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CENTRE FOR ECONOMIC STUDIES

Growth performance and stability

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Abstract:

The paper is divided into three chapters. The first deals with growth performance, its main sources and the real convergence to the EU average. The second chapter examines the changes on the demand side and macroeconomic stability, analyzed in terms of national saving and domestic investment with impact on external balance. The third chapter covers the nominal convergence in terms of closing gaps in comparative price and wage levels. Growth and supply side of the economy (Vojtěch Spěváček, Růžena Vintrová, Mojmír Hájek, Václav Žďárek): The factors are presented which led to the acceleration of economic growth in 2001-2006. Growth is measured both with the traditional indicator of GDP and alternative indicators of real income (reflecting the effects of terms of trade and income flows with the rest of the world). The process of real convergence (quite rapid in 2001-2006) is measured in terms of GDP per capita in PPS. The analysis of growth factors on the supply side takes into account the growth of labour, capital and total factor productivity and shows that the growth of the Czech economy was predominantly caused by the growth of total factor productivity. Demand side and macroeconomic balance (Vojtěch Spěváček, Eva Zamrazilová): On the demand side the structural changes are analyzed together with the contribution of demand components to GDP growth. A positive change can be seen in the contribution of foreign trade. Special attention is given to private consumption and main factors which determined its development. The evaluation of macroeconomic stability is based on the relationship of domestic supply and demand and on the relation of national saving and domestic investment. The gap between investment and saving indicates potential danger due to the decline of saving rates of households and falling savings of government sector. External balance is increasingly influenced by foreign direct investment and the role of companies under foreign control. Nominal convergence (Václav Žďárek, Růžena Vintrová): Nominal convergence is reflected in the closing gaps in comparative price and wage levels. The comparative price levels converge through two transmission channels: by inflation differential and through the nominal exchange rate appreciation. The second channel will disappear after the adoption of common currency. In this case certain danger of acceleration of inflation exists. The price level in the Czech Republic is substantially lower than in the countries with similar economic level. However, the increase of comparative price level in the Czech Republic was relatively steep in the last ten years. The chapter also analyses relative price levels in different commodity groups with special attention given to the tradables vs. non-tradables.

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1. Growth and supply-side economics

The chapter assesses the growth potential of the Czech economy in international context for the period 2001–2006, using alternative indicators, as well as the real convergence process in comparison to the EU economic level. A distinction has been made between the influence of real GDP growth and the influence of improvement of the terms of trade in foreign trade on real convergence. In respect to the supply side, the contribution of basic sectors towards the GDP growth has been identified, as well as, using the growth accounting method, the importance of labour, capital and total factor productivity.

1.1 International economic development

After the slow-down in 2001 and 2002, the GDP dynamics of the world economy have increased significantly, reaching 5% on average over the last 5 years (it is the strongest expansion since the 70's). So far, the slow-down of the American economy has been compensated by high dynamics of the Asian region (China, India), oil-exporting countries (OPEC and Russia) as well as developing countries. However, the International Monetary Fund (IMF) has predicted that GDP will slightly slow down to 4.9% in 2007 and 2008. There are significant differences in economic performances between regions (USA, Europe or Asian countries), as well as possible threats (the real-estate and mortgage crisis in the USA, growth of oil prices, increase in interest rates). Additionally, these factors are joined by political instability in some regions, awakening protectionism in international trade and significant global imbalance. These factors could slow down the future growth.

Structure of global economic growth

According to an April forecast of the IMF (see IMF, 2007), the economic growth will differ widely among the various regions of the world. Emerging economies such as China and India, oil exporting countries and developing countries will become the main growth boosters. A slow-down is expected for the European Union and USA (see Table 1).

Table 1: Real GDP and world trade (percentage annual change)

	2005	2006	2007	2008
GDP – world	4.9	5.4	4.9	4.9
United States	3.2	3.3	2.2	2.8
European Union	1.9	3.2	2.8	2.7
Japan	1.9	2.2	2.3	1.9
China	10.4	10.7	10.0	9.5
India	9.2	9.2	8.4	7.8
Russia	6.4	6.7	6.4	5.9
World trade	7.4	9.2	7.0	7.4

Source: IMF (2007), pp. 2.

Development of the US economy

The US economy slowed down significantly in the last three quarters of 2006, with only a slight GDP growth of 2.2% expected in 2007. While private consumption has been growing quickly, the **real estate market** has been hindering the growth. In the second half of 2006, residential investments were down by approximately 19%. In the past, residential prices were growing, positively influencing economic activity, consumption, investment construction and the employment rate. However, the prices were overheated and the

cool-down process is under way now. The decrease in the real prices of houses results in a decrease in investments and consumption (with negative effect on wealth and employment). The real estate market plays an important role in the US economy and, according to an IMF analysis, the reduction of the real appreciation of property from 10% to zero may slow down the economic growth by up to 2 percentage points over one year. The question remains whether the slow-down is only temporary or whether it is a permanent change that could turn into a recession. The labour market situation, satisfactory profitability of enterprises and, from a historical perspective, low interest rates have been considered positive factors.

The dependence of the world economy on the development in the USA has been the focal point of analytical interest for many years. The pivotal role of the USA has been clear for several decades, however, Asian countries and oil exporting countries are becoming increasingly important. Based on IMF analysis, the global influence of the US on the world economy is present, even though not to such a significant extent as expected originally. **International trade** is the source of this influence since, in this respect, the USA is still the key player (see Table 2). Over the recent years, the reduced US export rate and, opposed to that, the increased import rate have positively influenced the world economy. Nevertheless, the reduction of import demand as a result of weakening US economic growth will have a negative impact.

Table 2: Shares of world trade, 2001–2005 (in per cent)

	Export	Import
United States	11.6	19.7
EU-12	18.5	16.9
Japan	7.4	5.8
United Kingdom	4.7	5.6
Canada	4.4	4.0
China	7.2	6.2
Mexiko	2.7	2.9
Korea	3.1	2.7
India	1.0	1.2
Brazil	1.2	0.9

Source: IMF (2007), tab. 4.1, pp. 122–123.

Development of the EU economy

From the perspective of the Czech Republic, the development in the countries of the European Union is of significant importance, with this territory accepting 85% of its exports and, on the contrary, serving as the source of the majority of its investments. From the global perspective, the EU remains a slow-growing region despite improved rates (growing from 1.8 in 2005 to 3% in 2006). An ECFIN forecast for the next two years expects a slight reduction to 2.9% and 2.7% respectively, reflecting the influence of fiscal consolidation and stricter monetary policies. The risks to the future EU development are associated with the development of the US economy, possible turbulences on financial markets and the development of energy and raw material prices on which Europe depends heavily.

The future EU growth relies especially on the positive development of domestic demand that should stimulate a fast growth of fixed capital investments. The dynamics of private

consumption are expected to gradually grow to 2.6% in 2008 (see Table 3). The influence of foreign trade on the GDP growth will be negligible.

The growth has reached more significant values in **Germany**, the Czech Republic's main trading partner (up from 0.8% in 2005 to 2.9% in 2006). A reduction to 2.5% is expected over the next two years. Investments and foreign trade should be the main growth factors since domestic demand is not expected to accelerate before 2008 (as a result of VAT changes in January 2007).

Table 3: Components of real GDP in EU-27 (percentage annual change)

	2005	2006	2007	2008
GDP	1.7	3.0	2.9	2.7
Private consumption	1.7	2.2	2.5	2.6
Public consumption	1.7	2.1	1.8	1.8
GFCF	3.1	5.6	5.2	4.2
Export of goods and services	5.3	9.2	7.0	6.2
Final demand	2.8	4.7	4.3	3.7
Import of goods and services	5.8	9.1	7.2	6.6

Source: ECFIN (2007), pp. 27.

1.2 Growth and convergence of the Czech economy

The economic development in the Czech Republic in the late 90's was negatively influenced by the impacts of the recession during 1997 and 1998. However, between 2001 and 2006, the growth has picked up significantly, reaching 4,2% per year on average (see Table 4). The effect of several factors has had a positive influence, e.g. strong inflow of direct foreign investments and the growing importance of enterprises under foreign control with higher productivity, fast expansion of domestic investments and export, privatization and restructuring of banks (and the resulting consolidation of this sector, dropping interest rates or expansive fiscal policy.

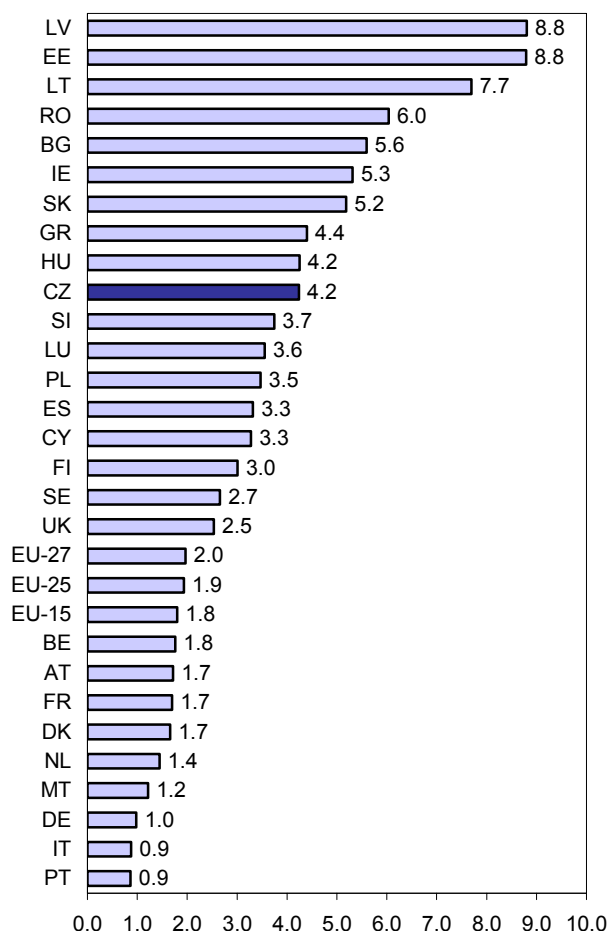**Table 4: Real GDP (percentage average annual change)**

	CZ	HU	PL	SK	SI	EU-15
2001	2.5	4.1	1.1	3.2	2.7	1.9
2002	1.9	4.3	1.4	4.1	3.5	1.1
2003	3.6	4.1	3.8	4.2	2.7	1.1
2004	4.6	4.9	5.3	5.4	4.4	2.3
2005	6.5	4.2	3.5	6.0	4.0	1.6
2006	6.4	3.9	5.8	8.3	5.2	2.8
2001–2006	4.2	4.2	3.5	5.2	3.8	1.8
2001–2003	2.7	4.2	2.1	3.8	3.0	1.4
2004–2006	5.8	4.3	4.9	6.6	4.5	2.2

Source: EUROSTAT (2007d), own calculation.

When examining **individual periods in detail**, a higher economic growth rate is apparent in Q4 of 2002 (see Figure 2), with the highest rate on record so far in Q4 of 2005 (7.0%). In 2006, the growth rate went slightly down from 6.6% in Q1 to 6.1 in Q4. So far in 2007, the Czech economy has been able to maintain the dynamics above 6%. A gradual slow-down may be expected in the upcoming periods that will also be influenced by the development in the region. The turbulences on the world financial markets could affect the main trading partners of the Czech Republic in the European Union (due to financial ties, in particular with Germany).

When **compared internationally**, the Czech Republic came in tenth in the EU-27 GDP growth chart for the period of 2001 to 2006. The Baltic republics, followed by Romania, Bulgaria, Ireland, Slovakia, Greece and Hungary (see Figure 1), took the lead. The significantly faster growth rate of the Czech Republic in comparison to the EU, where the GDP growth reached only 1.8% on average between 2001–2006, resulted in a faster convergence (approximation of the per capita income to the average value).

Figure 1: Real GDP (percentage average annual change in 2001–2006)

LV	8.8
EE	8.8
LT	7.7
RO	6.0
BG	5.6
IE	5.3
SK	5.2
GR	4.4
HU	4.2
CZ	4.2
SI	3.7
LU	3.6
PL	3.5
ES	3.3
CY	3.3
FI	3.0
SE	2.7
UK	2.5
EU-27	2.0
EU-25	1.9
EU-15	1.8
BE	1.8
AT	1.7
FR	1.7
DK	1.7
NL	1.4
MT	1.2
DE	1.0
IT	0.9
PT	0.9

Source: EUROSTAT (2007d), ČSÚ (2007a), own calculation.

So far, **the period of 2004 to 2006** has been, from an economic perspective, the most successful in the history of the Czech Republic. In comparison to the three preceding years, the economic growth sped up by more than 3 percentage points, which is the best result of the EU-5 group.[1] The EU accession has been undoubtedly a positive impulse since it cultivated the institutional environment and increased possibilities for the free movement of goods, services, capital and

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[1] In June 2007, the Czech Statistical Office reviewed data concerning the formation and use of GDP for the period of 2004 – 2006. The reason for this was the reconciliation of quarterly and yearly accounts and changes in the methodology in relation to the Czech Republic joining the EU. Based on the revision, the real GDP growth went up by 0.4 percentage points in 2004 and 2005 and by 0.3 percentage points in 2006. Upon the conversion into constant prices, all impacts of modifications of the method of import and export evaluations were included in deflators in order not to interrupt the comparability within the timeline.

labour. Nevertheless, from the perspective of long-term growth factors, the inflow of **direct foreign investments** and the related production restructuring and export expansion seem to be key factors. Other favourable influences include the recovery of economic activity in Western Europe (especially in Germany), increase in the profitability of non-financial enterprises or growth of credit amounts provided to enterprises and households.

Real convergence

In international comparison, the economic level is assessed by **GDP per capita** (GDP p.c.) in purchasing power parity, which, for the EU countries, is expressed by purchasing power standard. Based on its economic level, the Czech Republic was the 17th of the EU-27 (see Figure 2). The **catch-up process** differs among the individual new members states, undergoing variations, with several states having seen changes in their position over the last decade. The Baltic countries were developing most dynamically, overtaking Poland, with Estonia also taking lead over Slovakia and Hungary. Economically most developed new states – Slovenia and the Czech Republic – made their way before Portugal and Malta. The states that were the last to join the EU, i.e. Bulgaria and Romania, came in last. Their economic level reaches, respectively, only 33% and 36% of the EU-27. (Approximately the same level as the Baltic countries in the second half of the 90's.)

Figure 2: GDP per capita in PPS (EU-25=100, 2006)
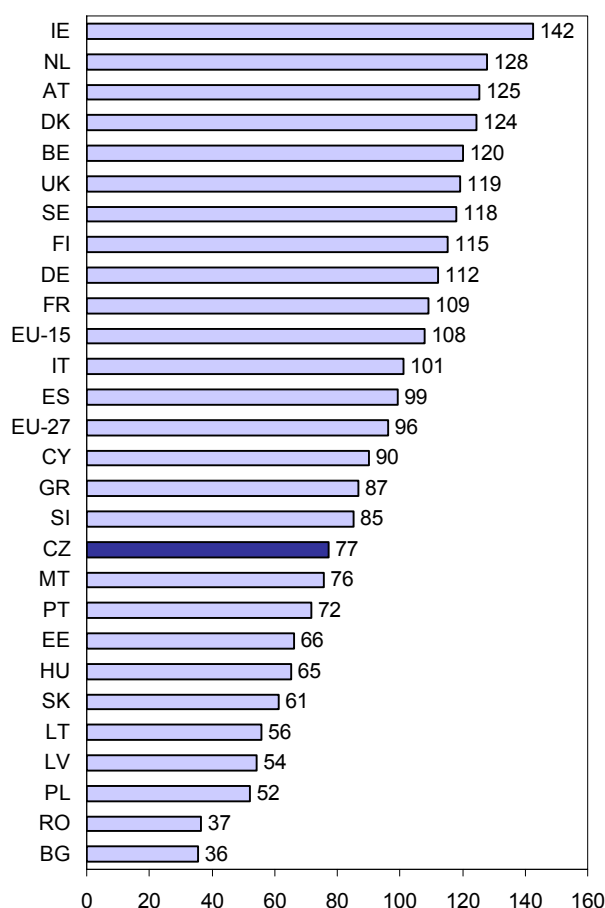
Note: Luxembourg = 262. Source: EUROSTAT (2007c, 1. 7. 2007).

In this decade, the Czech Republic (after the divergence in the second half of the 90's) has been catching up with the EU average very fast, by approximately 2 percentage points per year. Over the last years, convergence has also sped up in other EU-5 countries, except for Poland (see Table 5). A comparison of the new member states and the cohesion states (Greece, Spain, Portugal) for the period from 1995 shows an exceptionally fast catch-up rate in the Baltic countries, with a relatively fast rate in Hungary, Slovakia and Slovenia as well as Greece (of the cohesion states). On the contrary, Portugal has undergone divergence.

New member states fall into the **catching-up** category. They may adopt technologies from developed countries (at the level of best practises), therefore, the lower economic level implies a faster catch-up rate. The convergence speed is the highest in the Baltic countries, with the most developed states (the Czech Republic and Cyprus) converging at the slowest rate. Slovenia converged closer than what would be justified by its economic standing; the contrary is true for Poland.

