# 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 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 potential product. The concepts of potential product and output gap are used to analyze the economic cycle and to calculate the structural balance of public budgets.
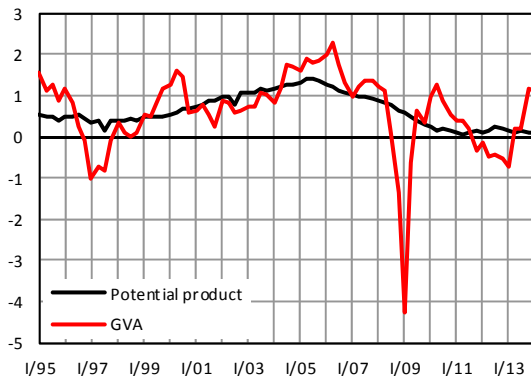
Graph B.1.1: **Output Gap**
in % of potential GDP
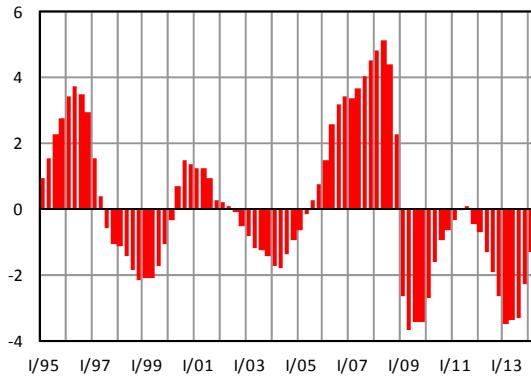
Source: CZSO, own calculations

Graph B.1.2: **Potential Product Growth**
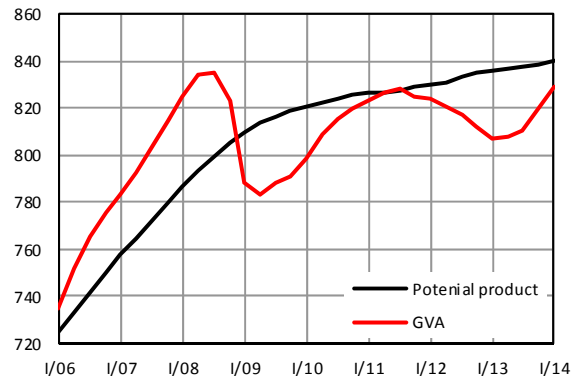*in %, contributions in percentage points*
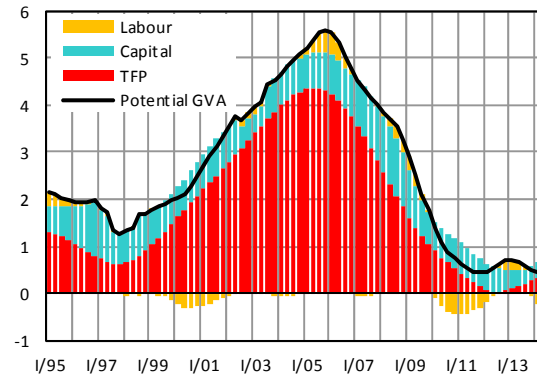
Source: CZSO, own calculations

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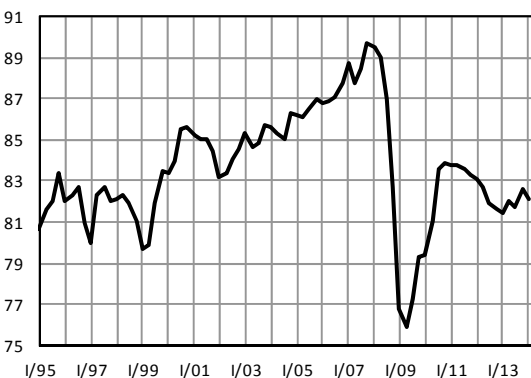*QoQ growth rate, in %*

