Conjunctural Evolution of the Czech Economy[1]

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Abstract

Economic evolution in each country can be expressed by means of annual and quarterly time series. An advantage of quarterly data compilation is the ability to provide a more sensitive description of the conjunctural evolution. Both at the beginning of the economic transformation and in the first decade of the 21st century, economic development in the Czech Republic was distinguished by significant changes in the economy's character. This paper is aimed at describing the conjunctural evolution of the Czech Republic's national economy since 1995 by the methods of saddles and peaks and of Koyck lag.

Keywords

Gross domestic product, saddles and peaks, time lag, short-term time series

JEL code

E21, C82

INTRODUCTION

Economic development in the Czech Republic has, since the early 1990s, been characterised by a number of significant changes and turning points. After the economic transformation of the 1990s, which brought two recession / growth stages, came years of conjuncture. The conjuncture was terminated by the worldwide crisis, first financial and then economic. The Czech economy, perhaps more than any other, has undergone short recession / crisis / conjunture / gain cycles in the past 20 years. These cycles can be observed in both annual and quarterly data. The quantitative description of such data is not only a view of the past, but also a reminder of the unavoidable cyclic character of national-economy development.

1 EVOLUTION OF THE CZECH ECONOMY — ANNUAL DATA

The beginning years of the economic transformation after 1990 were characterised by a significant drop of economic performance, specifically, industrial and constructional production, plus extensive increases in both prices and the unemployment rate. After a short recession period, an economic boom occurred in 1995–1996. The Czech Republic overcame the obstacles with remarkable speed on its way to a market economy, in comparison with Central and East European countries. However, such speed also implied

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problems that were not solved — or whose solution was not complete — in privatisation, industrial and banking sector restructuring, etc. These and other factors contributed to the economic crisis of 1997–1999. In 2000, economic development shifted the trend to growth, and the most successful years in the Czech Republic's economic development followed.

Nevertheless, the gain in 2001–2004 and the subsequent boom in 2005–2007 were stages different from each other. The period 2001–2004 was distinguished by stable economic growth supported by a high rate of growth in industrial and constructional production, consumption by households and the general government, as well as gradual improvement of foreign-trade relationships including the terms of trade, significant strengthening of the Czech Crown and a stable or even slightly decreasing unemployment rate, lower inflation rate, and decreasing prices of industrial products. This positive development was, however, accompanied by growing state budget shortages, doubling of the government debt, a growing government deficit, and worsening of the yield balance. In the 2005–2006 time frame, key factors of growth were changed: foreign trade became the main factor of the year-to-year economic growth, amounting to six per cent growth of GDP, the Czech Crown continued to grow stronger, the government debt was stabilised, the government deficit was reduced, and the unemployment rate was decreasing. On the other hand, the balance of trade had become disadvantageous, the terms of trade were getting worse, and household indebtedness and consumption were growing.

In the first seven years of the 21st century, the Czech economy achieved very favourable rate of growth, not only in comparison with the 1990s but also with the EU member countries. The main distinction between the economic development in the Czech Republic after 2000 and that in the 1990s was the gradual improvement of the foreign-trade relationships, leading to a positive balance of trade in 2005, which occurred then for the first time, despite the slow-down in the growth of exports and imports. Foreign-trade relationships thus became the economic growth engine and — after several years — replaced the traditional factors, dominated by household consumption. The positive development of foreign-trade relationships after 2005 was caused by many influences which determined the evolution of the Czech economy after 2000. This favourable result was even achieved despite worsening real exchange rates, caused by the growing prices of crude oil and natural gas. Strengthening of the Czech Crown was favourable for imports and unfavourable for exports. When characterising the evolution in that period, we must not forget the high rate of growth in industrial and constructional production, the related domestic investments, an influx of export-oriented investments from abroad, and — last but not least — a certain degree of saturation by modern investments and technologies in 2000–2001.

