

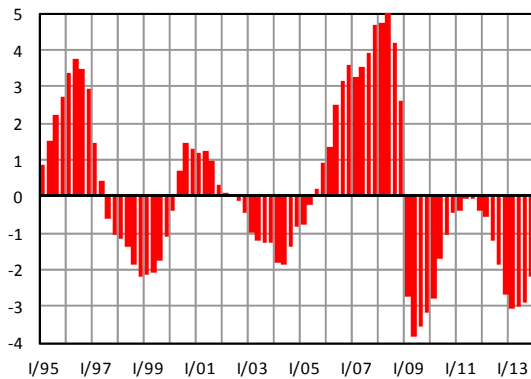
## B Economic Cycle

### B.1 Position within the Economic Cycle

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

**Graph B.1.1: Output Gap**

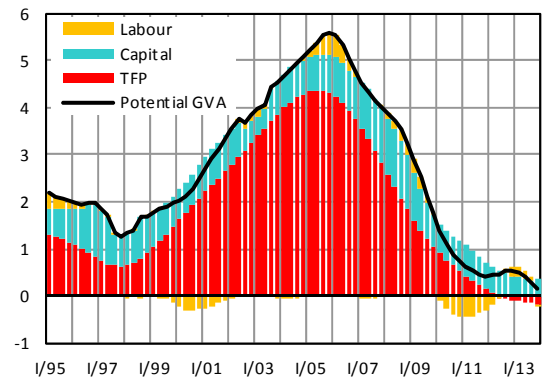
in % of potential GDP



Source: CZSO, own calculations

**Graph B.1.2: Potential Product Growth**

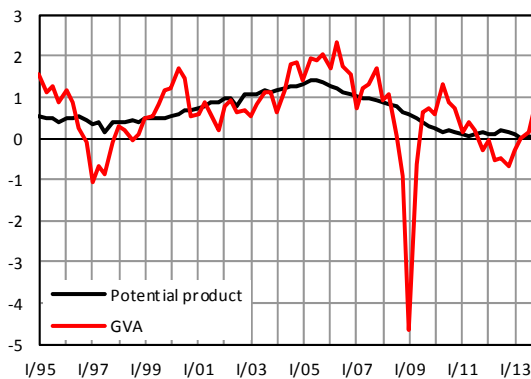
in %, contributions in percentage points