Source: CZSO, own calculations

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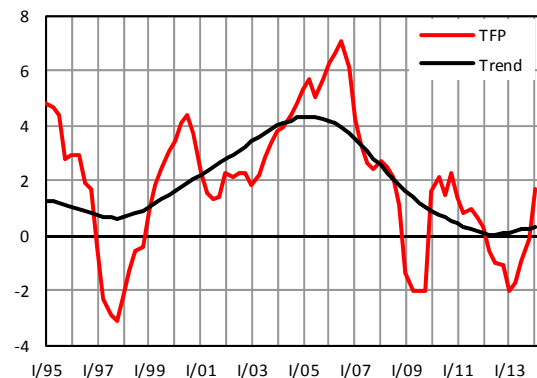*in bill. CZK of 2005*

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**

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 Q1
Output gap	*per cent*	0.1	2.7	3.9	4.1	-3.3	-1.5	-0.2	-1.7	-3.1	-1.3
Potential product [1]	*growth in %*	5.4	5.2	4.2	3.6	2.3	1.0	0.5	0.6	0.6	0.5
Contributions:											
− **Trend TFP**	*perc. points*	4.3	4.0	3.2	2.2	1.3	0.7	0.3	0.1	0.2	0.3
− **Fixed assets**	*perc. points*	0.8	0.9	1.1	1.2	0.8	0.6	0.6	0.5	0.3	0.3
− **Demography** [2]	*perc. points*	0.2	0.2	0.3	0.4	0.1	-0.2	-0.4	-0.5	-0.6	-0.6
− **Participation rate**	*perc. points*	0.2	0.2	-0.2	0.0	0.3	0.2	0.3	0.8	1.0	0.7
− **Usually worked hours**	*perc. points*	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3

Source: CZSO, own calculations
[1] *Based on gross value added*
[2] *Contribution of growth of working-age population (15–64 years)*

The protracted recession, which lasted from the fourth quarter of 2011 to the first quarter of 2013, resulted in a large negative **output gap**. At the end of the recession it reached –3.5%, which is similar in depth to the recession at the turn of 2008 and 2009 (see Graph B.1.1). However, strong economic growth in the fourth quarter of 2013 and the first quarter of 2014 resulted in its narrowing to –1.3%. So far, the negative output gap has been reflected in the economy by high registered unemployment, below-average utilization of capacities and a slow increase in prices and wages.

Any forecast for the future development of the output gap is always associated with a considerable degree of uncertainty. Yet it is possible to infer that if the central scenario of the Macroeconomic Forecast materialised, the negative output gap would close during 2015. In the years of the outlook, the economy might already find itself with a positive output gap.

The expected development of the output gap is primarily caused by the low growth of **potential product.** Due to long periods of recession or sluggish economic growth, growth of potential product has slowed considerably, down to 0.5% in the first quarter of 2014.

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. Apparent signs of an improvement at the end of the time series will have to be confirmed in the following period.

The long-lasting slump in gross fixed capital formation in 2008–2013 has led to a drop in the contribution of **capital stock** from 1.2 pp in 2008 to 0.3 pp in 2013 and in the first quarter of 2014.

Labour supply is affected by a decrease in working-age population, which is caused by the population ageing process (see Chapter A.5). In the first quarter of 2014, **demographic developments** slowed potential product growth by 0.6 pp.

The negative impact of the decline in the population aged 15–64 years 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), and the labour force is thus not decreasing. Our calculations show that the rate of participation in the Czech economy has rather an anti-cyclical character. Therefore, the decrease in its contribution to potential product growth from 1.0 pp in 2013 to 0.7 pp in the first quarter of 2014 should certainly not cause any alarm. The participation rate still remains the most important factor of potential product growth.

In the Czech Republic, regular average working time is shortening. This autonomous process, which is a consequence of the country now approaching the standards of more developed countries, has been intensified recently by the extension of part-time jobs and a more flexible use of occasional work. The lower number of **hours** usually **worked** slowed potential product growth by 0.3 pp in the first quarter of 2014.