Table 5: GDP per capita (in PPS, 1995-2006, EU-25=100)

| | 1995 | 2000 | 2006 | Difference in p.p. | |
				1995–2006	2000–2006
CZ	69	65	77	8	12
HU	49	54	63	14	9
PL	41	46	51	10	5
SK	45	48	60	15	12
SI	68	74	84	16	10
EE	34	43	65	31	22
LT	34	38	56	22	18
LV	30	35	54	24	19
BG	31	27	36	5	9
RO	..	25	36	..	11
PT	..	75	72	..	-3
GR	71	73	85	14	12
ES	87	93	98	11	5

Note: 1995 - EUROSTAT estimation except of cohesion countries. 2006 CZ and PT EUROSTAT forecast. In PT from 2003 break in time series. Source: EUROSTAT (2007c, d, 3. 9. 2007).

National income and real gross domestic income

Assessment of macroeconomic performance (growth and economic level) is most commonly based on the gross domestic product (GDP) indicator. In order to carry out a more complex assessment, other indicators should be considered as well (those included in the system of national accounts), especially when assessing new member states. Due to significant external openness, their national income is substantially reduced by the outflow of primary incomes, with the terms of trade in international trade influencing real income. The development of the supply side and the use of GDP should be examined as well.

Gross national income (GNI) takes into account the processes of primary distribution between the national economy and the world. It is a total of primary incomes of residential institutional units. With the liberalisation of capital flows, their movement between countries becomes increasingly important, with the places of creating and using the income being different. GDP and GNI are almost identical within the EU-15 group that constitutes a more or less closed economic entity

(with the exception of Ireland and Luxembourg).[2] However, within the EU-5 the difference between GNI and GDP continues growing as a result of a significant inflow of foreign direct investments (FDI) and the free movement of labour force (see Table 6). The loss of primary incomes over the last years has been most significant in Hungary, followed by the Czech Republic. In Slovakia, the inflow of primary incomes was even higher than their outflow in 2004. The loss of income in the process of primary distribution has a real impact on the economy. As a result, GNI grows at a slower rate than GDP,[3] which usually negatively impacts the growth of final consumption and investment.[4]

Table 6: Gross national income in per cent of GDP

	2004	2005	2006	GNI minus GDP [1)
EU-15	100.2	100.1	100.3	0.2
ČZ	94.5	95.1	94.6	-5.3
Hungary	94.1	94.2	92.1	-6.5
Poland	95.9	96.6	95.7	-3.9
Slovakia	100.4	97.4	97.0	-1.7
Slovenia	98.8	99.1	98.8	-1.1

Note: [1)] Annual average in the years 2004–2006, in p.p. Source: EUROSTAT – National Accounts (July 2007), own calculation.

The outflow of income is caused especially by payments made in relation to the previous inflow of **foreign direct investments** (profit reinvestment, payment of dividend on FDIs and FDI interests). This development usually follows certain phases – after the inflow phase, the importance of reinvested profit increases, followed by prevailing repatriation of profits in the third phase. The differences between the EU-5 states are substantial. Hungary saw the peak of inflow of investments in the early 90's, the Czech Republic and Slovakia until the end of the decade, while in Slovenia the inflow was negligible as a result of a higher level of regulation of capital flows to foreign countries. Another form of primary income flow is represented by wages, or migration, that reflect the importance of foreign workers - e.g. While an outflow of wages prevails in the Czech Republic, an inflow prevails in Slovakia (as a result of a high number of Slovak workers working abroad).

Real gross domestic income of residents (RHDD) is influenced by the production volume measured by GDP in constant prices but also by a ratio of export and import transactions carried out with non-residents, i.e. by **terms of trade**.[5] RHDD is calculated by adding or subtracting

gains or losses from/to GDP in constant prices (for details, see Spěváček, 2005; Spěváček, Vintrová, 2005). Changes in the terms of trade influence the real domestic income indicator as well as foreign trade balance and macroeconomic balance.

The influence of changes in terms of trade is significant in the Czech economy. For a long time, gains prevailed, losses were incurred only in 2005 and 2006. Short-term variations were caused especially by external shocks initiated by sudden changes in the prices of oil and other raw materials. An international comparison shows (see Figure 3) that between 2001 and 2006, despite an important increase in the price of energy and other raw materials, the Czech Republic saw a positive development of the terms of trade. In comparison to 2000, the index reached a value of 104.1 in 2006. The terms of trade slightly deteriorated in Hungary and Slovakia (index of 98.7 and 97.7, respectively), while improving slightly in Poland and Slovenia (see ECFIN 2007a, pp. 84–85).

Obrázek 3: Terms of trade in goods and services (1995 = 100)
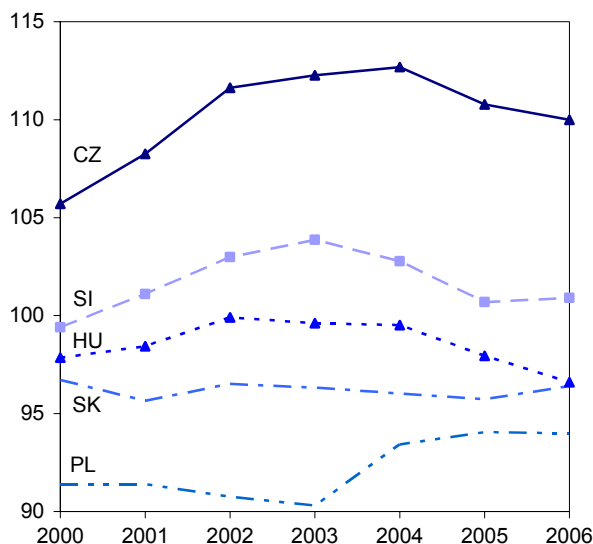
Note: according to import/export deflators from national accounts. Source: ECFIN (2007a), pp. 84–85.

During the reviewed period, the growth performance of the Czech Republic was higher based on the **real domestic income** indicator rather than traditionally used GDP (see Table 7). The increase in the price of oil after 2004 has led to a deterioration of the terms of trade and the GDP and RHDD relationship in all countries receiving oil supplies. However, the impact was especially strong in the Czech Republic and Slovakia because of the relatively high share of energy in intermediate consumption. In 2005, RHDD in the Czech Republic grew 1.4 percentage points slower than GDP. A similar difference was apparent in Slovakia in 2006, when RHDD grew just by 7% despite the fact that GDP grew by 8.3%. In 2007, the relationship between the growth rate of both indicators has become reversed, with RHDD growing faster than GDP. The growth rate difference for both indicators has been negligible in Hungary, Poland and Slovenia. In the Czech economy, the improvement of the terms of trade brought about a positive contribution towards

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[2] In Ireland, GDP has grown at one of the fastest rates, while the GNI has grown at a much slower rate. Therefore, it has one of the highest GDP per capita in the EU, while GNI only reaches average levels. In 2006, Irish GNI was 13.9% lower than GDP (reaching 86.1% of GDP). The situation was similar in Luxembourg, with GNI reaching only 83.2% of GDP in 2006.
[3] Between 2001 and 2006, the Czech Republic generated an average GNI to GDP loss of 0.6 percentage points per year, with the same development taking place in Hungary from 2003 to 2006. The difference in Poland was quite small, with the exception of 2004, and it reached negligible levels in Slovenia. GNI in Slovakia grew at a slower rate over the last two years, the loss in 2005 amounted to more than 3 percentage points. To learn more details about the calculation, see ECFIN (2007), p. 51, 81, 91, 97, 99.
[4] Since reinvested investments are included in the outflow of primary incomes, the impact of the outflow of incomes does not have to be so strong in reality.
[5] If terms of trade improve, less export is needed to pay for a given amount of import, therefore, products and services may be moved from export to consumption or capital formation while maintaining the

same level of domestic production. On the contrary, GDP may grow fast during deterioration of the terms of trade, however, consumption and investments have usually lower dynamics since a part of the products is lost in foreign trade.

the RHDD growth of 0.4 percentage points per year (the contribution was 0.6 percentage points for the period between 2001 and 2005). The development of this factor in the Czech economy differs from the development in the rest of the EU-5.

Table 7: GNI, RGDI and GDP in the Czech Republic (percentage average annual change, constant prices of the preceding year)

	2001	2002	2003	2004	2005	2006	2001–2006
GNI	1.2	0.5	3.9	3.1	7.3	5.6	3.6
RGDI	4.1	4.1	3.9	4.8	5.1	5.8	4.6
GDP	2.5	1.9	3.6	4.6	6.5	6.4	4.2
Difference[1)]	1.6	2.2	0.3	0.2	-1.4	-0.6	0.4

Note: [1)] In p.p. Source: ČSÚ (2007a, b), own calculation.

Besides the real gross domestic income indicator, the real income indicators also include the **real gross national income** indicator (RHND) and the **real gross disposable income** indicator. These indicators consider not just the gains and losses arising from the changes in the terms of trade but also the influence of the primary and secondary distribution of income between the national economy and the rest of the world (for national income, it is the balance of primary incomes with foreign countries and, for disposable income, it is the balance of current transfers with the rest of the world). While the data on the development of RHDD are published by the Czech Statistical Office in quarterly national accounts, the data on the development of real gross national and disposable income are only included in the annual national account and, therefore subject to significant delay. Between 2001 and 2005, the positive influence of the terms of trade was more or less compensated by the negative influence of outflow of the primary incomes leaving the country, therefore, real gross national income grew at a rate almost identical to that of gross domestic product (with the RHND index reaching 120.6 and the GDP growth index reaching 120.4 between 2000 and 2005).

1.3 Sector and industry structure

In terms of influence that individual sectors have on the development of gross valued added (GVA) in basic prices (see Table 8)[6], the **industrial sector** was key for the growth of the Czech economy between 2004 and 2006. Its GVA was increasing by a year-to-year average of 12.3% (while the growth in the service reached just 3.7%). The industrial production growth substantially exceeded the EU average. It was positively influenced by the continuing structural changes that were related above all to high performance of private enterprises under foreign control.

After the relatively high GVA growth between 2004 and 2005, the **building** sector slowed down to 2.2% in 2006. In the years 2005 and 2006, **services** grew at a solid rate (after having stagnated in 2004) and, given their high share in overall GVA, significantly contributed to the economic performance.

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[6] Gross value added in basic prices differs from gross domestic product in purchase prices by taxes on products (that increase GDP) and subsidies on products (that decrease GDP). GVA differs from GDP by both the value and growth rate. In 2006, GVA in the entire national economy grew by 6.9%, while GDP grew only by 6.4%.

Table 8: Gross value added by economic activity in the Czech Republic (percentage annual change)

	2001	2002	2003	2004	2005	2006
Agriculture	-2.8	3.3	4.0	7.8	5.7	-8.0
Industry	-1.2	4.0	-1.2	13.1	10.8	12.9
Mining	-6.5	2.7	-10.9	14.5	-8.7	13.2
Manufacturing	-0.5	5.4	-1.0	13.4	12.4	15.1
Electricity, gas	-4.4	-7.5	1.6	9.3	4.2	-9.1
Construction	-5.0	-1.9	2.6	6.2	6.0	2.2
Services	5.7	2.3	4.9	0.1	5.7	5.5
GVA[1)]	2.5	2.5	2.9	4.6	6.7	6.9

Note: [1)] Total, without FISIM. Source: ČSÚ (2007a), own calculation.

The different growth rate in individual basic sectors also changed the **sector structure** of the Czech economy. Between 2001 and 2006, the structural changes at the macroeconomic level were not very significant. The agriculture share continued diminishing, while the industrial sector grew at the expense of the service sector (see Table 9). As a result, the Czech economy structure is, when compared internationally, significantly different from that of developed countries. In 2005, the service share in the EU states reached 72% on average, with substantial differences – highest in Luxembourg with 83% and the lowest in Romania with 56%, followed by the Czech Republic. On the contrary, the Czech Republic has the highest industrial share (including building industry) of all member states (38% as opposed to 26% EU average). This may be explained by the focus of foreign investments on this sector (with generous state support).

Table 9: Structure of gross value added in the Czech Republic (in per cent, current prices)

	Agriculture	Industry	Construction	Services
2001	3.9	31.5	6.3	58.3
2002	3.3	30.5	6.2	60.0
2003	3.1	29.5	6.4	61.0
2004	3.3	32.1	6.5	58.1
2005	2.9	31.5	6.8	58.8
2006	2.7	32.3	6.8	58.2

Note: Data after revision from June 2007. Source: ČSÚ (2007a), own calculation.

1.4 Labour market

After 2004, the situation on the Czech labour market started to improve. However, the **economic activity rate** (economic participation) gradually fell below the EU-15 average. The labour market in the Czech Republic is, to a large extent, influenced by favourable **demographics**. The post-war baby-boom generation is in its productive age, therefore, the number of inhabitants in the productive age (15–64 years of age) grew every year during the reviewed period of 2001 to 2006, although the increase was not that significant (see Table 10). At the same time, the workforce grew, even if at a significantly lower rate. In this case the development was different between 2001 – 2004 and 2005–2006. In the last two years, the number of the unemployed stabilized and started to drop, with the number of the employed rising.

Changes in the employment rate in the Czech Republic show strong **industry variations**, even though the intensity of structural changes has dropped after 2000. The real estate and rent industry grew significantly, followed

by processing industry, accommodation and catering. On the contrary, agriculture, forestry, fishing as well as mining have continued loosing their employment share. A slight decrease has occurred in energy, financial mediation and in a part of the public services sector (education).

Table 10: Labour market indicators in the Czech Republic

		2001	2002	2003	2004	2005	2006
ILO	Employm. rate [1]	66.0	66.3	65.6	64.9	65.5	66.1
	Particip. rate [2]	71.9	71.5	71.1	70.8	71.2	71.2
	Unempl. rate	8.1	7.3	7.8	8.3	7.9	7.1
	Long-term unem.	52.1	50.2	48.8	51.0	53.0	54.2
	Youth unempl. [3]	17.3	16.9	18.6	21.0	19.2	17.5
MPSV	Registered unem.	8.5	9.2	9.9	10.2	9.8	8.9
	Reg. unem. rate [4]	..	..	..	9.2	9.0	8.1

Note: [1] Share of employed persons in total population (15–64). [2] Share of labour force in total population (15–64). [3] Share of young people (0- 25) in total population (15–64). [4] Based on definition of so called accessible unemployed. Source: ČSÚ (2007), MPSV (2007a), EUROSTAT (2007), pp. 110, own calculation.

The unemployment rate in the Czech Republic (based on a sample survey of workforce) dropped gradually from 8.1% in 2001 to 7.1% in 2006 (i.e. from 421 thousand to 371 thousand persons). The decrease in the number of the unemployed has continued during 2007, reaching its lowest rates since 1998 (6.0%, i.e. 311.2 thousand in Q1). However, quite significant structural and regional imbalances are still present, which is also reflected in the rate of long-term unemployment being above 50%. Within the EU-27, the Czech Republic belongs to the average (see Figure 5). In 2004, the rate of registered unemployment in the Czech Republic (calculated by the Ministry of Labour and Social Affairs for the "disposable unemployed") reached 9.2% (on yearly average), dropping to 8.1% in 2006. (According to the latest data of August 2007, it reached 6.4%.)

Figure 4: Employment and its changes in EU-27, 2001–2006 (in per cent of labour force)
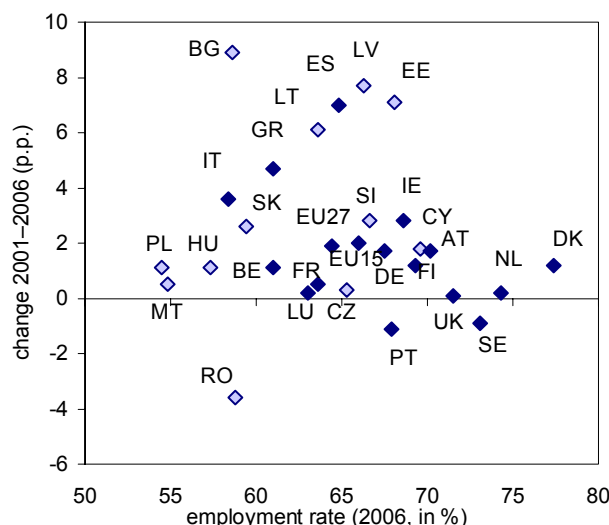

Source: EUROSTAT (2007b), own calculation.

Figure 4 shows the dynamics of the **employment rate** in the EU states. Between 2001 and 2006, Portugal, Romania and Sweden experienced a decrease (with the employment rate being substantially different in each of them). Poland and

Malta showed a very low amount and dynamics of changes. To a large extent, the differences among the various countries were influenced by the adopted reforms that reduced taxation of labour, while supporting labour market flexibility.[7] Despite the partial progress made, more positive development in terms of increasing the employment rate within the EU is hindered by rigidity of labour legislation and taxation of labour that lead to technological substitution and relocation of production (to the new member states or further to the South or East). Demographic factors, such as aging of the population, may play their role as well. In the Czech Republic as well as in the majority of other new member states, a substantially lower share of part-time employment prevails in comparison to the EU-15 (with the exception of Poland and the Baltic countries). The amount of employees on contracts concluded for a definite time period is relatively low as well.

