components of total retail. This is in line with the improvement in the value of the confidence indicator in trade.

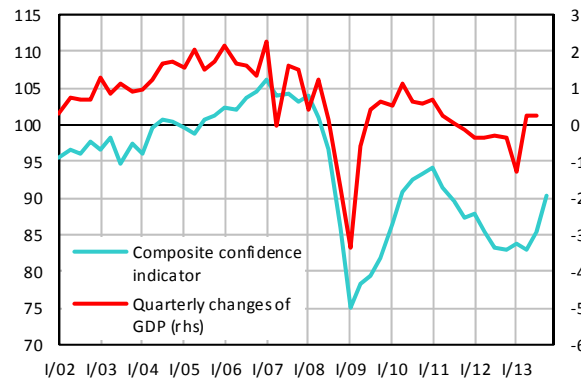
The slight improvement of the confidence indicator in services is not supported by the development of sales in services in constant prices: these decreased on a yearly basis from January to November 2013. A convincing exception is represented only by services related to transport and storage.

Although the relationship between the values of the composite confidence indicator and the quarterly changes in real gross domestic product is not particularly close (without any lag their mutual correlation is approximately 60%), it does at least enable us to utilize the fact that the composite indicator is published in advance of the quarterly

national accounts. In Graph B.2.7 we present only a qualitative assessment. It is clear that for Q4 2013, the composite confidence indicator signalled QoQ growth of GDP.

**Graph B.2.7: Composite confidence indicator and QoQ GDP Growth**

2005=100 (lhs), QoQ GDP growth in % (rhs)



Source: CZSO

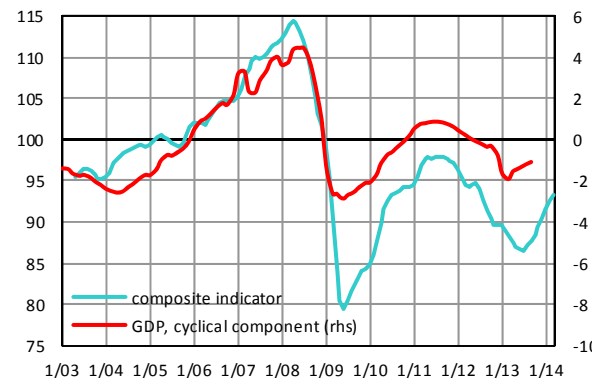
For Q3 2013, the composite leading indicator signalled more or less stagnation of the relative cyclical component of GDP and a small GDP decline on a quarterly basis. The relative cyclical component of GDP based on the Hodrick-Prescott filter roughly stagnated, but GDP increased very slightly according to the CZSO's data from January 2014.

For the Q4 2013 and Q1 2014 the indicator signals closing of the negative output gap. With respect to the fact that the trend dynamics over a short period can be considered constant, this signal is consistent with quarterly GDP growth. As far as Q4 2013 is concerned, the composite indicator provides qualitatively identical information to that of the composite confidence indicator.

**Graph B.2.8: Composite Leading Indicator**

average 2005=100 (lhs), in % of GDP (rhs)

synchronized with cyclical component of GDP based on statistical methods (Hodrick-Prescott filter)



Source: CZSO, own calculations