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.[2]

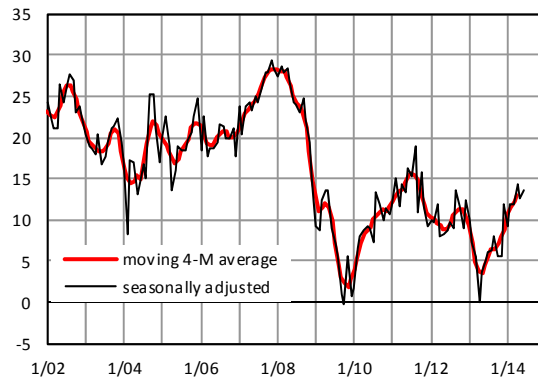Graph B.2.1: **Industrial Confidence Indicator**
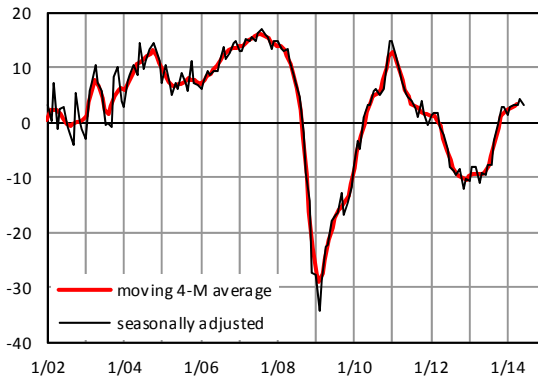
Source: CZSO

Graph B.2.2: **Construction Confidence Indicator**
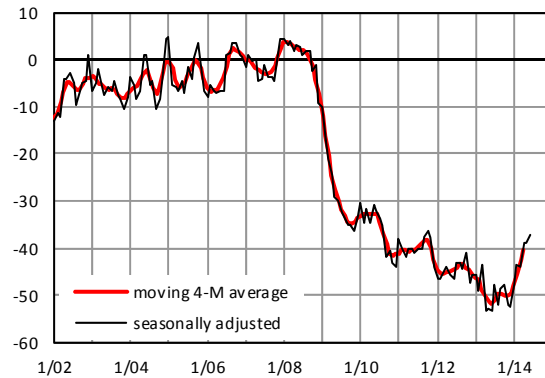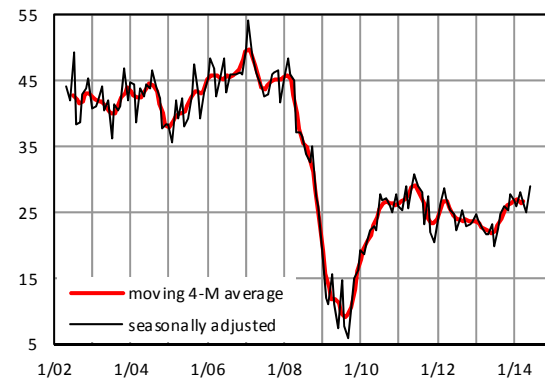

Source: CZSO
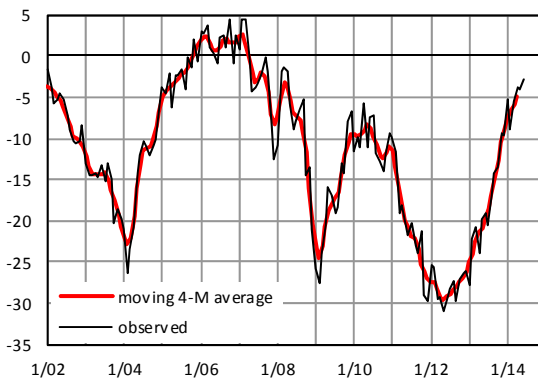
Graph B.2.3: **Retail Trade Confidence Indicator**

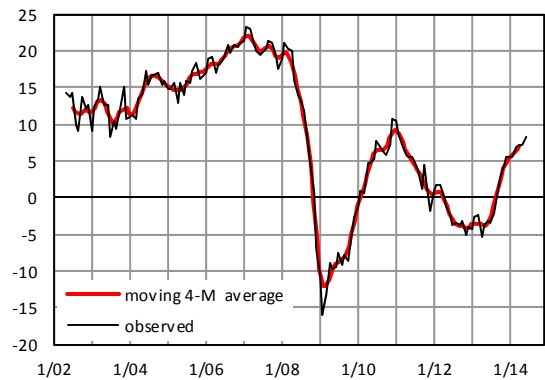

Source: CZSO

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

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[2] For the business cycle research methodology, see CZSO: http://www.czso.cz/eng/redakce.nsf/i/business_cycle_surveys.