Figure 5: Total and long-term unemployment rate, 2006 (in per cent)
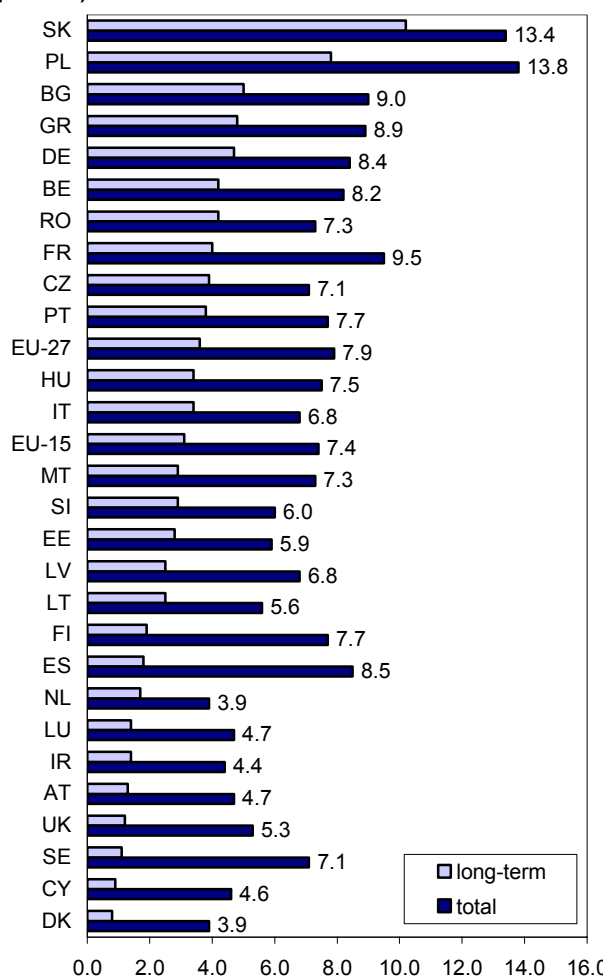
Note: Countries are lined up by the long-term unemployment rate (descending). 2006 preliminary indices for France, EU-27, EU-25. Source: EUROSTAT (2007), own adaptation.

Long-term unemployment on the Czech labour market (as well as in other EU member states) is an important issue (see Figure 5). It was not before 2005 that it was reduced below 4%. Slovakia and Poland report the high-

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[7] All these measures may reduce not just the actual unemployment rate, but also the natural unemployment rate, or NAIRU, which affects the price development of the economy within an economic cycle.

est values in this respect. Sweden, Cyprus and Denmark are on the opposite side of the spectrum. Besides the long-term unemployment rate, the EU states also differ in a way long-term unemployment contributes to overall unemployment that suggests the seriousness of structural imbalances on the job market (see Figure 9). The position of the Czech Republic is, in both respects, one of the worst in the EU. A high share of long-term unemployed persons is formed by problematic groups – the young without completed education or a suitable qualification or those lacking experience (graduates), women with small children, the elderly and persons of Romany ethnicity.

Regional imbalances, persisting since the late 90's (combined with regionally concentrated long-term unemployment), present an important problem in the Czech Republic. The source of this situation is the unequal distribution of industries within the territory of the Czech Republic, with new investments (especially foreign direct investments) flowing predominantly to regions with quality infrastructure or existing companies that form a part of the production chain. From this perspective, the location of traditional industries (mining and processing of raw materials, steel industry, textile and tanning) is especially problematic, affecting the territories of North Moravia, North Bohemia and Vysočina. These industries have been influenced by changes in demand and destination markets or by the import of cheap Asian products that they cannot compete against.

1.5 Sources of economic growth

The dynamics of the growth of real GDP depend on their sources, effectiveness of their use and the flexibility of their allocation. Labour, capital and technology progress, or the total factor productivity, are the source of economic growth. The importance of these key factors is identified based on growth accounting at the macroeconomic and industry level.

Source of growth of the Czech economy between 2001 and 2006

Table 11 and Figure 6 show a comparison of the growth of GDP, labour and capital in the Czech Republic. Between 2001 and 2006 labour productivity grew by an average of 3.8%, capital productivity by 2.5% and the total factor productivity by 3.1%.

Table 11: Sources of real GDP growth in the Czech Republic (average annual percentage change)

	2001–2006	2001–2003	2004–2006
GDP	4.2	2.6	5.8
Employment	0.5	-0.1	1.0
Capital	1.7	1.6	1.7
Capital/labour ratio	1.2	1.7	0.7
Labour productivity	3.8	2.8	4.8
Capital productivity	2.5	1.0	4.1
Total factor product.	3.3	2.1	4.5

Note: GDP and capital in constant prices of 2000. Capital intensity of labour = capital dividend by employment. Source: ČSÚ (2007a, b), own calculation.

The employment rate between 2001 and 2006 grew only slightly (on average by 0.5% per year), therefore, the dynamics of labour productivity were decisive (90%) for the growth of real GDP. During the entire period, the labour productivity in the Czech Republic grew at a faster rate than that of both the EU-15 and EU-27. This suggests a strong

influence of technical progress and growing competitive advantage. On the other hand, is also means a low use of labour force and relatively high unemployment. The effort to increase employment is hindered by enterprises' attempts to increase their productivity and competitive advantage by cutting down on the labour costs – this tendency is most apparent in enterprises under foreign control. Nevertheless, since 2004 the employment rate in the national economy started to grow gradually. The period of jobless growth thus came to its end.

Between 2001 and 2006, investments increased by average 4.3%, with the **stock of physical capital** growing by 1.7% per year. As a result of increasing employment in the second period (2004 – 2006), the growth of capital disposable to labour slowed down but, on the other hand. The impacts of the slow-down may be offset by introducing innovations and technical progress. The **capital productivity growth** improved significantly. While labour productivity between 2004 and 2006 sped up by 2 percentage points (i.e. up to 4.8%) in comparison to the 2001 to 2003 period, the capital productivity growth accelerated by 3.1 percentage points (up to 4.1%).

The growth of capital productivity means that the capital coefficient (K/Y), also known as **capital intensity**, went down at an average yearly rate of 2.4%, especially as a result of technical progress (due to the inflow of foreign investments). Nevertheless, it still reached above-average EU-15 levels (3.9 in the Czech Republic as opposed 2.9 in 2006, calculated in constant prices of 2000). The Czech Republic shows very different capital coefficients at the industry level.

Figure 6: Real GDP, capital and employment in the Czech Republic (indices, 1995=100)
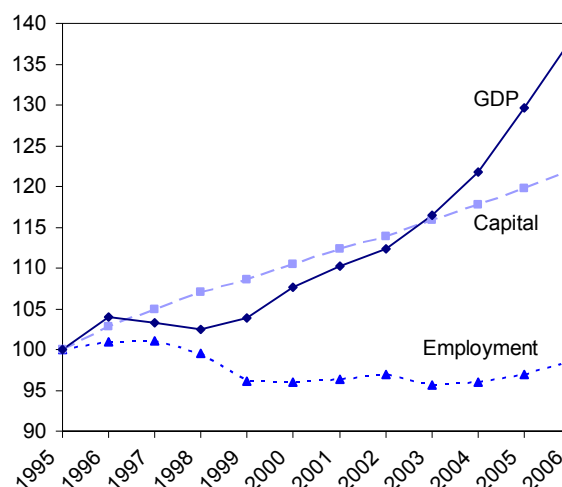

Note: Capital and GDP in constant prices of 2000. Source: ČSÚ (2007a, b).

At the **industry level**, the manufacturing industry, catering, as well as transport and telecommunications all reached above-average growth of gross value added during the period of 2001 to 2006, while the lowest growth was reported by mining and building industries.

Total factor productivity (labour and capital) between 2001 to 2006 increased at a high yearly rate of 3.3% (see Figure 7) which presented a 79% contribution to the growth of real GDP. TFP also contributed to GDP changes between 2001 and 2003 and between 2003 and 2004 (by 75%).

Figure 7: Total factor productivity, labour productivity and capital productivity in the Czech Republic (indices, 1995=100)
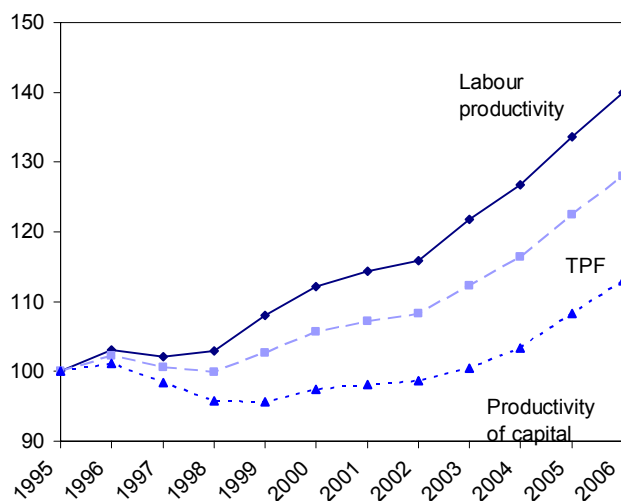
Source: ČSÚ (2007a, b), own calculation.

Table 12: Contribution of factors to real GDP growth (average annual percentage change)

		2001–2006	2001–2003	2004–2006
CZ	GDP	4.2	2.6	5.8
	Employment	0.3	-0.1	0.6
	Capital	0.7	0.7	0.7
	TFP	3.3	2.1	4.5
HU	GDP	4.2	4.2	4.3
	Employment	0.2	0.3	0.0
	Capital	1.0	0.9	1.1
	TFP	3.1	3.0	3.3
PL	GDP	3.5	2.1	4.9
	Employment	0.0	-1.4	1.3
	Capital	0.4	0.3	0.6
	TFP	3.1	3.2	3.0
SK	GDP	5.2	3.8	6.6
	Employment	0.4	0.3	0.5
	Capital	1.6	1.4	1.8
	TFP	3.2	2.1	4.2
SI	GDP	3.7	3.0	4.5
	Employment	0.4	0.4	5.0
	Capital	0.8	0.7	0.9
	TFP	2.5	1.9	3.1
EU-15	GDP	1.8	1.4	2.2
	Employment	0.6	0.6	0.6
	Capital	0.7	0.7	0.7
	TFP	0.5	0.1	0.8

Source: ECFIN (2007a), ČSÚ (2007a, b), own calculation.

Sources of economic growth in the EU-5 and EU-15

Between 2001 and 2006, all countries from the group of new Central European member states reached an average yearly growth of real GDP that was higher than that of the EU-15 average. As far as **growth sources**[8] are concerned, total

factor productivity played a decisive role in this respect (see Table 12). In the EU-5, it grew by a yearly rate of approximately 3%, while the growth reached only 0.5% in the EU-15 (however, its contribution to the growth of real GDP reached only less than one third, i.e. below the contribution level of labour and capital).[9] The high growth rate of TFP in the EU-5 was caused predominantly by a high inflow of foreign investment (see e.g. WB, 2007), introduction of new technologies, corporate restructuring and reallocation of resources.

Figure 8 shows an estimate of the **relative level of total productivity** in the Czech Republic compared to the EU-15.[10] Compared to the EU-15, the Czech labour productivity was 48% lower (GDP per employee in PPS) and TFP was 41% lower in 1995. After 1998, the relative level of TFP in the Czech Republic went up, reaching 68.3% in 2006.

Between 2004-2006, **the highest average yearly growth of both GDP and total productivity** was reported in the Czech Republic (5.8% and 4.5% respectively) and Slovakia (6.6% and 4.2% respectively). In Poland, the GDP growth was driven (unlike in other states), by capital and, especially, by employment that more than compensated the decreased TFP dynamics. (Using the ILO methodology, the unemployment rate in Poland dropped from 18.2% in 2001 to 13.8% in 2006, with similar development in Slovakia – dropping from 19.3% to 13.4%). Compared to the previous period, the slight increase in the GDP growth within the EU-15 was entirely attributable to TFP (yet it still reached limited levels), while the share of capital and labour remained unchanged.

Figure 8: Relative level of total factor productivity in the Czech Republic (EU-15=100)

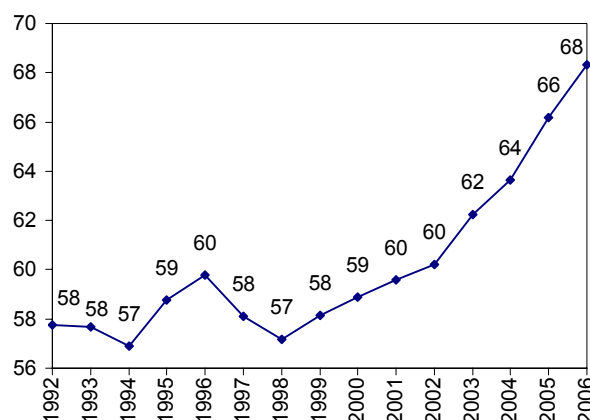Source: ČSÚ (2007a, b), ECFIN (2002, 2007), own calculation.

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[8] The physical stock of capital in the Czech Republic was derived from ČSÚ's data (2007b). GDP, stock and consumption of capital and the formation of gross fixed capital have been calculated in constant prices of 2000. For the years of 2005 and 2006, the stock of capital in the Czech Republic was based on an estimate. For other countries, it was calculated using the perpetual inventory method (PIM), i.e. by cumulating the formation of gross fixed capital in constant prices of 2000 less the consumption

of capital. Its weight on labour (labour income share) was calculated as a ratio of remuneration paid out to employees to gross value added (in current prices) multiplied by the ratio between the total number of working persons and the number of employees. This way, the remuneration imputed to one entrepreneur is the same as the average remuneration amount imputed to an employee. This method is used by the European Commission under the name of 'adjusted wage share'. The value that needs to be added to receive the value of one is the capital income share used for weighting the capital growth rate.
[9] The share of TFP in the average yearly growth of real GDP between 2001 and 2006 reached 89% in Poland, 79% in the Czech Republic, 74% in Hungary, 68% in Slovenia and 62% in Slovakia.
[10] The estimate is based on an assumption that the TFP growth rate is equal to the weighted total of growth rates of labour productivity and productivity of capital. If the growth (in %) is interpreted as a difference of the applicable values between two countries, it is also possible to identify the difference between the TFP levels, provided that the differences in labour productivity, capital productivity and the applicable weights of individual factors are also known.

2. Demand and macroeconomic balance

This chapter deals with the demand side of the economy which is, from the short-term perspective, decisive for economic growth and for the development of macroeconomic balance. Special attention is devoted to final consumption of households and to basic factors that influence it. As far as the formation of gross capital is concerned, the chapter analyzes its dynamics, investment rates and their structure. The assessment of macroeconomic stability is based on the relationship between domestic supply and demand and on the relationship between national savings and domestic investments that is reflected in the external economic balance.

2.1 Demand structure and growth of its components

The demand structure of the Czech economy is characteristic by a high share of public consumption, foreign trade and investments (Table 1). The share of private consumption has been moving around one half of GDP. Over the last six years (except for 2003), the share of private consumption dropped from 52% in 2001 to 48% in 2006. The share of gross fixed capital formation (investments) in GDP was dropping steadily as well. On the contrary, the share of export was growing significantly.[11]

Table 1: The share of demand components in GDP (in per cent, current prices)

|	2001	2002	2003	2004	2005	2006
Priv. cons.	51.9	51.2	51.7	50.3	49.0	48.3
Public cons.	21.1	22.3	23.4	22.2	22.1	21.4
GCF	29.5	28.6	27.2	27.5	25.8	27.1
GFCF	28.0	27.5	26.7	25.8	24.9	25.2
Export	65.4	60.2	61.8	70.0	72.0	76.0
Import	67.9	62.3	64.1	70.0	68.8	72.8
F.T.balance	-2.5	-2.1	-2.3	0.0	3.2	3.2

Note: Private consumption contains households and non-profit organizations expenditures on final consumption. Source: ČSÚ, quarterly national accounts (July 2007).

In an international comparison, the share of private consumption in GDP in the Czech Republic is very low, below 50%, and dropping steadily. The share has been steady in the EU-15, with the levels being below 60%. However, significant differences persist between individual countries, ranging from 39% in Luxembourg to 67% in Greece. Luxembourg is somewhat extreme in this sense, since its GDP also includes salaries of foreign workers that are used to pay for consumption abroad (in the neighbouring countries especially).[12] Substantial differences also persist

between the new EU member states (see Figure 1). The countries with a high share of private consumption usually have a low investment rate.

The growth of **demand components** depends on a variety of factors (both internal and external), therefore their structure changes as well. Some segments, such as private consumption, are quite constant, while others, such as changes in stocks or investments in fixed capital, are subject to variations. Foreign trade is, besides internal factors, strongly influenced by the development in the world and in the countries of the main trade partners.