Source: CZSO, own calculations

**Graph B.1.3: Potential Product and GDP**

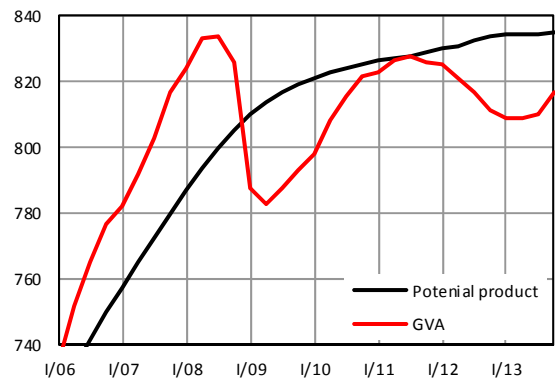
QoQ growth rate, in %



Source: CZSO, own calculations

**Graph B.1.4: Levels of Potential Product and GDP**

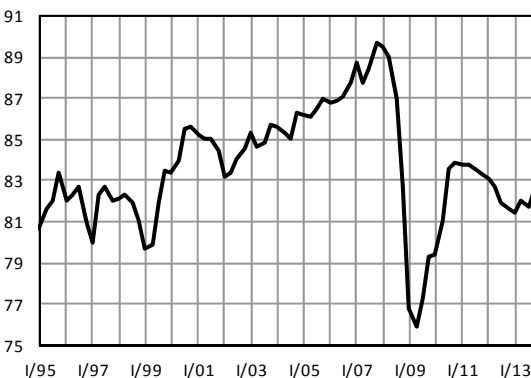
in bill. CZK of 2005



Source: CZSO, own calculations

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

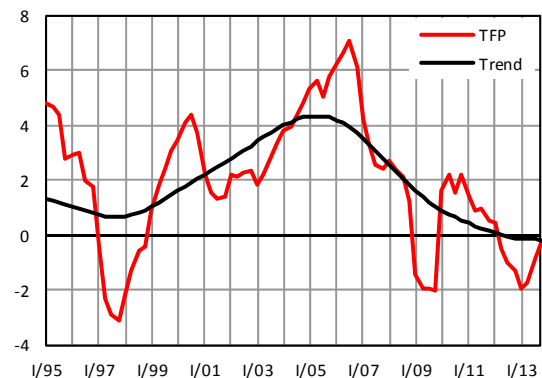
in %



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
<b>Output gap</b>	<i>per cent</i>	-1.5	0.1	2.7	3.9	4.1	-3.3	-1.5	-0.2	-1.6	-2.8
<b>Potential product</b>	<i>growth in %</i>	4.9	5.4	5.2	4.2	3.6	2.3	1.0	0.5	0.5	0.3
<b>Contributions:</b>											
–Trend TFP	<i>perc. points</i>	4.2	4.3	4.0	3.2	2.2	1.3	0.7	0.3	0.0	-0.1
–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
–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	-0.6
–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
–Usually worked hours	<i>perc. points</i>	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3

Source: CZSO, own calculations

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

In this Macroeconomic Forecast, two **fundamental methodical changes** have been made in a way of calculating potential product and the output gap:

- The real GDP indicator (adjusted for seasons and working days) has shown high volatility in recent quarters caused by irregularities in the collection of indirect taxes (more details – see Chapter C.1), which misrepresents the actual course of the economic cycle. Therefore, for the purpose of these calculations GDP has been replaced by real gross value added, which does not include indirect taxes.
- It has been shown that specification of the production factor of labour based on the number of persons employed under conditions of a decrease in the average number of hours worked (more details – see Chapter C.3) considerably undervalues total factor productivity, and thus also potential product. Therefore, calculation algorithm was supplemented, in accordance with the methodology used by the EC, by the factor of worked hours per employed person.

The recession in which the economy found itself from Q4 2011 to Q1 2013 again resulted in a large negative **output gap**. By the end of the recession it reached –3.0%. However, the following three quarters of recovery mitigated the figure to –2.2% in Q4 2013. The negative output gap is reflected in the economy by registered unemployment close to record-breaking values, below-average utilization of capacities and a slow increase in prices and wages.

Due to long periods of recession or sluggish economic growth, growth of **potential product** slowed considerably, down to approximately 0.3% in 2013.

This slowdown was mainly caused by **total factor productivity** (TFP). Its trend component, derived from

the Hodrick-Prescott filter, has been more or less stagnant since 2011.

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 0.4 pp in 2013.

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

However, the size of the labour force even increased under these conditions by 0.9% in 2013. The negative impact of the decline in working-age population on labour supply is more than compensated by an increase in the **participation rate** (ratio of the labour force to the population aged 15–64 years). It increased by 1.5 pp YoY in 2013, which was the biggest increase in the history of the independent Czech Republic, and added 1.0 pp to potential product growth. The participation rate has thus become the most important factor of potential product growth.

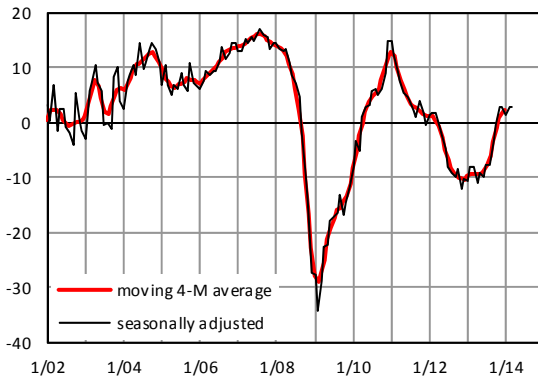
The effects within the age structure of the labour force are reflected here, with the structural proportions of age groups with high or growing participation increasing. We also see an increased motivation to work under difficult economic conditions supported by gradual postponement of the retirement age.

In the Czech Republic, usual average working time is in decline. This autonomous process, which is a consequence of the country now approaching the standards of more developed countries, has been intensified recently by extension of part-time jobs and more flexible use of occasional work. The lower number of usually **worked hours** slowed potential product growth by 0.3 pp in 2013.