NOTE: *It is interesting that the Czech economy went through two strongly unbalanced stages in relation to foreign trade. The high deficits of the trade balance had different causes and consequences in each of the periods 1996–1997 and 2000–2001. The former was caused by imbalance between exports and imports (brought about by extensive imports of consumer goods) and was one of the triggers of the economic crisis; while the latter by an influx of foreign investments. The balance of goods and services' exchange with abroad was improving even though the national currency was strengthening by more than one-half in comparison with 1999 (the exchange rate was 42 CZK/USD at the beginning of autumn 2000, and 15 CZK/USD in 2008). This factor also attenuated the growth of prices of imported raw materials. The relationship between the exchange rate and the trade balance is bi-directional as a rule. However, the Czech Crown was not directly affected by the fluctuations of the exchange rates between currencies in the world. It did not even grow weaker in the period of high deficit because it was in high demand due to a high differential in interest rates. The 2001–2007 period of economic gain and growth, which also brought about qualitative changes of the financial markets, showed that the textbook relationship between the exchange rate and development of foreign trade was not applicable. On the contrary: the improving trade balance was accompanied by a continuous strengthening of the Czech Crown, which made exports less advantageous.*

Table 1 Selected indices of the national economy evolution in the Czech Republic

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
GDP growth (%, y / y)	x	4.0	–0.7	–0.8	1.3	3.6	2.5	1.9	3.6	4.5	6.3	6.8	6.1	2.5	–4.1	2.3
FCEh growth (%, y / y)	x	8.4	2.2	–0.8	2.8	1.3	2.3	2.2	6.0	2.9	2.5	5.0	4.9	3.6	–0.3	0.0
GFCF growth (%, y / y)	x	9.9	–5.7	–0.9	–3.3	5.1	6.6	5.1	0.4	3.9	1.8	6.0	10.8	–1.5	–7.9	–3.1
Net exports (as % of GDP)	–4.3	–5.8	–5.2	–1.1	–1.2	–3.0	–2.5	–2.1	–2.3	0.1	3.2	3.4	5.0	4.6	5.6	4.8
Public debt (as % of GDP)	14.6	12.5	13.1	15.0	16.4	18.5	24.9	28.2	29.8	30.1	29.7	29.4	29.0	30.0	35.3	38.5
Terms of trade (%)	1.5	–0.4	0.1	7.2	–2.7	–5.1	1.9	2.0	1.2	2.1	–1.0	–1.5	2.3	–1.3	3.8	–2.9

Explanations: GDP — gross domestic product, FCEh — final consumption expenditure by households, GFCF — gross fixed capital formation; the proportions of the net exports and public debt in the GDP are calculated from the current prices data.
Source: Czech Statistical Office (www.czso.cz), own calculation

The favourable results of the Czech Republic's economy were, however, injured by the signs of the worldwide financial crisis and later the economic recession in 2008–2010. In consequence of decreasing industrial and constructional production, investments into fixed capital were significantly reduced and both exports and imports had decreased. The Czech economy was able to maintain the positive trade balance despite the falling volume and rate of exchange of goods and services with abroad, and the Czech Crown was even slightly further strengthened. Negative results of production industries were only weakly reflected in the slow-down and subsequent stagnancy of the final consumption expenditure by households and the slow-down of the growth of household indebtedness. An increase of the government deficit, a low level of economic activities and a growing unemployment rate led to growth of the government debt rather high above the long-term level of about 30 %, which was valid from 2003 to 2008.

2 CONJUNCTURAL EVOLUTION

Annual data appears to be too aggregated from the viewpoint of economic evolution and economic cycle stages. Analysis of short-term (quarterly) data can bring more information. It is advantageous to apply a very illustrative method of saddles and peaks, complemented with analysis of time lags in short-term time series, to describe individual stages of the economic evolution, especially with respect to the above-described cycles.

2.1 Saddles and peaks

The substance of this method includes determination of relative deviations measured between seasonally adjusted empirical values and the trend curve. The conjunctural evolution of the respective index is illustrated by a chart of such deviations, as well as the magnitudes and signs of the seasonal factors. The method of saddles and peaks consists of the following three steps:

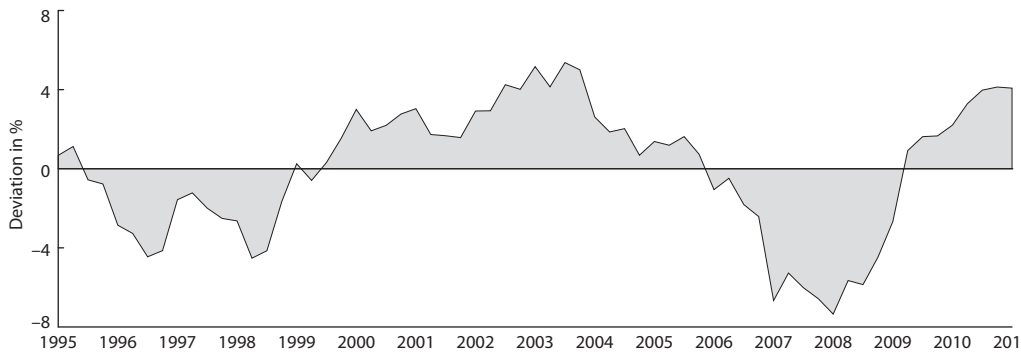
- seasonal adjustment of time series y_t, $t = 1, 2, \ldots, n$, with the aid of the so-called seasonal factors;
- calculation of parameters for linear trend $T_t = a + bt$, $t = 1, 2, \ldots, n$, calculated from the seasonally cleaned values of the respective index;
- determination of percentage deviations of the original values y_t from trend T_t, namely,

$$\left(1 - \frac{y_t - T_t}{T_t}\right). \tag{1}$$

The input data contains values of macroeconomic indices of the GDP creation and utilisation (Annex, Table I). Figure 1 and Table II in the Annex show results of GDP calculations. We do not present results in the Annex for the selected indices of the GDP utilisation. Saddles and peaks for such indices are only illustrated in the Figures below (Figure 2 through 7).

In the Figure 1, showing the *GDP evolution,* we can see that — despite the positive results of years 1995 and 1996 — the symptoms of recession occurred as early as the second half of 1995 and the saddle of this evolution came in the second half of 1996 (while the year-to-year growth of GDP was at 4 %), and then again in the 2nd and 3rd quarters of 1998. The main reasons for the negative development are well known — an improperly controlled privatisation process, growing deficit of foreign trade, problems in the banking sector, etc. A significant gain was observed at the beginning of 1999 (except for the 2nd quarter of 1999) with a peak in 2003. The main factor for that gain was growing domestic demand and, especially, growing formation of fixed capital. The GDP growth was also sped up by growing final consumption expenditure by households, mainly implied by growing wages and other income of the population. Subsequently, the growth was slowing down and then a saddle came at the beginning of 2006 and the deepest fall in the 1st quarter of 2008. A gain is visible, starting at the 2nd quarter of 2009.

Figure 1 GDP saddles and peaks, for the period 1995–Q1 2011

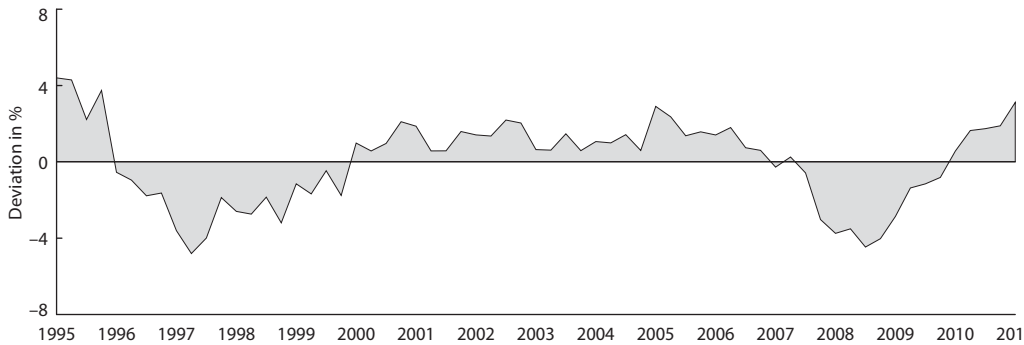


Source: Czech Statistical Office (www.czso.cz), own calculation

A similar character of saddles and peaks is found for the evolution of *final consumption expenditure by households* (Figure 2); this is another indication of household consumption being not only an important factor in GDP growth, but also a factor with a similar conjunctural evolution. We can also see that the impact of a negative economic situation on household consumption is a long-term one and prevails even after the signs of recession or crisis have faded away. Saddles in household consumption are visible beginning in 1996, prevailing until the end of 1999. The years 2000–2006 were characterised by growing consumption by households, low unemployment rate and an overall favourable economic environment. When the recession came, the unemployment rate began to grow. This loss of certainty caused a slow-down of the final consumption expenditure by households in 2008–2009, with the deepest decline in the 2nd half of 2008. The 1st quarter of 2010 already shows a growing trend in household consumption.