Figure 1: Share of private consumption in GDP (in per cent, 2006)
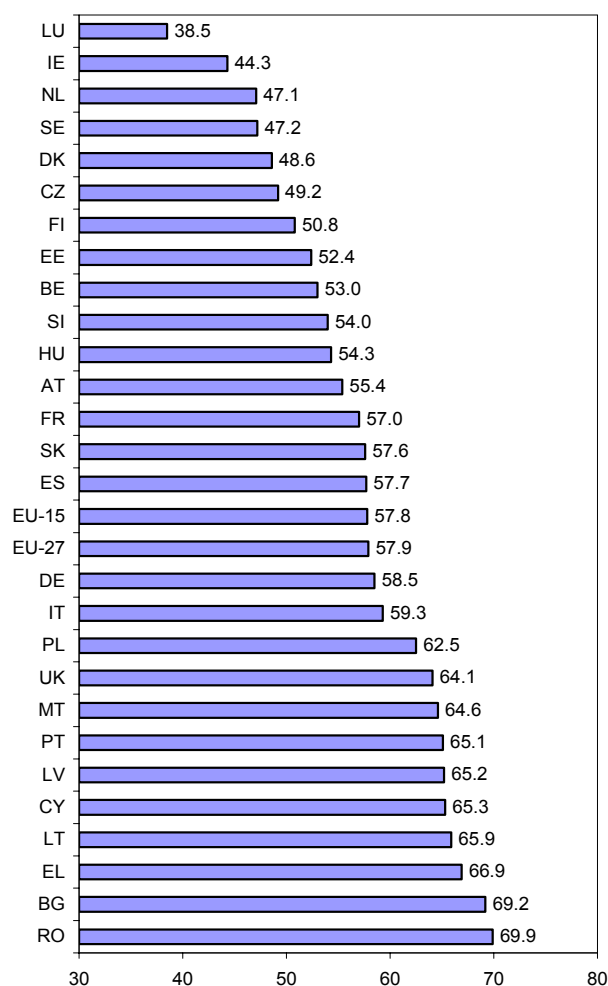
Source: ECFIN (2007a), pp. 54–55.

The development of the main demand components in the Czech Republic is shown in Table 2. Between 2001 and 2006, Czech real GDP grew at a yearly average rate of 4.2%. Exports and imports of goods and services grew more significantly (by more than 10%). Due to the export rate exceeding that of imports, there was a surplus of trade balance over the last three years. The total domestic use of GDP (the final consumption and formation of gross capital) grew at a slower rate than GDP (3.7% per year), thus weakening the import rate growth. Table 2 shows two different periods. While between 2001 and 2003, domestic demand exceeded the GDP growth, the situation reversed between 2004 and 2006. Due to the favourable development of the

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[11] Important changes occurred in the methodology of foreign trade used by the ČSÚ in June 2007 to revise the data on the formation and use of GDP during the 2004–2006 period (besides the reconciliation of quarterly and annual national accounts, the data on import of goods, that were appraised by CIF prices, are now reported in FOB prices, with the transport and insurance costs being included in service balance). As a result of these changes, nominal GDP and its real growth have increased and the dynamics of demand components, as well as their structure, changed.

[12] Data based on the national prices of a given country reflect its price relations; therefore, they are not entirely comparable with other countries. More objective information is based on calculations in international prices where the demand component is recalculated using purchasing power parity. These calculations are contained in international comparative programmes carried out by OECD and EUROSTAT.

terms of trade up until 2005, demand exceeding supply did not result in the worsening of trade balance.

Private consumption (expenditures of households on final consumption) in the Czech Republic grew at a significantly slower rate than GDP (except for 2003). The reason for that was the reduction of the real growth of disposable income of households – the dynamics of salaries, wages and social security benefits were dropping, while consumer prices continued rising (this was especially true for food, energies and due to an increase in value added tax). In 2006, private consumption was revived due to increased employment, relative fast growth of wages and an acceptable inflation rate. Between 2004 and 2006, there was a rather significant slow-down in public consumption. Pronounced variations can be seen in the **gross fixed capital formation**. After stagnation in 2003, the investment growth picked up again in 2004. This was caused by increased profitability of enterprises, low interest rates and improved investors' confidence. However, in 2005 the gross fixed capital formation slowed down again despite the overall very positive situation in the national economy. In 2006, the level of fixed investments started to rise again.

Table 2: Final demand components (percentage annual change, constant prices of the preceding year)

	2001	2002	2003	2004	2005	2006	Growth [1]
GDP	2.5	1.9	3.6	4.6	6.5	6.4	4.2
Dom.demand	3.7	3.8	4.0	3.3	1.6	5.8	3.7
Final cons.	2.6	3.5	6.3	1.1	2.4	3.4	3.2
Private cons.	2.3	2.2	6.0	2.9	2.4	4.4	3.4
Public cons.	3.6	6.7	7.1	-3.1	2.3	1.1	2.9
GCF	6.6	4.6	-1.4	9.1	-0.2	11.7	5.0
GFCF	6.6	5.1	0.4	3.9	2.3	7.6	4.3
Export	11.2	2.1	7.2	20.7	11.8	15.9	11.3
Import	12.8	5.0	8.0	17.9	5.0	15.2	10.5

Note: [1] Annual growth in the years 2001–2006. Source: ČSÚ, annual national accounts (July 2007).

Influence of demand on GDP growth

The contributions of the main components of demand to GDP growth between 2001 and 2006, divided into **domestic demand and foreign sector contribution**, show a strong influence of the final domestic demand (final consumption and formation of gross capital) between 2001 and 2003 (see Table 3). During this period, more than 100% of the GDP dynamics were driven by domestic absorption and the influence of foreign trade was negative (its deficit in constant prices was increasing). Between 2004 and 2006, foreign trade started to assert positive influence. Especially in 2005, the influence of domestic demand on the GDP dynamics dropped significantly, with foreign trade becoming the key factor (contributing by almost 75%). The reason for that was especially the slow-down of real disposable income of households, fast increase in exports that exceeded imports, worsening of the terms of trade (that limited the space for growth of wages and investments).

In 2006, domestic absorption grew, thus driving the GDP growth, nevertheless, foreign trade developed positively, adding 1 percentage point. It will be quite difficult to increase the surplus of trade balance in the future due to a faster growth rate of domestic demand, increase in the world energy prices and other raw materials, as well as the cooling of the global conjuncture. Therefore, weaken-

ing of the positive influence of foreign trade on the GDP growth may be expected.

Table 3: Contribution of demand components to GDP growth (constant prices of the preceding year, in percentage points of GDP growth)

	2001	2002	2003	2004	2005	2006
GDP	2.5	1.9	3.6	4.6	6.5	6.4
Final cons.	1.9	2.6	4.7	0.8	1.8	2.4
Private con.	1.2	1.1	3.0	1.5	1.2	2.1
Public cons.	0.8	1.4	1.6	-0.7	0.5	0.2
GCF	2.0	1.4	-0.4	2.5	-0.1	3.0
GFCF	1.8	1.4	0.1	1.1	0.6	1.9
Inventories	0.1	-0.1	-0.6	1.5	-0.6	1.1
Dom. Dem.	3.9	4.0	4.3	3.3	1.7	5.4
FT balance	-1.4	-2.0	-0.6	1.3	4.8	1.0

Source: ČSÚ, quarterly national accounts (July 2007).

The influence of the components of domestic demand on GDP was very variable. Private consumption (expenditures of households on the final consumption) played the pivotal role in 2003. Between 2001 and 2006, it contributed to the GDP growth by 40%, i.e. less than its GDP share would suggest. The influence of public consumption (government spending on the final consumption) played an important role between 2001 and 2003. Significant variations in the development of investments were apparent also in the way they influenced the GDP growth. Between 2003 and 2005, the influence of gross fixed capital formation was originally very small, it was not until 2006 that it rose up to 1.9 percentage points of GDP, which was slightly more than the share of investments in GDP would suggest. The high dynamics of gross fixed capital formation are important since they increase the stock of capital in the economy, improve infrastructure, boost technical progress, thus becoming a precondition of Czech economy's competitive advantage.

2.2 Household consumption (private consumption)

The household sector plays a number of functions in the economy. Foremost, it carries out final consumption of goods since households are usually perceived as consumers. Additionally, it provides employment opportunities and receives labour income. For practical reasons, the household sector also includes small businesses that carry out their activities based on a trade license and are not incorporated in the Companies Register, yet that form a significant part of GDP. However, certain heterogeneity of this sector may distort economic analyses.

Expenditures of households on final consumption (private consumption) represent a final effect of economic activities and are the key component of the **standard of living of the population**. As a rule, the faster an economy grows (usually based on GDP), the faster is the growth of private consumption and the standard of living. Due to this reason, an increase in GDP is often identified as an indicator of wellbeing, which corresponds to the situation in the majority of developed economies. For example, during the last 10 years (1996–2005), the dynamics of GDP and private consumption was identical, reaching 2.2% yearly on average (see Table 4). The relationship is two-way: the GDP growth is, to a large extent, conditioned by the growth of private consumption on the demand side of the economy (private consumption is the major part of GDP use – approx. 50% in the Czech Republic, however, it reaches approximately 60% in the most devel-

oped countries). From a long-term perspective, the development of private consumption in the Czech Republic[13] was significantly different from that of GDP when compared to the developed Western countries.

Between 1996–2000 (a period affected by the crisis of the Czech economy between 1997 and 1998), the average yearly rate of private consumption grew substantially faster than the GDP rate. Between 2001 and 2006, in the growth phase of the economic cycle, the trend was reversed (household consumption grew by an average of 3.4% a year, whereas GDP by 4.2%). There is a certain paradox in the long-term development of the Czech economy. The consumption develops in a more positive way during the years of stagnation, while the strong economic expansion of recent years has not yet fully affected private consumption rates. Yet the growth of private consumption is felt by the population much more intensively than the GDP growth since it is a precondition for the improvement of standard of living.

Table 4: Real GDP and private consumption (average annual percentage change)

	EU-15		CZ	
	GDP	Private consump.	GDP	Private consump.
1996–2000	2.8	2.8	1.5	2.7
2001–2005	1.6	1.7	3.8	3.2
1996–2005	2.2	2.2	2.7	3.0

Source: ECFIN (2007).

The amount and development of disposable household income, changes in saving and consumption tendencies, the real interest rate, development of consumer credits, value of household property as well as demographic or psychological factors or national or regional differences all belong among the basic factors that influence the **growth and structure of private consumption**. Expectations of consumers play their part as well. Therefore, it is impossible to build a simple model that could fully clarify and identify the influence of individual factors. The current analysis is limited to the factors that may be considered key, i.e. disposable income, saving rates, wealth of households and loans and credits provided to households.

Disposable household income remains the most important factor affecting consumer expenditures. However, the development of both values may differ due to changing saving tendencies. During the years of dropping saving rates, private consumption usually grows faster than disposable income, yet during the years when the saving rate grows, consumption expenditures show lower dynamics compared to income. Changes in household savings rates offset variations in the development of their disposable income. As a result, private consumption develops in a more constant way, being able to face shocks in the development of current income.

From a long-term perspective, the growth of private consumption exceeded the growth of household disposable income (see Table 5). Between 1996 and 2005, the real consumption grew by a yearly average of 3%, with real disposable income only growing by 1.9%. This resulted in a

decrease in **household savings**. During the years when private consumption grew at a faster rate than disposable income, the savings rate went down (the propensity to consumption was growing). That was the case of the majority of years (1996–2001, 2003 and 2004). The relationship between the development of private consumption and disposable income was reversed in only 2002 and 2005, with the savings rate growing. Over the last few years, the development of consumption is also affected by loans granted to households that have seen a steep rise after 2002. Even though the majority of them are represented by housing-related loans, which will become apparent especially in household investment rates, the expansion of consumer loans has already clearly boosted private consumption.

Rather than using GDP, international comparisons use **disposable household income per capita** as a more reliable indicator of the standard of living. This applies especially to the regional level since the flows of primary and secondary incomes between regions are often stronger that between states. As a result, GDP per capita may be substantially different from indicators expressed in a form of disposable household income (see EUROSTAT, 2006).

The household savings rate in the Czech Republic has been subject to variations, showing a steady decline (see Table 5). This is a reason for concern, since household savings are usually one of the financing sources for other sectors of the economy. Unless they are replaced by an increased savings in other sectors, the economy has to either reduce its investments or becomes increasingly dependant on foreign savings.

Table 5: Disposable incomes of households and private consumption (annual percentage change)

	2001	2002	2003	2004	2005
DIH (current prices)	5.0	4.3	4.5	3.9	4.3
DIH (constant prices)	1.1	3.1	4.9	0.7	3.5
Private consumption (constant prices)	2.3	2.2	6.0	2.9	2.4
Saving rate	7.4	8.3	7.4	5.6	6.6

Note: Real growth of disposable incomes of households (DIH) in constant prices = growth of nominal disposable incomes of households in current prices divided by deflator of private consumption. Saving rate of households = gross savings of households divided by their gross disposable income. Source: ČSÚ, annual national accounts (June 2007).

Household wealth and its changes depend on a number of factors: on savings and net capital transfers, on the influence of nominal losses/gains from holdings (such as changes in stock prices) and on other changes in the asset volume. It is of interest that nominal gains from holdings were the principal factor influencing the development of net wealth. The average yearly growth of household assets reached more than 6% for the period of 1995 to 2005. It was a relatively high rate, considering that it is a stock value that exceeds the value of GDP. Since the values are nominal, real growth of household wealth cannot be calculated.[14]

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[13] Statistics distinguishes between domestic and national household expenditures on final consumption. The national approach is considered key; the value is derived by subtracting expenditures of non-residents on final consumption in the Czech Republic, while adding expenditures of Czech residents on final consumption abroad.

[14] When assessing the value of wealth, both wealth (assets) and liabilities (debts) need to be considered. The difference between the two is net assets that balance sheets report always at the beginning and at the end of a given period. Assets serve as a stock of value and their owners receive benefits arising from their holding and use. Assets are divided into two groups: non-financial assets (produced assets, including fixed assets, inventories, valuables and non-produced assets that may be either tangible, such as land and underground resources, or intangible, such as patents) and financial assets (currency and deposits, securities, loans,

The question of how the increasing wealth of households reflects in the consumption growth is a complex one. **Wealth effect** is considered of importance in the stabilized western economies. It concerns mainly real estate wealth but also certain forms of financial assets, such as shares. Real estate may influence household consumption through different channels – e.g. purchase of a new apartment or house will result in increased demand for household equipment as well as related services.

Loans and credits that influence household consumption are a rather new factor in the Czech Republic. Their importance has grown since 2002, after the banks had been privatized, becoming more active. In this respect, the real estate market and low interest rates were an important factor both historically as well as in an international comparison.

Provided credits (especially mortgages) resulted in a higher investment construction rate and increased private household consumption (as a result of consumer credits and of fitting new apartments and houses with equipment). Since it is considered a financial transaction, household credits are not included in disposable income. On the other hand, they increase private consumption, thus indirectly reducing savings. A decrease in savings, together with the growth of indebtedness, is a negative aspect of a fast expansion of household credits. Together with the increasing investment rate and housing credit incentives, these present an important cause of the negative gap between savings and investments in this sector. During the last five years, the value of credits provided to households has grown significantly, by more than 30% p.a. on average (see Table 6). The share of housing credits grew to reach almost 70% at the end of 2006 (up from 19% in 2000), with consumer credits reaching 20% of total credits provided by financial institutions.

Table 6: Stock of credits provided to households by monetary financial institutions (bil. CZK, to 31. 12.)

	2000	2001	2002	2003	2004	2005	2006
Total credit	121.5	139.5	180.2	236.1	312.6	413.7	535.2
Growth[1]	10.9	14.8	29.2	31.0	32.4	32.3	29.4
Cons.credit	23.1	29.9	43.8	53.9	67.9	88.9	109.2
Housing cr.	23.2	34.7	111.7	154.9	208.5	279.9	371.1
Mortgage cr.	23.2	34.7	50.7	78.4	115.2	166.7	238.2

Note: [1] annual percentage change of total credit. Source: CNB (2007), Databasis of time series ARAD.

So far, the **household indebtedness** rate has been bearable; however, a risk of imbalanced development of assets and liabilities exists in the future. The household debt to GDP ratio in the Czech Republic was approximately 20% at the end of 2006. In comparison to the developed EU countries, the indebtedness rate is still relatively low (it was more than 60% in the EU-15). While credits provided to households increase household consumption, the growth of their indebtedness may potentially reflect either in the decrease of savings or in the limitation of consumption. This is especially true for low-income households that only have limited savings. Other influences that could negatively influence the development of

private consumption, such as a growth of interest rates, labour market situation etc., may not be ruled out.

2.3 Investments

The gross capital formation (investments) is a flow value that identifies the acquisition of produced non-financial assets. In terms of the weight and importance in total gross capital formation, the gross fixed capital formation (GFCF) plays the key role.[15] The second component of investments is the change in inventories that applies to materials and supplies, work in progress, finished goods and goods for resale. The third component includes valuables (jewels, precious metals, antiques and works of art), mainly for the purposes of value preservation. This item is not important; however, its character places it in the gross capital formation. Investments are expressed as gross (including the consumption of fixed capital) or net (after subtracting the consumption of fixed capital).

The gross fixed capital formation renews outdated capital and increases its supply at a higher technological level, thus becoming one of the decisive factors of economic performance. A faster growth of GFCF also usually means a faster GDP growth, even though the relationship is not direct. It depends on a number of factors, such as investment structure, its technological level and effectiveness of use. There is a time gap between investments and production growth.

In the long run, **the GFCF growth** precedes the employment growth, which results in an increase in the physical volume of capital (machinery, appliances etc.) per employee and in labour productivity. In macroeconomic analyses, the increase in GFCF (or investments) is studied from two perspectives: from the demand perspective (contribution to the GDP growth) and supply side (influence on the growth of the stock of physical capital). The real dynamics of GFCF are subject to substantial variations that, given the asynchronous course of the economic cycle in individual countries, take part in different time periods.