## B.2 Business Cycle Indicators

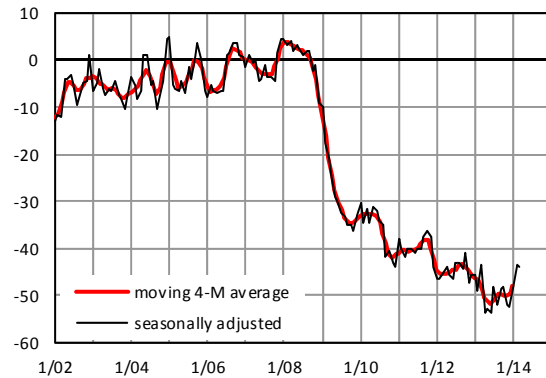
Business cycle indicators express respondents' views as to the current situation and short-term outlook and serve to identify in advance possible turning points in the economic cycle. Their main advantage lies in the quick availability of results reflecting a wide range of influences shaping the expectations of economic entities.<sup>3</sup>

Graph B.2.1: Industrial Confidence Indicator



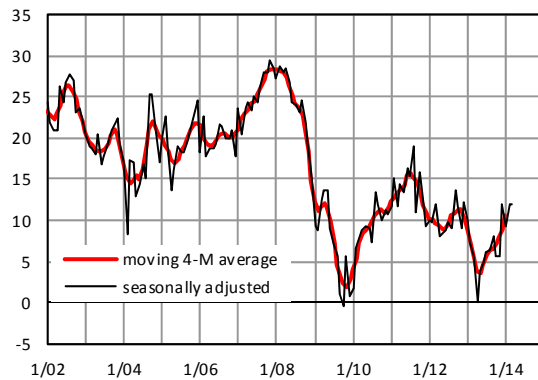
Source: CZSO

Graph B.2.2: Construction Confidence Indicator



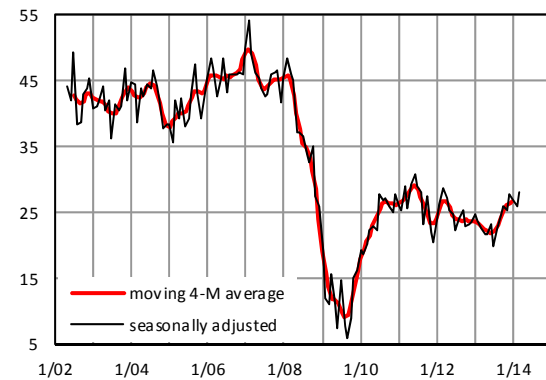
Source: CZSO

Graph B.2.3: Retail Trade Confidence Indicator



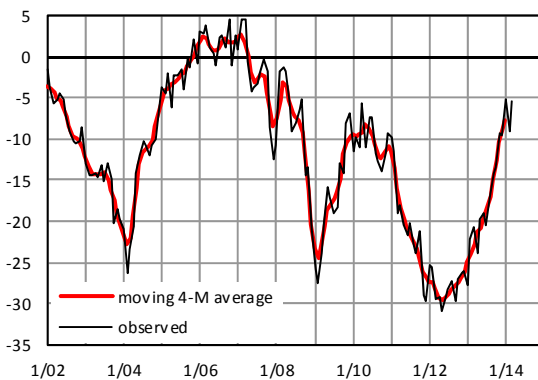
Source: CZSO

Graph B.2.4: Selected Services Confidence Indicator



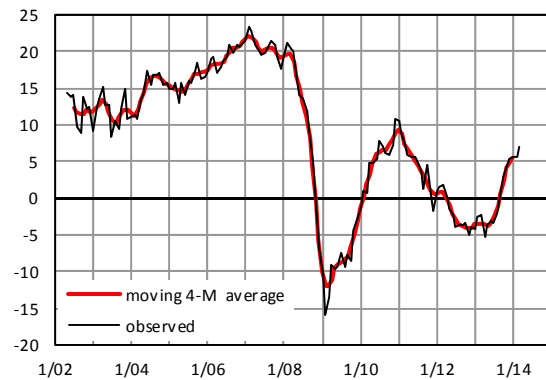
Source: CZSO

Graph B.2.5: Consumer Confidence Indicator



Source: CZSO

Graph B.2.6: Aggregate Confidence Indicator



Source: CZSO

<sup>3</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).