A different character can be seen in the *final consumption expenditure by general government* (Figure 3); for example, its seasonal factors are specific (Table 2). We can see that the final consumption expenditure by general government is more prone to seasonal changes and less sensitive to the economic cycle stages. This aspect is prominent in periods 1995–1997 (in both growth and recession years) and from the

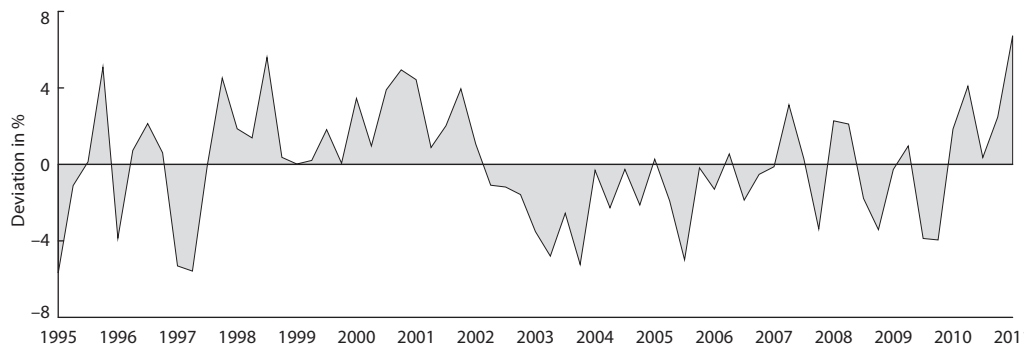
Figure 2 Saddles and peaks in final consumption expenditure by households, for the period 1995–Q1 2011



Source: Czech Statistical Office (www.czso.cz), own calculation

2nd quarter of 2007 to the end of 2009 (i.e. in the recession and crisis years). The significant slow-down of the final consumption expenditure by general government can be seen in the saddles in the growth years, i.e. from the 2nd quarter of 2002 to the 1st quarter of 2007.

Figure 3 Saddles and peaks in final consumption expenditure by general government, for the period 1995–Q1 2011



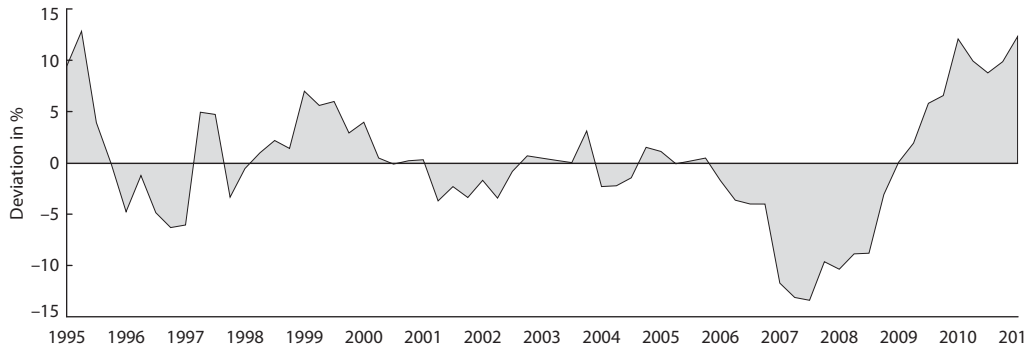
Source: Czech Statistical Office (www.czso.cz), own calculation

Development of *gross fixed capital formation* has a significantly seasonal character as well. However, the Figure 4 clearly indicates the falling investments into fixed capital in the economic-growth period before recession (end of 1995 and entire 1996, or years 2006 through 2008). On the other hand, peaks can be observed at the end of each crisis before the gain (end of 1998 and throughout 1999, or years 2009 and 2010). The economic growth period (2000–2005) shows an unstable rate of investments into fixed capital, with alternating saddles and peaks.