From an international perspective, the investment rate in the Baltic countries grew most significantly (see Table 7) over the last ten years. From a long-term perspective, the Czech Republic was among countries with lower investment dynamics. The data for two five-year periods often show contradictory tendencies. The majority of the old member states, as a result of a slow-down of economic performance over the last five years, reduced the growth of investments. Different developments are shown in the new member states of Central Europe. While in the Czech Republic and Slovakia, the growth picked up significantly in the second five-year period, in Poland, Hungary and Slovenia the growth slowed down. Nevertheless, the Czech Republic showed the lowest yearly GFCF growth of the EU-5 group during that period.

Long-term averages hint the presence of **investment cycles** that are apparent in shorter time intervals. After the stagnation between 2001 and 2003, the eurozone countries started to improve its investment activity and the growth in 2006 is, according to ECFIN, estimated at 4.7%. The increased growth rate was apparent in most EU countries in 2006. This was a result of a revival of economic activity and the resulting

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shares and other equity, insurance technical reserves). When drawing a balance sheet, the evaluation of individual items is the major issue since there is a general rule that both assets and liabilities should be evaluated at their market value valid at the balance sheet date.

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[15] Tangible fixed assets include dwellings, other buildings and structures, transport equipment, other machinery and equipment and cultivated assets (livestock, permanent vegetation). Intangible fixed assets include computer software and other intangible fixed assets (mineral exploration, original works of art and culture).

investors' optimistic expectations. Portugal is the only country where a decrease in investments is expected.

Table 7: Gross fixed capital formation (average annual percentage change)

	1997–2001	2002–2006
Eurozone	4.1	1.8
Slovenia	8.4	5.7
Czech Republic	0.3	3.7
Estonia	7.7	15.3
Latvia	17.4	18.1
Lithuania	8.1	12.3
Hungary	8.2	4.6
Poland	6.6	4.3
Slovakia	1.4	5.3

Source: ECFIN (2007a), pp. 131.

Investment rate

The investment ratio indicator (the share of gross fixed capital formation in GDP) expresses the part of GDP that is not consumed but is accumulated in a form of augmentation of fixed assets. From a long-term perspective, the **investment ratio** belongs to important indicators of economy's competitiveness. A comparison of the investment ratio with the savings rate reveals an important source of external economic imbalance that is caused by the lack of national savings in relation to investments that needs to be covered by foreign savings (through the inflow of foreign capital).

Table 8: Investment Ratio (gross fixed capit. form., in % of GDP)

	1995	2000	2006
EU-15	19.6	20.5	20.4
Czech Republic	31.5	28.0	25.1
Estonia	26.4	26.0	33.8
Lithuania	21.0	18.8	23.1
Latia	13.6	24.2	34.4
Hungary	19.5	22.9	21.9
Poland	17.7	23.7	20.0
Slovakia	24.6	25.7	26.4
Slovenia	20.9	25.6	25.8

Source: ECFIN (2007a), tab. 19, pp. 66–67.

The differences in the investment ratios **among the individual countries** may be explained by a number of factors, including activities of major multinational companies and the inflow of foreign direct investments that they bring. The investment development is subject to rather significant variations during the individual phases of the economic cycle. During recessions, investment activity is usually hampered significantly, however, during conjunctures; the investment activity becomes the most dynamic component of final demand. **Price relations** of individual countries also affect the investment ratios. In less developed countries, investments in fixed capital are relatively expensive since their substantial part is imported. In comparison to the price level of the EU, the price level of gross fixed capital formation of a given country is thus higher than the price level of GDP which results in an increase in the investment ratios.[16]

The investment ratio in the **Czech Republic** is very variable. After a significant decrease in the previous period, the situation became stabilized between 2000 and 2001, followed by another decrease between 2002 and 2005, to see another revival in 2006 as a result of a fast increase in the amount of

fixed investments. In an international comparison, the investment ratio in the Czech Republic is higher than that of the developed EU states. Within the group of new members states of Central Europe, the Czech Republic came third following Slovakia and Slovenia. Between 1995–2006, the investment ratio of EU-15 amounted to approximately 20% of GDP (see Table 8). However, differences between the individual countries were significant in 2006, ranging from 30% in Spain to 17% in the UK. The new member states of Central and Eastern Europe, except for Poland, reported values above the EU-25 average. In 2006, the highest investment ratio was achieved in Estonia.[16]

Investment structure

The investment structure may be examined from different perspectives. **Material division** is among the basic approaches, showing the share of the active component (machinery, appliances and means of transport) and the passive component (housing and other buildings and structures). The data for the Czech Republic have been disposable since 2003. During this period, the material structure has changed in favour of housing and other buildings and constructions. Their share in the gross fixed capital formation went up from 49.2% in 2003 to 51.7% in 2006. As opposed to that, the share of machinery, appliances and transport equipment went down from 45.5% in 2003 to 43.2% in 2006. The share of transport equipment grew substantially in 2006. A faster dynamics of investments in machinery and appliances has prevailed in the majority of the EU states from the long-term perspective, as is documented by the growing share of this component in the total gross fixed capital formation. Of the new member states, this tendency has been apparent in Slovakia and in Poland.

Using the **industry division**, the highest share of investments in the Czech Republic goes to the processing industry, transport and telecommunication, real estate and trade. Other industries, with the exception of education and healthcare, show stagnation or decrease in investments. The decrease has been most apparent in financial and insurance services, public administration, defence and social security.

2.4 Macroeconomic balance

Macroeconomic imbalance, magnified by the surging energy prices over the last years, presents a serious issue for the majority of countries. It is a result of a gap between national savings and domestic investments. So far, due to free movement of capital and sufficiency of resources, this has been financed without major shocks in the world economy. However, undisturbed capital flow from the countries with excess of savings towards deficit countries is not guaranteed and significant shifts of prices, interests and exchange rates, affecting global demand and economic growth, cannot be ruled out. In the case of the Czech Republic, macroeconomic stability is a necessary prerequisite for sustainable growth performance and smooth access to the European Monetary Union.

Supply-demand relationship

From the perspective of **macroeconomic balance**, the interaction between domestic supply (GDP) and domestic demand (final consumption and gross capital formation) is considered key. The basic source of macroeconomic imbalance is the fact that countries use more goods and services

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[16] For this reason, international comparisons carried out by OECD and EUROSTAT indicate the investment rate calculated in PPP.

Table 9: Creation and utilization of GDP (current prices, bil. CZK and per cent of GDP)

	GDP	Domestic demand	FT balance	From it:			in % of GDP	
				goods	services	total	goods	services
2001	2352.2	2411.0	-58.8	-116.7	57.9	-2.5	-5.0	2.5
2002	2464.4	2515.8	-51.4	-71.3	19.9	-2.1	-2.9	0.8
2003	2577.1	2635.9	-58.8	-69.8	11.0	-2.3	-2.7	0.4
2004	2817.4	2816.3	1.1	-13.4	14.5	0.0	-0.5	0.5
2005	2994.4	2899.7	94.7	59.4	35.3	3.2	2.0	1.2
2006	3220.3	3117.3	102.9	68.2	34.7	3.2	2.1	1.1

Source: ČSÚ, annual national accounts (July 2007).

Tabulka 10: Gross disposable income, national saving and gross capital formation (bil. CZK, current prices)

	2001	2002	2003	2004	2005
Gross disposable income (GDI)	2287.4	2365.1	2467.8	2660.4	2830.0
Final consumption	1717.0	1811.8	1935.6	2041.9	2126.9
Gross national saving (S)	570.4	553.3	532.2	618.5	703.1
Gross capital formation (I)	694.0	704.0	700.3	774.4	772.8
Balance of national current transactions (S – I)	-123.7	-150.7	-168.1	-155.9	-69.7
Saving rate in per cent of GDI	24.9	23.4	21.6	23.2	24.8
Saving rate in per cent of GDP	24.2	22.4	20.7	21.9	23.5
Investment ratio in per cent of GDP	29.5	28.6	27.2	27.5	25.8
Diference between saving rate and investment ratio	-5.3	-6.1	-6.5	-5.5	-2.3
Net borrowing in per cent of GDP	-5.1	-4.7	-6.3	-5.4	-2.8

Note: Net borrowing = balance on current account according to national accounts (ESA 1995). The difference against the balance of national current transactions is given by capital transactions with non-residents (mainly capital transfers and net acquision of non-produced non-financial assets from non-residents). Source: ČSÚ, annual national accounts (July 2007).

than they produce (domestic demand is higher than domestic supply). This gap is bridged by imports being higher than exports (negative net export). The development of domestic supply and demand in the Czech Republic between 2001 and 2006 is shown in Table 9.[17] Between 2001 and 2003, foreign trade in goods and services reported constant deficit, while between 2004 and 2006, a surplus was generated. This important change contributed to the growth of GDP and to the improvement of macroeconomic balance. The balance of services was positive, with the surplus becoming significantly more pronounced over the last two years.

Both the inflow of foreign direct investments to the Czech Republic and the country's accession to the EU played a positive role in the strong growth of Czech exports. It is quite remarkable that between 2005 and 2006, a high performance balance surplus was reported despite the worsened terms of trade. The positive development of foreign trade, with the export growth exceeding that of imports, is also a proof of the growing competitiveness of the Czech economy, even with the Czech crown appreciating.

Almost all new EU member states, with the exception of Slovenia, had to face the **issue of maintaining macroeconomic balance**. The reason was that domestic demand grew faster than GDP (resulting in a trade balance deficit) or the negative national savings to investments ratio (which was reflected in the deficit in the current account of balance of payments). Investment needs were brought about by structural changes and the building of infrastructure as well as in an attempt to improve the growth of standard of living (wages, private consumption) above potential given by the

labour productivity growth. The deficits of public budgets and the decreasing household savings rate played an increasingly important part in this macroeconomic imbalance.

Between 2001 and 2006, the gap between domestic demand and supply expressed as **performance balance** was least significant in the Czech Republic and Slovenia, while Slovakia showed the highest rates. In 2006, a trade balance surplus was generated not only in the Czech Republic, but also in Hungary, with the deficit being relatively low in Poland and Slovenia. Trade balance has given way to balance of incomes as the basic source of external imbalance.

Savings and investments relationship

The gap between domestic supply and demand is an important source of macroeconomic imbalance (both external and internal) but, in order to make the picture complete, we also need to consider the influence of distribution of income **between the national economy and the rest of the world**, taking into account the formation of disposable income and its use on consumption and savings[18]. At the macroeconomic level, the balance may be assessed from the perspective of the relationship between national savings and domestic investments (see Table 10).

The relationship between savings and investments in individual sectors in the Czech Republic shows that the long-term decrease in the rate of domestic savings has been caused especially by a significant drop of **household** saving rate, from 15.2% of disposable household income in 1995 to 6.6% in 2005. The formation of gross savings in the **government**

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[17] If A is assigned to the sum of final consumption and investments (domestic absorption), then the following equation applies: $GDP - A = X - M$, with X = export of goods and services, M = import of goods and services.

[18] The following equation applies: $S - I = CAB$, with S = national savings, I = gross capital formation (investments), CAB = current account balance. This balance includes three main components: balance of exports and imports of goods and services $(X - M)$, balance of primary incomes (NY) and balance of current transfers (NCT) between residents and non-residents, i.e. $CAB = (X - M) + NY + NCT$.

sector had been decreasing until 2003.[19] The increase in the subsequent years was driven especially by the fast growth of the economy and the related tax receipts. Relatively high investment needs of the government led to a situation where the formerly positive gap between savings and investments turned into a negative one, showing a strong growing tendency between 2000 and 2003. However, in 2004 the gap was reduced significantly, yet there was another increase in 2005. This, in itself, was an indicator of the growing government deficit. The need to finance the government sector is derived not only from the negative gap between savings and investments but also from net capital transfers that were negative and of a relatively high amount. This led to substantially **higher net borrowings** that exceeded, between 2000 and 2003, 6% of GDP annually. The deterioration of the government deficit measured by net borrowings was caused, to a large extent, by the growth of social benefits, one-off expenditures in relation to the restructuring of the banking and business sector and by including all guarantees provided by the government. In 2004 net borrowings dropped below the Maastricht criterion of 3% GDP. However, they grew back up to 3.6% in 2006.

Net operating surplus is the basic source of savings for **non-financial enterprises**.[20] It may be perceived as "profit" of non-financial enterprises that is subject to primary and secondary distribution. This leads to the formation of disposable incomes that are equal to the savings in the sector. Their growth between 2001 and 2005 was rather remarkable (from 373 CZK billion to 478 CZK billion). The share of savings within the non-financial enterprises sector in total gross national savings went up from 39% in 1995 to 68% in 2005, with their position in the Czech economy becoming of a key importance – especially given the dropping rate of household savings. Because of the substantial investment needs of non-financial enterprises, the gap between savings and investments had been negative up until 2004, becoming virtually neutral in 2005. It had not been before 2005 that net borrowings of non-financial enterprises, which were strongly volatile between 1995 and 2004, turned into loans provided to other sectors for the first time (as a result of a rapid increase in gross savings while investments were dropping).[21]

2.5 Current account of balance of payment

A dual concept of macroeconomic balance, based on the relationship of domestic supply and demand and on the relationship between investments and savings, is reflected in the current account. The gap expressed as trade balance and service balance (performance balance) and the current account balance must be filled with foreign resources. The current account balance is a more comprehensive tool for assessing macroeconomic balance since it considers both the balance of goods and services as well as the inflow and outflow of primary incomes abroad (income balance) and the balance of current transfers with the world (one-way

transfers). By being equal to the difference between national savings and domestic investments, it points to the internal source of the external imbalance. Since the deficit of the current account must be financed by external sources, it is also tied to the financial account, investment position and external debt. While in the past the balance of current account was predominantly influenced by trade balance of goods and services, the flows of primary incomes in a form of wages, reinvested and repatriated profits and interests have become increasingly important as a result of free movement of capital and labour. Foreign direct investment contributed significantly to this major change of the current account structure.

Current account deficit expressed as a share of GDP (see Table 11) reached average 4.5% between 2001 and 2006. Over the last two years, it dropped significantly to 1.6% in 2005 and 3.1% in 2006. Net outflow of primary incomes to foreign countries in a form of wages, reinvested or repatriated incomes and interests reached average 5.3% of GDP between 2002 and 2006. Gross national income of the Czech Republic was lower by the aforementioned amount in comparison to gross domestic product. Similarly to Hungary or Ireland, the Czech Republic looses a substantial part of created income that cannot be used for consumption or investments. It may be expected that reinvestments and repatriations of profits will continue being the major source of the current account deficit.

Table 11: Current account (in per cent of GDP)

	Current account	Balance of trade	Services	Income	Current transfers
2001	-5.4	-5.0	2.5	-3.6	0.8
2002	-5.6	-2.9	0.9	-4.8	1.2
2003	-6.3	-2.7	0.5	-4.7	0.6
2004	-5.2	-0.5	0.6	-5.6	0.2
2005	-1.6	2.0	1.2	-5.2	0.4
2006	-3.1	2.1	1.1	-5.7	-0.6

Source: ČNB (2007), own calculation.

Table 12 shows a comparison of the EU-5 states of Central Europe. Between 2001 and 2006, the most significant deficits of the current account were generated in Hungary, followed by Slovakia and the Czech Republic. Slovenia shows positive results overall, however, with deteriorating tendencies. Substantial macroeconomic imbalance starts to trouble Hungary. Additionally, the deficit has been covered over the last years by an inflow of foreign portfolio investments in Hungarian government securities that, contrary to foreign direct investment, increase the foreign indebtedness of the country.

Table 12: Current account (in per cent of GDP)

	CZ	HU	PL	SI	SK
2001	-5.4	-6.0	-2.8	0.2	-7.1
2002	-5.6	-6.9	-2.5	1.1	-7.3
2003	-6.3	-7.9	-2.1	-0.8	-2.1
2004	-5.2	-8.4	-4.4	-2.6	-2.5
2005	-1.6	-6.8	-1.7	-2.0	-7.9
2006	-3.1	-5.9	-2.2	-2.7	-7.7
2001–2006	-4.5	-7.0	-2.6	1.1	-5.8

Note: Data for the Czech Republic after the revision in June 2007. Source: ECFIN (2007a), pp. 116–117.

When assessing the deficit of the current account of balance of payments, a limit beyond which the **macroeconomic**

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[19] Net savings of the government sector (net of consumed fixed capital) have been permanently negative since 1996.

[20] Balancing item in the account of income formation, which is left after subtracting remuneration of employees from net domestic product, with a modifying influence of taxes on production and imports and of subsidies.

[21] The Czech Republic is no exception in this sense. Enterprises in a number of developed countries changed their traditional behaviour (borrowing savings from other sectors to finance investments) and, instead, form financial surplus that they lend to other sectors. The growth of profit of enterprises as a result of low interest rates and reduction of tax burden, decrease of relative prices of investment goods and investment expenditures and an effort to generate a higher amount of liquidity in reaction to unstable external environment were among the main contributing factors enabling to increase savings.

stability of a country is at risk cannot be drawn mechanically. The simplified 5% GDP limit is often cited in literature as the imbalance warning sign. However, the impacts of the deficit depend on the sources of its financing (whether it is debt-generating, short-term or long-term capital), its use (investments or consumption), the level of foreign debt and foreign currency reserves and on the overall macroeconomic situation of the country. Considering these factors, the Czech Republic's current account deficit does not seem to be dangerous since it has been financed mostly by foreign direct investments, supported investment growth and has not contributed do increasing relative indebtedness of the country.