In the second quarter of 2014, confidence indicators improved on the previous quarter, with positive assessment of respondents prevailing in industry, trade and selected market services. The situation in industry and trade improved in quarterly terms, while in services it remained unchanged. There was a big improvement in construction, where respondents' negative assessments still far outweigh the positive ones, yet their share decreased from the first quarter of 2014.

There was a further improvement also in consumer sentiment. The balance of respondents' assessments is still slightly negative, though taking into account the time series' history this has to be viewed positively.

In the next paragraph, the relationship between the development of confidence indicators and the CZSO's monthly statistics for industry, trade and services is outlined (the latest available data as of the forecast's cut-off date were for April 2014).

Industrial confidence indicator has been in line with the development of industrial production index, which has been growing in YoY terms since the third quarter of 2013, and which is accompanied by an increase in new orders. The rather marked drop in the share of respondents' negative assessments in construction went hand in hand with growing construction output, in both civil engineering and building construction. The increase in confidence in trade was accompanied by growing inflation-adjusted retail sales, which continue to be driven by sales of motor vehicles and fuel, though. Moreover, the rather limited growth of sales in services, adjusted for inflation, was driven mainly by rising sales in transportation and storage.

Although the link between values of the composite confidence indicator and quarterly changes in real GDP is not particularly strong (without any lag their correlation is approximately 60%), it does at least enable us to utilise the fact that the composite indicator is published in advance of quarterly national accounts. Therefore, only a qualitative assessment is presented in Graph B.2.7. The composite confidence indicator implied that GDP would grow in QoQ terms in the second quarter of 2014.

Graph B.2.7: **Composite confidence indicator and QoQ GDP Growth**
2005=100 (lhs), QoQ GDP growth in % (rhs)
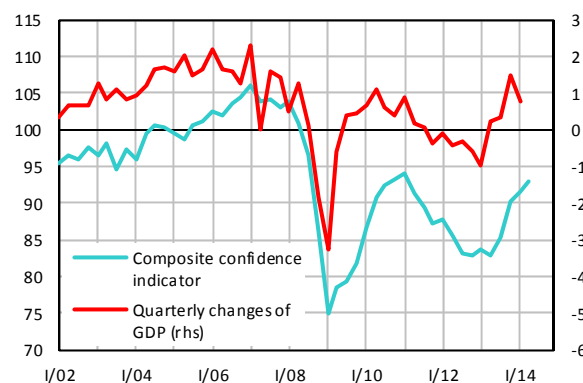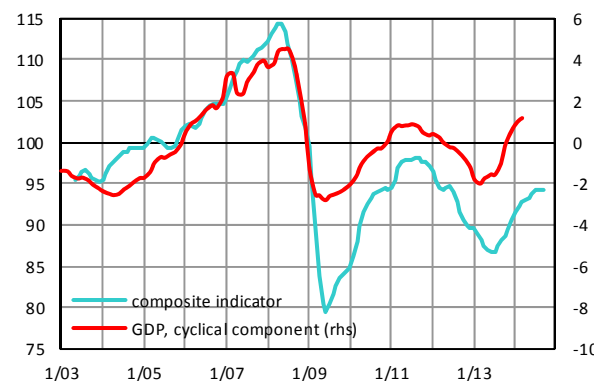

Source: CZSO

Composite leading indicator had implied that quarterly GDP growth would be positive and relative cyclical component of GDP would improve in the first quarter of 2014. The released data confirmed this signal. Relative cyclical component, derived by means of the Hodrick-Prescott filter, has been recently attaining positive values.

The indicator signals a further improvement in the relative cyclical component in the second and the third quarter of 2014. This is consistent with quarterly GDP growth rate at or slightly below the level seen in the first quarter of 2014, taking into account the fact that short-run dynamics of the trend can be regarded as constant and that the trend is stagnating.

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