In order to illustrate the importance of the changes in inventories[5] for the conjunctural evolution of the *gross capital formation* as related to investments into fixed capital, we present here a chart of saddles

[5] In addition to gross fixed capital formation and the changes in inventories, gross capital formation also includes acquisitions less disposals of valuables. However, the latter's value is less significant and does not decisively affect the evolution of the summary index.

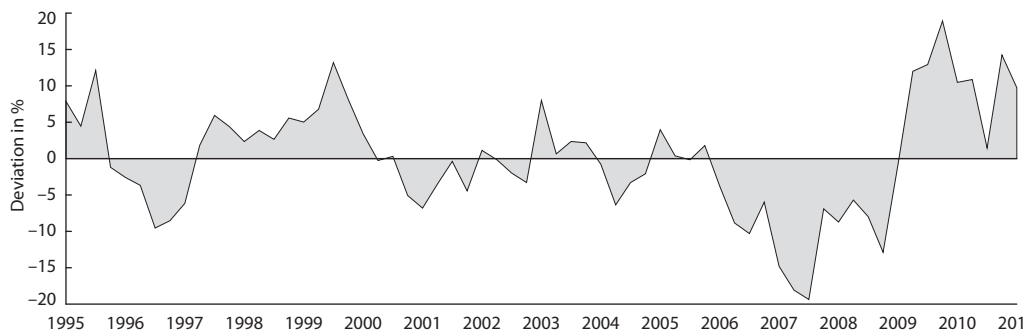
Figure 4 Saddles and peaks in gross fixed capital formation, for the period 1995–Q1 2011



Source: Czech Statistical Office (www.czso.cz), own calculation

and peaks for gross capital formation. The influence of the changes in inventories on the character of saddles is especially prominent from the beginning of 2006 until the 1st quarter of 2009, and that of peaks from the 2nd quarter of 2009 to the 1st quarter of 2011. The influence of seasonal factors on gross capital formation is different from that on gross fixed capital formation (Table 2).

Figure 5 Saddles and peaks in gross capital formation, period 1995–Q1 2011

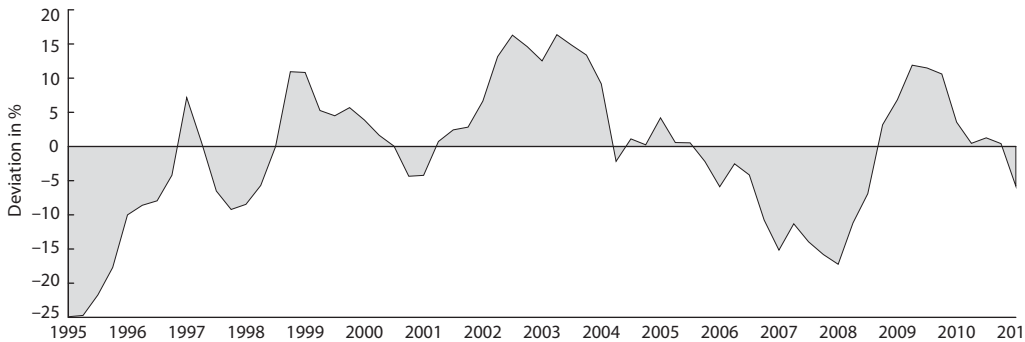


Source: Czech Statistical Office (www.czso.cz), own calculation

In comparison to Figure 3 through 6, saddles and peaks of the *exports of goods and services* are smoother (Figure 6). At the beginning of the time series, i.e. in the years of the highest deficits in foreign trade with goods and services, we can of course see deep saddles (except for the 1st half-year of 1997), incomparable with the other indices. From the beginning of 1998 until the 3rd quarter of 2005 (except for the transition from year 2000 to 2001, and the 2nd quarter of 2004), the exports of goods and services became more active. After a decline, which prevailed from the last quarter of 2005 until the 3rd quarter of 2008, the exports grew extraordinarily, with a slow-down in the 2nd half-year of 2010 and even a saddle in the 1st quarter of 2011. Nonetheless, we can observe that the evolution of the exports of goods and services (together with the final consumption expenditure by households) is the closest to the GDP saddles and peaks.