Influence of foreign direct investment on payment balance

The substantial inflow of foreign direct investments (see Box 1) has an important impact on the trade and income balances. Based on the disposable data, it is apparent [22] that enterprises controlled by foreign corporations have been creating deficits of trade with goods and services until 2000. However, their **performance balance** has been active since 2001, with a permanently growing surplus.

Box 1 – Companies with the participation of foreign capital

There are two different characteristics of foreign direct investments (FDI) and subsequently of the respective companies. 1) **FDI in the framework of the balance of payments** (FDI – defined by the IMF). Under this concept, the share of the investor´s ownership must amount to at least 10 % of total fixed assets (equities, voting rights or their equivalents). Such a company is called FIE (foreign investment enterprise), i.e. companies with foreign participation (see Hunya, Geishecker, 2005). The definition indicates long-term relationship between the company and the investor. 2) **Companies under foreign control** in the framework of national accounts ESA 95 (the same definition is used by OECD – see OECD, 2005d). The precondition of this approach in the case of non-financial private companies is the participation on the fixed assets amounting to at lest 50 %. Such a company is then called as the company under foreign control (controlled by non-residential institutional unit – FCE). Along with this definition, the Czech Statistical Office publishes the data on non-financial companies (above 100 employees). These two concepts, however, represent some problem for international comparisons.

Since 1998, negative **income balance** has been growing due to expenditures being significantly higher than receipts (see Table 13).

Table 13: Balance of incomes (bil. CZK)

	Receipts	Expenditures	Balance
2000	75.4	128.4	-53.0
2001	84.9	168.4	-83.5
2002	66.8	182.4	-115.6
2003	75.5	195.4	-119.9
2004	87.2	243.8	-156.6
2005	105.7	261.4	-155.7
2006	121.4	304.8	-183.4

Source: ČNB (2007), BOP statistics (31. 7. 2007), own calculation.

In terms of expenditures connected to direct investments (bringing profit to foreign investors), **reinvestments and dividends** prevail, with interests permanently being the least important item (see Table 14). The shift from reinvestments to dividends is clearly obvious. In 2001, more than three

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quarters of profits were reinvested, while in 2006 less than one half. Similarly, the importance of paid dividends has been growing. Over the last five years, the share of repatriated profits more than doubled to 52%.

Table 14: Components of the balance of incomes (bil. CZK)

	2000	2005	2006
Balance of incomes	-53.0	-155.7	-183.4
Labour incomes	-12.0	-23.5	-35.7
Capital incomes	-41.0	-132.2	-147.7
Other investment (interest)	20.1	9.3	19.1
Portfolio investment	-7.5	6.3	4.3
Foreign direct investment	-53.6	-147.8	-171.1

Source: ČNB (2007), BOP statistics (31. 7. 2007), own calculation.

The Czech economy has confirmed the experience of other host economies where the positive impacts of the inflow of FDI on trade balance are accompanied by negative impact on income balance; with **growing profitability of foreign-controlled enterprises** (see e.g. Brada, Tomšík, 2003). It is likely that the tendency to shift profits from reinvestments to repatriations will continue in the Czech Republic. UNCTAD analysis (2006) shows that investors from developed countries repatriated on average 55% of their profits between 1990 and 2004.

Foreign debt reflects the long-term external imbalance. Its changes depend on the method of financing of the current account deficit (whether or not it is debt-generating). Hungary shows the highest debt of the group of Central European countries, with indebtedness growing from 56% of GDP in 2002 to almost 90% of GDP in 2006. Imbalance was getting worse in Slovakia over the two last years, with the current account deficit being increasingly more influenced by the negative income balance. Short-term capital begins to participate in the financing of the deficit, which reflects in the growth of foreign indebtedness (gross foreign debt went from 48% of GDP in 2002 to 58% of GDP in 2005). A debt growth (up to 80%) was also reported in Slovenia. The Czech Republic has the lowest foreign debt rate of all countries of Central Europe (below 40% of GDP).

The inflow of foreign direct investments still remains the most important source of **deficit funding**. Even though FDIs are still considered a predominantly non-debt-generating, their part (represented by other capital) becomes a part of foreign debt. This involves inter-company loans between direct investors and subsidiaries and branches. The amount of foreign debt and its structure is an important indicator since the debt service consumes resources that cannot be used in the domestic economy.

Table 15: Investment position of the Czech Republic (bil. CZK, to 31. 12.)

	Investment position	FDI	Portfolio investment	Other investment
2000	-191.9	-790.5	15.8	84.9
2005	-835.2	-1402.8	30.0	-199.8
2006	-1034.0	-1511.5	44.0	-240.2

Source: ČNB (2007), BOP statistics (31. 7. 2007), own calculation.

Direct foreign investments have even a greater impact on **investment position**. The Czech Republic recorded a high deficit of the foreign direct investments item, reaching up to CZK 1511.5 billion at the end of 2006 (see Table 15). An EU-25 comparison shows that, per capita, the Czech Republic has a similar investment position as Hungary.

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[22] Contributions of companies under foreign control to the entire trade with goods and services may be quantified based on annual surveys carried out by the Czech National Bank (see ČNB, 2007b). The last available data relate to 2005.

3. Nominal convergence

Convergence of nominal values takes place simultaneously with real convergence. This process includes approximation of price and wage levels of catching-up economies with the European average. Two transmission mechanisms are involved in nominal convergence: inflation differential and appreciation of the nominal currency exchange rate. Currently, the impacts of the euro adoption, resulting in the disappearance of the exchange rate channel, are discussed. The course of nominal convergence is subject to a number of structural specifics, especially when looking separately at tradable and non-tradable sectors as well as individual items of GDP expenditures and various categories of household consumption expenditures.

3.1 Price level convergence

In economic theory, price convergence is understood as a process of approximation of the **total (i.e. comparative) price level – CPL** – to that of another country or a group of countries.[23] Price convergence is a part of nominal convergence (process), i.e. convergence of all values present in the economy. For analytical purposes, the macroeconomic view, including comparative price levels and their determinants, with the microeconomic view, focused on structural aspects (convergence of relative prices), need to be considered.[24] The **price level** lagging behind the economic level has been a typical feature of the Czech economy (see Vintrová, Žďárek, 2007), despite its fast growth since 1995 (56% vs. 71% in comparison to the EU-15 in 2006 – see Figure 1). During the entire period, the differences were not as pronounced in Hungary, Slovakia and Slovenia, with the price level in Poland even preceding the economic one (however, this could also be influenced by the parity calculation method).

Adjustments of the price and economic levels may be carried out through two different channels. (See Box 1.) In the case of the Czech Republic, it has only been happening due to appreciation of the domestic currency over the last decade, with the inflation differential compared to the EU states having no effect (it even reaches negative values on yearly averages). Between 2001 and 2006, the average annual inflation rate in the Czech Republic was 1.9%, whereas, in the eurozone, it was 2.2% (according to HICP). The average yearly appreciation toward the euro reached 3.9%, however, the trade

and performance balance did not deteriorated, and has even been generating surplus since 2005. This fact should be considered when **adopting the euro**; the exchange rate channel will no longer play its role and the approximation of price levels will only be carried out through positive inflation differential.

Box 1 – Channels in case of the price convergence

Adjustment of the comparative price level (CPL) in a national economy can be written with help of a simple equation as (see Lewis, 2007): $CPL_t = X_t + \pi_t$, where X_t is change of exchange rate and π_t is rate of domestic inflation for given year t. The relative importance of both channels depends on the regime of exchange rate in a given country. If there is a fix exchange rate, the adjustment carries out through the inflation channel (i.e. positive inflation differential), in case of a free float the total change of CPL is given by composition resulting from both channels and thus relative proportion (importance) may vary. If there is set a inflation target for conduct of monetary policy (this is the case of the Czech Republic, Slovak Republic or Poland), it is simultaneously given the upper limit for inflation channel for a year in the process of price convergence.

The price channel which influences the national price level in an economy in question is given by a higher annual rate of domestic inflation. This results from changes of economic structure (for example so-called selective inflation in case of Balassa-Samuleson effect), demand and supply factors, on-going process of dereregulation of administered prices, changes of taxes (for example changes due to harmonization within the EU) etc. **The exchange channel** which influences the national price level, is given by changes (appreciation) of exchange rate. However, changes of exchange rate may be influenced both short-lived (i.e. temporary) and long-lived (i.e. fundamental) factors. While transitory factors may lead to temporary disturbances and changes of exchange rate (for example set interest rates in economy resulting in important interest rate differentials), fundamental factors are supposed to be more relevant (for example changes of labour productivity, i.e. GDP per employed person, in a given economy).

Sectoral differences of labour productivity are suppposed to be given by influences resulting from Balassa-Samuelson effect (supply side effect) in neoclassical economic theory. Other explanations are focused on factors linked up with changes of real income of economic subject by different elasticities of consumption influnced by level of disposable income and its changes (see e.g. Bergstrand, 1991), influence of relative abundance of imputs (factors of production, i.e. their relative abundance or relative scarcity, see e.g. Bhagwatti, 1984). There are a large number of other variables which have impact on national price level (so-called structural factors) and are discussed and often empircally tested in literature (see Čihák, Holub, 2003[25]; Kleiman, 1993[26]; Nestić, 2005[27]).

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[23] he progress of nominal convergence has been assessed in literature from other perspectives as well: e.g. approximation of the difference of GDP expressed in the euro based on the purchasing power parity and the market exchange rate (i.e. reduction of the ERDI coefficient) or the compliance with Maastricht (convergence) criteria for euro adoption. (See e.g. EC, 2006; ECB, 2006; Schadler et al., 2005; Dobrinsky, 2006; Vávra, 1999).

[24] Some of the studies taking a closer look at price convergence in the new EU member states are: Čihák, Holub (2001a, 2001b, 2003); Holub, Čihák (2000); Nestić (2005). These have confirmed the continuing price convergence in the majority of the countries, both in comparison to the averages of countries (e.g. the EU-15 or the eurozone countries) as well as to Germany. Price convergence has been confirmed for the old EU states (see e.g. ECB, 1999), confirming convergence for tradable goods. On the contrary, studies by Lutz (2002) and Buseti et al. (2006) did not confirm the progress of price convergence. One of the reasons may be that trade barriers still persist in the internal EU market.

[25] The empirical testing of determinants of the national price level based on ECP data set show that the highest relative importance has level of real income, taxation, labour productivity, etc.

[26] Taxation may give rise to increasing prices in domestic economy (in case of shift of tax burden to consumer while having accommodative monetary policy). Influence of government expenditures on prices is supposed to be given by the necessity to finance higher government expenditures either by higher taxes and/or higher ineffectiveness of government´ production and distribution of goods and services in comparison with private sector.

[27] ECP data set for 1999 confirmed the importance of government revenues and expenditures and labour productivity as the most important factors for determining comparative price level in a given economy.

Figure 1: Real and nominal convergence, EU-5 countries, 1995–2006 (EU-15 = 1)
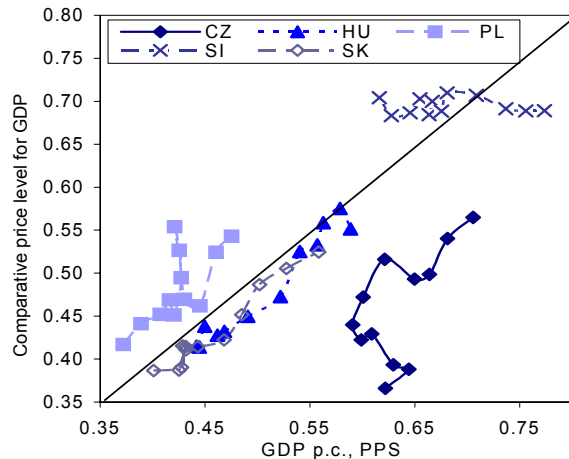
Source: EUROSTAT (2007c), (downloaded 14. 7. 2007), own calculation.

Figure 2 shows a change in comparable price level for GDP that has been broken down into price development, the influence of other factors in the Czech Republic. Between 1996 and 1998, inflation differential significantly contributed to nominal convergence (the growth of the CPL value). After 1999, the disinflation policies of the ČNB modified the form of nominal convergence, resulting in negligible or even negative inflation differentials compared to the EU-15 which confirms the prevailing importance of the exchange rate channel for price convergence. So far the only exception to the rule was year 2004.

Figure 2: Decomposition of price convergence for GDP in the Czech Republic, 1995–2006 (in p.p., EU-15 = 100)
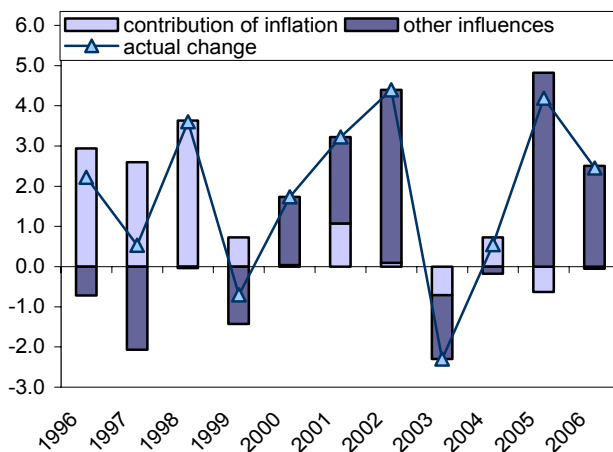
Note: actual change = change of CPL (CPL$_{GDP, t}$ – CPL$_{GDP, t-1}$), other influences = change of nominal exchange rate, changes of methodology.
Source: EUROSTAT (2007c), (download. 14. 7. 2007), own calculations.

The process of price (nominal) convergence may also be analyzed from the perspective of **factors** that contributed to the overall change. Besides the inflation rate differential (measured by the difference of the deflator in the national economy and deflator in e.g. a reference group), they also include the development of nominal exchange rate as well as methodological changes (transfer to a different system of national accounts, changes in the sample of surveyed items, different methods of identification) that are, however, only hardly quantifiable without the knowledge of related circumstances.

The issue of a relatively **low comparative price level** in comparison to the economic level of the Czech Republic has been often discussed in literature. It could present a problem upon the adoption of the common currency, or during the ERM II stage. The authors do not draw identical conclusions, however, some of the factors that have had an important impact on the price level within the Czech economy have been identified.[28] These include especially triple devaluation of the crown at the beginning of the transformation process, price terms and their distortion during the communist regime (centrally planned economy), the influence of indirect taxes, speed and costs of arbitrations, share of the sector producing non-tradable goods and services, a lack of full competition, non-economic factors, or statistical fallacy.[29]

Contrary to simple models, a number of goods and services (commodities) may not be traded internationally (exported or imported) but are produced and consumed within the national economy (non-tradable commodities). **Tradability** is influenced by a number of factors and changes throughout the time. High transport costs that may be reduced by the development of technical progress (e.g. the development of information and communication technologies, ICT),[30] or customs duties, quotas and regulations are examples of obstacles to tradability.

The issue of statistical fallacy may be a very specific one. Unless a given representative is available in the compared economies, expert quality modifications are carried out by choosing a different representative. The first step involves the modification of the relevant Czech item (e.g. type of food or clothes), with the difference in the foreign and Czech prices being appraised by the costs of its production. Other factors, such as preference, fashion or luxury consumption effect may present a problem to carrying out the appraisal of brand products within the given economy. In any case, the price is a hypothetical (created) price that may differ from the real one that may be reached on the market. This way, an under appraisal of the price level in the national economy is created that may be of importance should the specific items (i.e. those estimated or adjusted) form an important share of the surveyed items (errors in calculations accumulate).

Structural aspects of price level development

Strictly macroeconomic approach to assessing the development of nominal convergence would not suffice since the development of individual parts may be mutually offset. Therefore, an analysis of the individual parts needs to be carried out. It uses data from an international project aimed at comparing prices and actual production in individual countries. Variations from the comparative price level (CPL$_{GDP}$) in the EU-5 states compared to the EU-15 are significantly influenced especially by a different price level of public consumption (it is significantly lower than the GDP

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[28] See Skořepa (2001); the issue is discussed at a more general level by e.g. Égert (2006).
[29] Empirical verification of individual variables is rather problematic, however, some authors attempt it (see Nestić, 2005; Žďárek, 2006). The availability of observations for incomplete periods and interrupted flow of observation may present a problem (the data for periods between individual phases of the international survey are estimated in different ways which results in distortions that cannot be fully identified).
[30] Example: banking services, insurance or data processing services that are often provided to companies in different parts of the world based on cost advantage (this does not apply to specific quality- or control-intensive services). On the other hand, newspapers and goods in the national language are virtually non-tradable in other parts of the world (except for the main world languages).

price level). This effect is apparent from the CPL of household consumption expenditures being different from the CPL of actual individual consumption that includes a part of public consumption (For definitions, see Box 2). Yet the price level of household expenditures is almost identical to the GDP price level (see Table 1).

Box 2 – International comparison project and key definitions

International Comparison Programme, ICP started in 50´s as reaction to needs of OEEC (OECD) for having the same economic indicators for measuring performance of OECD member states. The current form of the ICP was created at the end of 60s (1967). It was the methodology created under supervision of the United Nations (with help of World Bank) that made it possible. Given the fact that this project was done for countries of all level of income all over the world, later was created European Comparison Programme (ECP). On its basis is run the common project of OECD and EUROSTAT. The first round was in 1980 and included 18 countires (see e.g. study of Kravise and Hestona, 1988). The following rounds were every five years. Since 1993 the roudns have been done every three years and number of countries has continued to rise up to 42 in 2005. since 1993 there has been new methodology for ECP (ICP), i.e. common approach for setting-up and measurement of main economic indicators (the system of national accounts SNA 1993 and ESA 1995), which replaced the previous system of national accounts SNA 1968 (ESA 1970).