Business cycle indicators generally saw positive development between Q4 2013 and Q1 2014. The responses of respondents in industry, trade and selected market services were predominantly positive, and the share of positive answers increased in a QoQ comparison. In the construction sector the responses continue to be overwhelmingly negative, although their share decreased on a quarterly basis.

Consumer sentiment further improved. The majority, although not as high as in the previous quarter, of responses remains negative.

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 cut-off date were for January 2014).

YoY growth of industrial production could be observed in January, mainly in connection with the high surplus of foreign trade. On a yearly basis, the volume of new orders also increased considerably, with foreign orders rising by more than a fifth. This development corresponded with an improvement of the industry confidence indicator.

In construction, the construction production index increased in annual terms, both for buildings and civil engineering works. Growth in the construction production index corresponded with a positive development of the confidence indicator in construction.

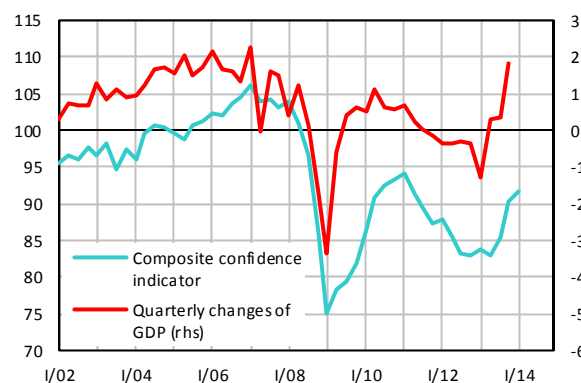
In trade, a growth in sales in constant prices could be observed, mainly thanks to the automotive segment. In other segments of trade, however, development was considerably less positive.

Sales in constant prices of selected market services also increased in annual terms, mainly thanks to growth in the section Transportation and Storage. An overall modest recovery in services was accompanied by only a slight improvement of the confidence indicator.

Although the relationship between the values of the composite confidence indicator and the quarterly changes in real GDP is not particularly close (without any lag their correlation is approximately 60%), it does at least enable us to utilize the fact that the composite indicator is published in advance of quarterly national accounts. In Graph B.2.7 we therefore present only a qualitative assessment. It is clear that for Q1 2014, the composite confidence indicator signalled a quarterly growth of GDP.

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

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



Source: CZSO

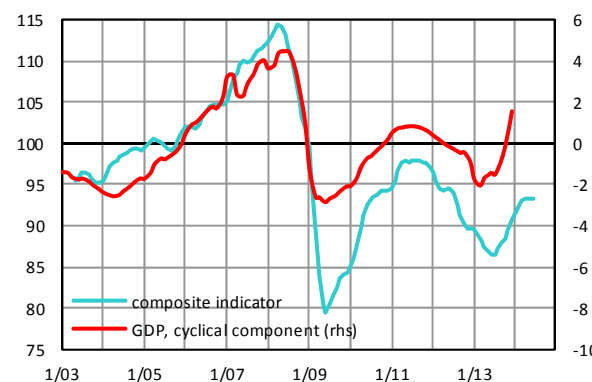
For Q4 2013, the composite leading indicator signalled the closing of the negative output gap. The published data have confirmed this signal. However, the composite indicator cannot at all take into account the impact of administrative interventions, e.g. the impacts of stockpiling tobacco products in connection with an increase in the excise tax. Therefore the improvement of the relative cyclical component in Q4 2013 is proportionally much stronger with respect to the development of the indicator. The same factor is also reflected in the interpretation for Q1 2014.

For Q1 2014, the indicator forecasts a very slight improvement of the relative cyclical component of GDP and its stagnation for Q2 2014. Since trend dynamics over the short term can be considered approximately constant, this signal is consistent with a slight GDP growth in Q1 2014 and its stagnation in Q2 2014. Considering the aforementioned one-off factor, however, it is also possible to expect, in line with the aforementioned indicator development, a GDP decrease in Q1 2014.

**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