Comparative price level (CPL) is measured as ratio of current (spot) echange rate and PPP exchange rate. Indicator of CPI is usually expressed in percentage points in relation to a reference country (or as an average of a group of countries). EUROSTAT uses similar indicator of comparative price level which is price level index (PLI).

The comparative price level for GDP is the most comprehensive view. Comparative price levels for the **main GDP components** are also calculated: consumption (private and public), gross fixed capital formation (machinery and equipment, construction and others) and export and import of goods and services. The comparative price level for GDP is calculated as weighted average of the main GDP components.

There are two approaches to measurement of **consumption** (who pays and who consumes) as a component GDP. It is also calculated household consumption (actual and individual), consumption of non-profit institutions serving households (NIPSH) and government counsumption (actual and individual). The main problem is linked up with prices of non-market production (i.e. various government services) and their prices have to be calculated artificially.

Actual individual consumption is one of the indicator of consumption which is measured (and preferred) in ICP (ECP). It is one of the indicator defined in ESA 1995 and consists of all consumed paid or unpaid goods and services (this is a view – who really consumes). It also makes up of both total amount of goods and services paid by the households and amount of goods and services produced by government and distributed amoung households free of charge or for very low prices (for example healt and education).[31]

Final household consumption expenditure are the second type of consumption which is calculated within nationa accounts framework. In this particular case it is important who pays for the amount of goods and services. If goods or services are counsumed by a household but paid by government it is not included within this category.

Actual collective consumption is consumption of government institutions and it is a part of of final household consumption expenditure. This type of consumption is used for the parts of government consumption which cannot be added to individual consumer (household). It is a heterogenous group of various services – national defence, public administration, security, judiciary, etc.

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[31] Non-profit institutions serving household are included in this type of consumption.

Table 1: CPL for total GDP and its components (EU-15 = 100)

		CZ	HU	PL	SK	SI	EU-25	OECD
2002	GDP	51	52	52	41	70	96	106
2002	H. expen.[1]	53	55	57	43	73	97	109
2002	Actual c.[2]	48	49	51	38	70	96	110
2005	GDP	56	55	54	52	69	96	94
2005	H. expen.[1]	56	60	58	54	72	96	..
2005	Actual c.[2]	51	55	52	48	70	95	..

Note: [1] Individual consumption expenditure by households. [2] Actual individual consumption. Source: OECD (2005), pp. 37, pp. 40, pp. 137–138, pp. 141–142; OECD (2007a), pp. 279; EUROSTAT (2007e), own calculation.

Within the CPL of total GDP, lower prices of public consumption within the EU-5 countries are compensated by other items, especially by higher prices of **gross capital formation** (this applies especially to machinery that is mainly imported). CPL of investment goods saw the quickest rise as shown by the data for the Czech Republic and other EU-5 states. For example, in 2005, the CPL of machinery and appliances in the Czech Republic reached as much as 93% of the EU-15 level (rising by 17 percentage points between 1999 and 2005). The CPL of built structures rose by significant 28%, however, it still remains below the CPL GDP average (see Table 2) and, unlike machinery, these are usually considered non-tradable goods.

The last round of the European Comparison Project (ECP) for the 2002 round enables a more **detailed analysis of the structure** of price level development in selected new and old EU member states (or their groups). This detailed structure of goods and service prices provides sufficient data on the sources of potential price convergence (i.e. the process of price adjustment). Table 3 shows the price levels and variable coefficients for the main expenditure categories in the EMU and EU-5 states.

Table 2: Comparative price levels for selected items of gross capital formation (EU-15=100)

		CZ	HU	PL	SK	SI	EU-25
1999	GFCF	57.8	66.3	62.6	73.5	65.2	97.4
1999	Machin. & eq.	79.4	78.5	79.4	92.6	88.0	98.6
1999	Construction	41.4	56.1	47.5	56.7	47.0	95.7
2002	GFCF	67.5	70.8	67.0	66.4	71.2	97.7
2002	Machin. & eq..	92.9	84.1	93.8	86.9	88.4	99.3
2002	Construction	48.4	60.4	47.2	57.3	49.5	96.0
2005	GFCF	68.3	75.8	62.9	70.4	67.7	97.4
2005	Machin. & eq.	93.0	92.8	93.3	91.5	97.6	99.5
2005	Construction	53.0	65.4	47.0	53.2	52.9	95.2

Note: gross capital formation = gross fixed capital formation, machinery and equipment, construction. Source: EUROSTAT (2007e), own calculation.

Clothes, shoes, recreation, culture, sports and house equipment show the **lowest variability** (measured by coefficient of variation) of all consumer goods in the EMU. As for the EU-5, the situation is almost identical, with the lowest variability levels in clothes, shoes, and transport or house equipment. These goods are usually tradable, thus being subject to arbitration and the resulting price balancing between the countries. On the other hand, there are significant differences in goods with limited tradability, such as housing, education or healthcare. A similar situation exists in goods that are on the limit of both groups (with limited tradability, or subject to strong state regulation), with apparent significant differences

(e.g. alcoholic beverages, tobacco, pharmaceutical products). Additionally, catering and accommodation services, similarly to posts and telecommunications, show substantial differences among the various EU-5 states.

Table 3: CPL and their variability, 2002 (EU-15 = 100)

	EMU	Var.	EU-5	Var.
GDP	97	0.130	54	0.173
Household final consumpt. expen.	98	0.138	56	0.172
Food and non-alc. beverages	99	0.105	63	0.190
Alc. bever., tobac., narcotics	96	0.302	60	0.124
Clothing and footwear	104	0.108	77	0.094
Hous., water, elec., gas, ot. fuels	100	0.270	41	0.324
Hous. furnishing, equip., mainten.	97	0.092	65	0.047
Health	96	0.178	48	0.223
Transport	96	0.127	70	0.113
Communication	98	0.107	93	0.220
Recreation and culture	98	0.103	65	0.194
Education	112	0.318	33	0.433
Restaurants and hotels	99	0.146	54	0.237
Misc. goods and services	97	0.149	57	0.177
Final consumpt. expen. of NPISH	91	0.229	32	0.413
Final cons. expen. of gen. gov´nt	98	0.200	39	0.340
individual con. exp. of gen. gov´nt	97	0.217	36	0.375
Collective con. exp. of gen. gov´nt	98	0.184	44	0.304
Gross fixed capital formation	96	0.129	69	0.029
Machinery and equipment	101	0.062	89	0.041
Construction	94	0.218	53	0.100
Other	97	0.087	86	0.090

Note: Variability (Var.) expressed by means of coefficient of variation.
Source: OECD (2005), pp. 140–143, own calculation.

Differences in the **levels and variability of prices** are documented by a comparison of public consumption expenditures with GFCF data (the machinery and appliances item). In the EU-5 as well as in other transition countries (see Nestić, 2005), the price level of machinery and appliances stands at almost 90% of the eurozone average (with a correspondingly low coefficient of variation). As opposed to that, in terms of public expenditures, the EU-5 states are at approximately two fifths of the EMU average, showing significant variations among themselves (the indicator is influenced by Slovenia and its public consumption level above 55% of the EMU). Similar differences also apply to the goods and services that may be perceived as tradable or non-tradable.

## 3.2 Selected implications from nominal convergence in the EU

Studies dedicated to nominal convergence in Europe have shown that it is a gradual, yet very significant process in a number of states of the EU and the monetary union (see ECB, 1999, 2005), especially in respect to tradable goods.[32] The opposite is true for non-tradable goods affected by taxation or regulation. However, some studies do not confirm price convergence (see Lutz, 2002; Buseti et al., 2006). This would point to the prevailing barriers within the EU that should be completely eliminated by the process of European integration.

The existing differences in price levels lead to inflation pressures since the exchange rate channel is closed, with price movements being the only (market) way of price level adjustment. The different inflation rates in the EMU countries (a group of South European converging countries vs. the EU founders) hinder the effectiveness and impacts of the **common monetary policy**. As a result of the EMU enlargement, the share of countries with a higher inflation rate could grow, with the effects of more stringent currency policies, such as a negative real interest rate, in the countries with positive inflation differential or the countries with a negative differential possibly reflecting in investors' decisions on allocating funds, as well as in customers' decisions on savings or long-term investments (financed with the help of various financial tools).[33]

Real effective exchange rate (REER) serves as a reflection of the various inflation rates in the competitive position of the individual eurozone states. Figure 3 shows the development in selected EMU countries. If the new EU member states access the EMU in a situation of real convergence (with the Balassa-Samuelson effect also apparent), the higher inflation rate could significantly affect their REER and, as a result, the price competitive of a country.

Figure 3: Development of real effective exchange rate (REER) for selected EU countries, 1999 = 100
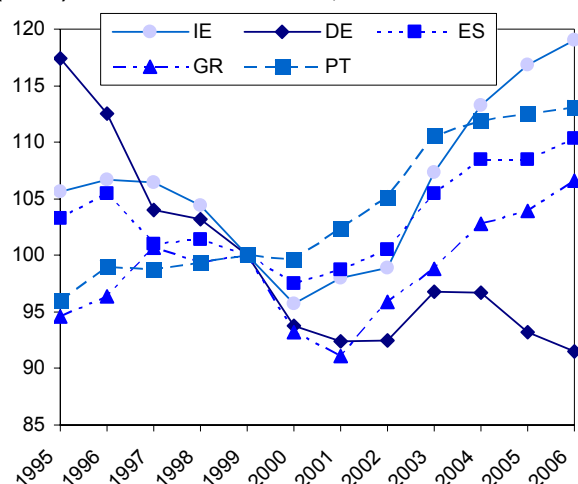
Source: EUROSTAT (2007f), Sustainable Development Indicators, Economic Development.

The **exchange rate and price channels** are both important for the development of nominal convergence. After accessing Exchange Rate Mechanism II (ERM II) and the set-up of central parity for the national currency, the importance of the price channel diminishes to be removed completely after the accession to the common European currency. The entire process of adjusting national nominal value will be carried out through prices. The price channel will be of a great importance in the countries with significantly different nominal and real (economic) levels which is the case of Slovenia and the Czech Republic in particular. If the importance of this channel is suppressed, it may result in a slow-down of necessary structural changes (real convergence).[34] The information on

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[32] A comparison between the development in the eurozone and the USA seems rather problematic due to the latter's different structural characteristics.
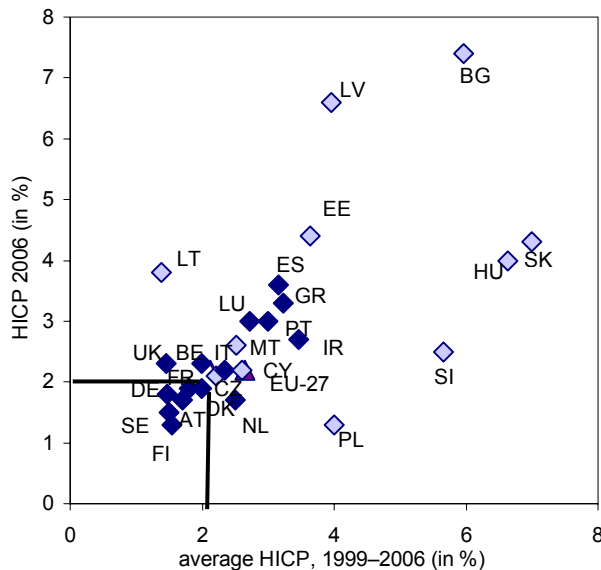
[33] The actual construction of the Maastricht convergence criterion is very problematic in respect to the price growth. To learn more, see e.g. Brook (2005) or Bulíř, Hurník (2006).

[34] Let's consider the criterion fulfilled if the exchange rate oscillates within a narrow band of ±2.25 %. Asymmetric zone, i.e. with a possi-

the functioning of the eurozone is rather mixed, also due to the fact that the countries in the first wave were on a higher development level (except for three or four states that joined the EU in the 80's or Ireland a decade earlier) than the level of the current new EU member states is. Relatively higher economic and price level does not require such significant changes in price structures (and convergence) as in the case of the less developed countries.

Other factors influence the inflation rate and adjustment of price relations. One of the most frequent and problematic is Balassa-Samuelson effect (or Harrod-Balassa-Samuelson effect – HBS). While its estimated values for the EU-15 states (or more precisely the eurozone) and its effect on the inflation rate are marginal, it may present an important pro-inflation impetus in the new member states.[35] The HBS effect is responsible for structural inflation. The estimates of its importance are very different and rather ambiguous, with a strong dependence on author's approach (the model type of the HBS effect) and the subsequently used method of economic estimate (see Égert, 2006).

Figure 4: Development of inflation, EU-27 countries, 1999–2006, HICP (%)

Note: Romania: average for the period 1999–2006: 23.0%, average for 2006: 6.6%. EU-25: 2.1%, 2.2%; EU-15: 2.0%, 2.2%; EU-12: 2.1%, 2.2%. Within the current ECB´s target (HICP close to 2%) only 6 countries (AT, DE, DK, FI, FR, SE). Source: EUROSTAT (2007e), own calculation.

Figure 4 illustrates inflation differentials that reflect price adjustments and the influence of the HBS effect in the EU

states. It shows the development of harmonized **inflation rate** in both the long-term perspective (the average over 7 last years after the introduction of the euro) as well as the 2006 yearly average. The goal set by the ECB for the inflation rate (2% on average) was completely achieved in just six countries (Finland, Sweden, Denmark, France, Germany and Austria), i.e. mature economies that do not undergo any significant convergence processes or sudden structural changes or stagnation. If the inflation rate goal had been at 3%, 14 countries would have achieved it (almost all eurozone states with the exception of Ireland, Greece and Spain), also including the Czech Republic. The remaining new member states showed a significantly higher inflation rate. As a result they may expect substantial problems when fulfilling the Maastricht convergence criterion that is set at approximately 2%.

Suboptimality of monetary policies has a real impact on the economies of the EU states in a form of e.g. negative real interest rates in some countries (Ireland and Greece), leading to excessive investment activity or increased danger of creation of bubbles on asset markets (and the real estate market in particular).[36] Other aspects include the issues of the actual construction of the Maastricht convergence criterion that takes into account three countries with the lowest inflation rate in the EU, not just the countries using the common currency (eurozone). Additionally, the goal is variable and, therefore, it is very difficult for the new member states to forecast it in an effort to fulfil the convergence criteria.[37]

Figure 5: Paths of nominal convergence in relation to the EMU average (EU-12), 1995–2006 and forecast for the next years

Note: Actual path of nominal convergence is showed by 2006, 2007 onwards it is a projection. Average rate of growth for the path of the Czech Republic was set by 3.4% (by 2010), 2.4% (by 2015) and 1.8% (2016 onwards). In case of EU-5 countries was chosen the rate of growth 2.6% (by 2015) and 2.1% onwards. Source: EUROSTAT (2007e), own calculations.
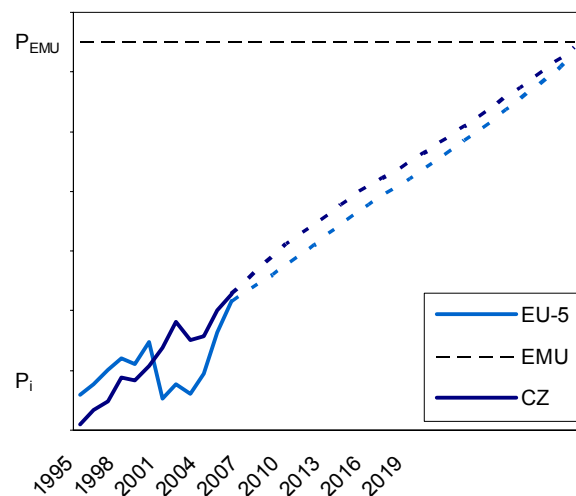
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ble significant appreciation (up to 15%) would not have to be perceived as the fulfilment of the criterion, with the same also applying to changes in central parity. However, Slovakia, for example, that showed a significant currency appreciation in 2006 was able to put through the change in central parity without major difficulties.
[35] Some of the most frequently cited works, including those of Mihaljek and Klau (2003), estimate the influence of the HBS effect on the inflation rate between 0.1 to 2.0 percentage points (the average yearly inflation rate per country) which should not present a problem to the fulfilment of the Maastricht convergence criteria by the new EU member states. However, the latest estimates (see Brook, 2005) noted the importance of the influx of foreign direct investments to the EU-5 states over the last years, which indirectly increases the importance of the growth of this effect. To learn more on its importance and issues related to the fulfilment of the Maastricht convergence criteria of price and exchange rate stability, see the discussions in UNECE (2001), Dobrinsky (2006).

[36] For example in significantly positive interest rates in countries such as Finland or Germany.
[37] The problem is twofold. One question is whether countries outside the eurozone should also be included in the calculation of this criterion (non-members may push the criterion value down as was the case of Lithuania in 2006), while the other one is whether the total inflation rate in the economy should be considered. The European Parliament has already discussed the possibility of reviewing the Maastricht criteria, and the inflation criterion in particular.

The course of nominal convergence may be expressed through dynamic approach. Figure 5 shows both the real course of nominal convergence compared to the euro-zone average (up until 2006) and the estimate for the future period. In comparison to the EMU level, the new member states remove a part of the nominal gap every year, i.e. they have to show a higher growth rate of prices or movement of exchange rates or a combination of both. A decreasing rate of nominal convergence is expected in relation to joining the ERM II mechanism, or, the monetary union. Subsequently, price adjustments via exclusively the price channel will take place. As the experience of converging countries, EMU members, has shown, further convergence may be much slower, or may come to a complete stop.

3.3 Conflict between real and nominal convergence and its impact on the euro adoption

The differences between real and nominal convergence and the variously developed relationships between real and nominal convergence is projected in the preparedness of individual countries to adopt the euro. Within the process of price convergence, which accompanies real convergence, price pressures increase, possibly resulting in selective inflation. They are mostly apparent in the sector of non-tradable goods and services where they do not correspond to the labour productivity growth (see the Harrod-Balassa-Samuelson effect). The continuing deregulation and tax adjustments (adjustments of consumer and environmental taxes) also affect the growth of prices. The higher growth of the domestic price levels, arising from the adjustment of relative prices, leads toward appreciation of the real exchange rate and to increasing the price of goods exported to foreign markets. The loss of price advantage may only be faced by the increasing share of top-quality products.

In terms of the euro adoption, the **Czech Republic** shows some specifics. The major difference between purchasing power parity of the crown and the exchange rate, which has been present since the beginning of the transformation, even though is has diminished significantly over the last period. It is necessary to expect that the process of relative price adjustment will take place, including the necessary maintenance of price stability during the preparation period for the euro adoption, also taking into account the weakened usability of the exchange rate channel. The relative price level, corresponding to the economic maturity of the Czech Republic, should currently be at 75% (in relation to the EU-27); however, it is more than 15 percentage points lower. With the current rate of price level approximation, which reached slightly below 4% over the last 6 years, the expected level in comparison to the EU-27 could be reached approximately between 2012 and 2013, or at a later date due to the expected slow-down of the appreciation process.[38] As a result, given the concur-

rent course of real convergence, the CPL would still be significantly below the level of equally developed countries (the economic level of the Czech Republic in relation to the EU-27 may be estimated at some 85% to 90% for the period in question).

In order to ensure the stability of the single currency, the adoption of the euro requires compliance with the strict inflation rules and the related interest rates as well as reasonable development of public budgets. In rapidly-converging economies, these requirements may be in conflict with the goal of fast economic growth. Therefore, the adoption of the single currency requires that certain progress in real convergence be achieved. It may be expected that the most important structural changes have already taken place in the Czech Republic and, in this respect; the country is ready for accessing the eurozone.

So far, real convergence in the **EU-5 and the Baltic countries** has been connected to relatively high inflation rates that were substantially over the EU-state average during the transformation period. At the beginning of the decade, the Czech Republic and Lithuania were an exception to the rule, with their inflation rates lower than the eurozone average (even reaching negative values according to the HICP indicator in 2003). In the current decade, the high inflation still persists in Hungary, Slovakia and Slovenia. As a part of preparations for the euro adoption, the inflation rate in Slovenia dropped in 2006, with a similar process currently being under way in Slovakia (in 2007). (See Table 4).[39]

Table 4: Rate of inflation (HICP)

	Rate of inflation (annual average, in %)			
	1997–2006	1997–2000	2001–2006	2006
CZ	3.4	5.8	1.9	2.1
HU	8.5	13.1	5.5	4.0
PL	5.8	11.0	2.5	1.3
SK	6.9	8.8	5.6	4.3
SI	6.1	7.8	5.1	2.5
Eurozone	1.9	1.5	2.2	2.2

Source: EUROSTAT (2007d), (downloaded 21. 5. 2007).

The accession to an environment with low inflation rate and low interest rates, supporting investments and growth, presents an important advantage for the economic growth after the adoption of the single currency. In the EU-5 countries, with the exception of the Czech Republic, interest rates are substantially higher than those in the eurozone. As a result, lower interest rates may speed up real convergence. At the same time, a danger of overheating and subsequent slow-down of

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[38] The approximation of the price level, carried out through nominal appreciation of the CZK, initially came to a stop at the beginning of 2007, to become reversed later. However, between 2005 and 2006, the appreciation reached above-average values (in comparison to the euro, the CZK appreciated at a yearly average rate of 7.1% and 5.1% respectively), so it may only present a deviation from the course, similar to that in 2002 after a period of excessively rapid appreciation. (During that year, the CZK/EUR exchange rate appreciated by 10.6%, however depreciation occurred between 2003 and 2004). Besides the development of the fundamental values, the exchange rate is subject to influence of a number of factors. Due to low interest rates in the Czech

Republic (third lowest globally, following Switzerland and Japan), the CZK is used, similarly to Japanese yen, only for financial transactions where credits are accepted in crowns to be then exchanged for other currencies that are subsequently invested in countries with higher interest yields. After the fluctuation in the US real estate market at the beginning of Q3, the situation changed and the exchange rate development reversed again. The CZK has begun to appreciate in respect to both the EUR and the USD. The future effects of these factors, that may significantly modify the development of the exchange rate, are very difficult to predict from the long-term perspective.

[39] Lithuania, a formerly low-inflation country, presents a specific example. Due to a delay in deregulation, the inflation grew. This tendency was a reason for the country to be refused the access to the ERM II exchange rate mechanism, even though the Maastricht criterion was exceeded only negligibly.

the economic growth is created, unless the catching-up countries show sufficiently faster growth of the labour productivity compared to the more developed states and if the domestic demand is covered by disproportionate growth of imports, with excessive use of foreign savings (as was the case of Portugal after accessing the eurozone).

The positive impacts of removing **exchange rate risks** vary under different circumstances. The reduction of risks is important for the countries that suffer from high deficits of the current payment balance account. This is the case of especially the Baltic countries and Hungary. For them, the single currency means protection against a monetary crisis that could occur as a result of pressures exercised by financial speculations. In specific cases, ensuring the stability of the exchange rate may prevail over possible disadvantages. However, this conclusion does not apply to the Czech Republic that shows a positive trade and performance balance, with the deficit of the current payment balance account being at acceptable levels over the last years. The growing deficit of income balance, to a large extent swallowing the trade balance surplus, may present a potential risk for the future.

Reduction of the **transaction costs** due to the single currency has a positive impact on all countries involved, with exporters especially profiting. Another positive effect is increased transparency with prices and wages indicated in euros, i.e. a certain demonstrative effect. This could also contribute towards an approximation of price and wage levels, especially in geographically close countries and regions. Countries with their macroeconomic stability at risk may profit from the corrective influence of the Stability Pact the conditions of which are aimed at **increasing financial discipline**. However, as the examples of Greece and Portugal have shown, the pressure of the Stability Pact may not suffice, with the countries being able to find their way around it.

The specific **balances of gains and costs** of adopting the single currency differ among the individual EU-8 states. Slovenia showed the least amount of problems when adopting the single currency, with the country already reaching rather high economic (87% in 2006) and price (73%) level in comparison to the EU-27. Similarly, Slovenian nominal wages are substantially closer to the developed EU member states than those of the EU-8. Compliance with the Maastricht criteria did not present a major problem to Slovenia when being in ERM II. The country managed to decrease the inflation rate to 2.5% and the public budget deficit to below 2% before accessing the eurozone. The interest rates also corresponded to the inflation rates, with the public debt rate also being low. The nominal exchange rate of Slovenian tolar stopped depreciating in a major way in 2005 (due to some non-market operations).

In terms of the achieved economic level, the Baltic countries stand on the opposite pole. Lithuania is closest to fulfilling the Maastricht criteria, with Latvia showing more substantial problems with the inflation rate. In general, the Baltic economies show healthy public finance. Their relative price level is low, more or less in accordance with the low economic level. During their history they have basically never carried out an independent monetary policy (Estonia and Lithuania use the currency board arrangement). They all share high deficits of the current account of payment balance that could present a threat during the existence of their own currencies.

Slovakia, that joined ERM II in November 2005, is closest of all Central European countries to adopting the euro, and expects to access the eurozone on January 1, 2009. In terms of the compliance with the Maastricht criteria, it has been successful at dealing with the problematic inflation rate; however, deficits of public budgets may prove more difficult in the long-term perspective.[40] The Czech economy may profit from the lesson learned by Slovakia when fulfilling the exchange rate stability criteria. Similarly to the Czech crown, the Slovak crown has not yet used its full appreciating potential. Therefore, Slovakia had to appreciate the original central parity of 38.5 SKK/EUR, which was valid upon its joining ERM II, to 35.4 SKK/EUR in March 2007 (i.e. by 8.8%). The European Commission and the ECB accepted the shift in central parity. This documents that appreciating deviations from the exchange rate are not assessed as strictly as in case of depreciation (however, they still hint exchange rate instability).

Of all Central European countries, Hungary has the most substantial problems with the fulfilment of the public budget deficit criterion (9.2% in 2006), while it also exceeds, as the only EU-8 state, the public debt criterion (61.7% of GDP in 2006). The government has already prepared a plan for the deficit reduction; however, the bodies of the EU do not consider it sufficient. In general, Hungary is not expected to be ready for the euro adoption before 2014. In Poland, the euro adoption is positioned as a political problem with a referendum on the matter also being considered. Based on economic indicators, the access to the eurozone is not expected before 2012.[41] Similarly to the Czech Republic, Hungary expects to reduce its presence in the ERM II mechanism to the required minimum of two years.

In 2004, the Government of the Czech Republic approved an Updated Strategy of Czech Republic's Accession to the Eurozone that stresses the fact that the main hurdle preventing the fulfilment of the Maastricht criteria is the unconsolidated state of public finance. This fact, together with the low flexibility of the economy, and the labour market in particular, also presents a risk to functioning of the Czech economy in the eurozone, preventing the advantages expected from the euro adoption from becoming apparent (See MF ČR 2007b, paragraph 44). No specific date of the euro adoption has been set since it depends on solving the above issues. This will require a major reform of public finance and the strengthening of the flexibility of the Czech economy. It is the Government's aim to remove these obstacles before the end of its office term.

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[40] Based on consumer prices, the inflation rate in 2006 was at a yearly average of 4.5%, with a year-to-year rate of 4.5% in December 2006. In the period from January to July 2007, the monthly average dropped to 2.8% (with a July year-to-year rate of 2.3% which translates, according to the internationally comparable HICP index, into 1.8%). In terms of budget deficits, Slovakia is subject to the excessive deficit procedure (EDP) pursuant to the Stability and Growth Pact. The impacts of the pension reform on public budgets are yet to be identified.
[41] Poland is also subject to the excessive deficit procedure pursuant to the Stability and Growth Pact. In 2006, the public budget deficit reached 3.9% of GDP (see ECFIN 2007, p. 177).

4. Conclusion

Due to significant external openness of the Czech economy, **international economic development** will be of a great importance for the its future growth. So far it has been favourable, the global GDP dynamics have picked significantly after a slow-down between 2001 and 2002, reaching 5% on average over the last five years. The slow-down of the American economy has been compensated by the high dynamics of the Asian region (China, India), the oil-exporting countries (OPEC and Russia) as well as developing countries. From the Czech Republic's perspective, the development in the EU states is important since 85% of Czech exports is directed there, with the country also receiving the majority of its investments from the EU. Globally, the EU remains a slow-growing region despite the more rapid growth in 2006 (from 1.8% to 3%). However, the European Commission predicts a mild slow-down for the next two years, from 2.9% down to 2.7%.

The development of the last months, with the mortgage market crisis and its effect on the entire financial system, has deteriorated future expectations, leading to reassessment of risks on financial markets, global macroeconomic imbalance, protectionism pressures and further growth of oil prices and prices of raw materials.

Between 2005 and 2007, **the economic growth of the Czech Republic** has increased substantially, reaching 6% on average per year. The following factors influenced the development positively: inflow of foreign direct investments and the growing importance of enterprises under foreign control, with significantly higher performance levels and modernization and restructuring of production capacities, growth of credits provided to households and enterprises in combination with low interest rates, as well as expansive fiscal policy (however, it also contributes to the unfavourable state of public finance). **From a structural perspective** and in comparison to the developed EU states, GDP of the Czech Republic shows a high share of industrial production with the service share remaining low; however, its development offers a good potential for further economic growth.

From a long-term perspective, the high economic growth should be maintained in order to ensure further improvement of the living standard and rapid progression of real convergence with a full use of disposable workforce. **Total factor productivity** (of labour and capital) becomes the most important source of growth, relying on qualitative growth factors with the key importance of the processing industry. Between 2001 and 2006, TFP reached a yearly growth of 3.3%, thus becoming the most rapid of all new Central European EU member states, also preceding that of the EU-15 by 2.8 percentage points. With the expected dropping share of population in productive age, caused by the aging process, and together with the high employment rate at the European level, the maintenance of the leading position in the growth of labour productivity and total factor productivity will become almost the only source of balancing the economic level with developed countries.

The **labour market** situation has improved over the last years, with a slight growth of the employment rate and a slight reduction of the unemployment rate. A high share of the long-term unemployed, reaching approximately one half of all unemployed, remains an important problem. Significant regional differences in the unemployment rate present another problematic area.

As a result of the increased economic activity over the last years, the availability of a number of professions has been reduced, with the situation resulting in an increase in the number of foreign workers and in labour costs. Increasing the flexibility of the labour market remains an important challenge to the economic policy and sustainability of the high economic growth rate. Key measures, that could help the labour market, are connected to the reform of the **social and educational systems**. Their set-up should support working activity of the people who want to work and are willing to relocate to get a job or who are willing to acquire new knowledge and skills in the process of life-long learning as well as part-time employment that could reduce the high unemployment rate of persons whose position within the labour market is rather problematic. The first steps leading towards eliminating institutional barriers have already been made as a part of the reform package introduced by the Government. An issue that is yet to be solved is the rate of replacing non-working retirement with working retirement.

Economic policies supporting growth must be tied to the goal of **macroeconomic stability** which is a precondition of a balanced economic development, full realization of the growth potential and nominal convergence that would ensure a smooth accession of the Czech Republic to the eurozone. A high growth rate of the Czech Republic between 2000 and 2007 has been accompanied by some negative trends in this respect.

The Czech Republic had to boost its own national savings with foreign resources in order to cover the **deficits of the current account of payment balance**. The income balance, with the outflow of the primary incomes in connection with foreign direct investments (repatriated and reinvested profit) became the basic source of the deficit. At the same time, enterprises with foreign interests the share of repatriated profit has been growing which could lead to an increase in the deficits of the current account. Over the recent years, the share of wages paid out to foreign workers, whose numbers have also been growing in enterprises under foreign control, has been increasing.

In terms of the future development, the dropping rates of **household savings** are perceived as a risk factor. A pension reform and positive real interest rates would support their increasing. Similarly to developed countries, the Czech Republic has seen a steep increase in the amount of credits (especially mortgages) granted to households over the last years. This was caused by low interest rates and increased activity of banks. The credit growth has contributed to an increase in private consumption and housing construction rate. On the other hand, household savings rate has been dropping, with household debts increasing, even though they still remain low in comparison to the developed foreign countries. Nevertheless, there is a risk of unequal development of assets and liabilities of households, with low-income groups possibly having a problem with the repayment of their credits.

Major public infrastructure investment projects and generous social policies have lead to relatively **high deficits of public budgets**. From the perspective of macroeconomic stability, public finance of the Czech Republic appears as the weakest spot of the economic development. The persisting relatively high deficits in a phase of fast economic growth need to be considered dangerous.

A public finance reform, relying on the relative reduction of expenditures, will be necessary in order to reduce the deficit. This reform is becoming the priority of the economic policies also in relation to the expected adoption of the euro, and it also is a necessary condition for fulfilling the Maastricht criteria.

On the other hand, the Czech Republic has shown a constant and low-inflation environment which has been caused in part due to the appreciation of the crown. Maintaining the inflation rate at low levels while offering low interest rates would create a favourable environment for the future economic growth. From this perspective, the growth of wages needs to be maintained within the limits set by the labour productivity growth.

The process of real convergence toward the EU average has sped up significantly in the new millennium. Within the EU-27, the Czech Republic has become one of the countries with medium economic development, taking a lead over the new member states, except for Slovenia, but also preceding Portugal. The ambition is to reach at least the EU-27 economic average. Based on the current estimates of the International Institute for Economic Comparisons in Vienna of July 2007, the Czech Republic should reach this goal sometimes around 2020. While the economic level of the Czech Republic, measured by GDP per inhabitant in PPS, reaches four fifths of the EU-27 average and the labour productivity (GDP per employee in PPS) reaching more than two thirds, the comparable price level of total GDP reaches only three fifths. Other new member states show a more balanced ratio between economic and price levels.

The tendency toward balancing the price levels of tradable goods and services with the developed EU economies is expected to continue within the single market, also affecting the non-tradable sector via growth of wages. Prevention of undesirable inflation pressures under the persisting major differences in price levels will be made easier by postponing the adoption of the euro in accordance with the Updated Strategy of August 2007. The postponement provides more time for appreciation of the nominal exchange rate, the potential of which has not yet been, by far, fully used and that will remain the main price convergence channel of the Czech economy.

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