Mutually comparing Figures 6 and 7, we can see that the conjunctural evolution of the qualitative stages in the *import of goods and services* has more distinctive saddles and peaks than the *exports of goods*

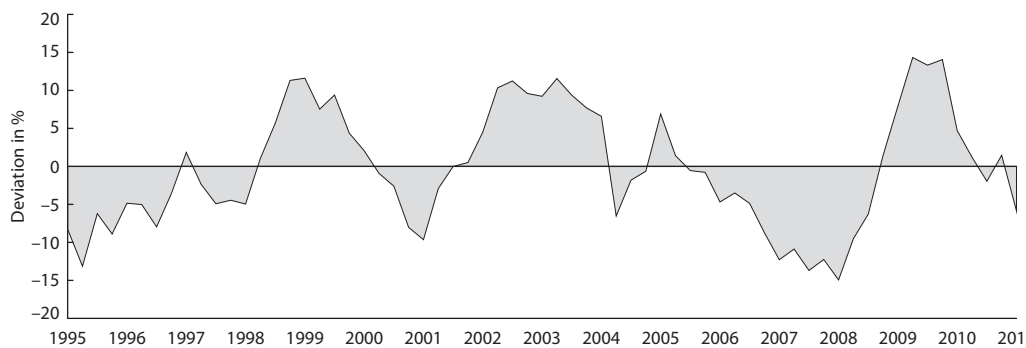
Figure 6 Saddles and peaks in exports of goods and services, for the period 1995–Q1 2011



Source: Czech Statistical Office (www.czso.cz), own calculation

and services. While there are four stages (distinctive saddles and peaks) for the exports, there are twice as many for imports. This character is implied by the fact that, except for the initial phase prevailing until mid-1998, the saddles and peaks of the imports are significantly more distinctive than those of exports. In other words, the imports are much more sensitive to changes in the conjunctural evolution and respond with more frequent and more significant changes.

Figure 7 Saddles and peaks in imports of goods and services, for the period 1995–Q1 2011



Source: Czech Statistical Office (www.czso.cz), own calculation

The short-term character of the selected economic indices' evolution, expressed in the form of saddles and peaks, must be complemented with the values of the seasonal factors (Table 2).

The level of seasonal dependence is considerable. A typical example is the final consumption expenditure by general government, with a distinctive growth value in the last quarter and a decline at the beginning of each year. The gross capital formation shows an opposite character of periodic oscillations. The least significant fluctuations can be observed in the seasonal factors for the exports of goods and services. Regarding the GDP overall quarterly fluctuations, they cannot be considered significant in the Czech economy, as indicated by the shapes of its saddles and peaks (Figure 1). This fact is a reflection of a similar conjunctural character of the most distinctive factors, namely, final consumption expenditure by households and the exports of goods and services, and also a reflection of mutually cancelling opposite oscillations of some other indices.

Table 2 Seasonal factors for the indices of the GDP creation and utilisation

Quarter	GDP	FCEh	FCEg	GFCF	GCF	Exports	Imports
Q1	0.952	0.937	0.920	0.907	0.948	0.970	0.954
Q2	1.024	1.002	1.003	1.016	1.050	1.029	1.014
Q3	1.008	1.002	0.952	1.014	1.026	0.981	0.980
Q4	1.016	1.059	1.124	1.063	0.977	1.020	1.052

Explanations: GDP — gross domestic product, FCEh – final consumption expenditure by households, FCEg — final consumption expenditure by general government, GFCF — gross fixed capital formation, GCF — gross capital formation.
Source: Czech Statistical Office (www.czso.cz), own calculation

2.2 Koyck Lag

Let us complement the analysis of conjunctural evolution of the fundamental economic aggregate indices with a calculation of the so-called Koyck lag. With the aid of this coefficient, quantitative relationships are determined between the GDP and other indices listed in Table I in the Annex, with respect to their mutual influences on their dynamic properties. The Koyck linear dynamic model with a time-lag independent variable enables us to determine, in the traditional way, the average value of the quarterly time lag. We will proceed in the following three steps:

I) Application of the least squares method to the equation

$$y_t = b_0 + b_1.x_t + u_t\ ,\ t = 1, 2, \ldots, n, \tag{2}$$

where y_t is the GDP time series, xt is an independent variable (the first column in Table 3); now we determine the residua e_t from the matrix expression **e = y – Xb,**

II) Estimation of the autocorrelation coefficient at lag 1, $r(1)$, as

$$r(1) = \frac{\sum_{t=2}^{n} e_t e_{t-1}}{\sum_{t=1}^{n} e_t^2}, \tag{3}$$

III) Calculation of the time lag $\bar{p}$ (with respect to the character of the input data, the time unit is a calendar quarter) between series y_t and x_t, applying the equation

$$\bar{p} = \frac{r(1)}{1 - r(1)}. \tag{4}$$

Table 3 sums up results concerning the selected indices of the GDP utilisation (which play roles of independent variables here):

The data in the Table 3 shows that the changes in the basic factors of economic growth, i.e. final consumption expenditure by households, gross capital formation[6], as well as imports and exports, are reflected in the GDP with a time lag of one to two calendar quarters. This observation is an indication of a practically stable economic environment, within which considerations of the economic evolution expressed

[6] Mutually comparing the time lags in gross capital formation and gross fixed capital formation, we can again see that the changes in inventories, and their high degree of variability, are very important for the investments.

Table 3 Time lags and factor equation for the Czech Republic's GDP

GDP factor	GDP = $f(x)$	Average time lag
FCEh	$-47\,782.081 + 2.146x_t$	1.728
FCEg	$70\,992.038 + 4.181x_t$	0.043
GFCF	$-230\,254.406 + 5.218x_t$	0.791
GCF	$-172\,411.346 + 4.686x_t$	1.888
Exports	$229\,410.962 + 0.963x_t$	2.124
Imports	$174\,168.737 + 1.103x_t$	2.664

Explanations: GDP — gross domestic product, FCEh — final consumption expenditure by households, FCEg — final consumption expenditure by general government, GFCF — gross fixed capital formation, GCF — gross capital formation.
Source: Czech Statistical Office (www.czso.cz), own calculation

in the GDP growth values can be based on the short-term evolution of selected indices. A somewhat different situation prevails for the final consumption expenditure by general government, whose time lag with respect to the GDP evolution is virtually zero. The reason for this zero lag is the above-mentioned high intensity and, at the same time, a specific character of periodic fluctuations of this — more or less planned-economy based — index. This leads to the very short, practically negligible, and — above all — unobservable time lag.

For other indices, the value of the time lag of the respective factor (the first column in Table 3) with respect to the GDP evolution is within the usual limits and similar to those observable in developed and standardised economies in Europe and worldwide.

The indices dominant from this viewpoint include — also due to the high percentage in the utilisation of created resources — mainly the time difference between the final consumption expenditure by households and GDP (namely, nearly two calendar quarters). The final consumption expenditure by households plays a key role in assessments of the economic cycle evolution, which was also reflected in the 2008–2010 period of the financial and global crisis. After the occurrence of the first signs of the crisis in 2008, which we can call "technical recession" (when the GDP growth is negative in two consecutive calendar quarters), no distinctive changes were observed in household behaviour and spending (also Table 1 above). The recession's slow and gradual fading away (in 2010) brought households back to standardised spending stereotypes with a time lag of many months.

We can similarly describe time lags of exports and imports, whether of goods or services, with respect to the GDP evolution. Of course, other factors play their roles as well, such as the exchange rates of CZK to foreign currencies, or evolution of the inflation rate in the recession period. On the other hand, these factors are very sensitive and rather unstable, but no dramatic changes in their values occur in crises. This fact is reflected in the value of the time lag of their influence on the GDP evolution, which value is about two calendar quarters as well.

CONCLUSION

Undoubtedly, short-term time series represent a very lucid and valuable tool for an analytic description of the economic evolution. A number of methods are available for such analysis. One such method is that of saddles and peaks, which enables us not only to compare the evolution curves between individual indices and identify similarities and differences in their conjunctural evolution, but also to compare the slow-down (saddle) or speed-up (peak) periods with the long-term average value. To properly view the similarities and differences in the conjunctural evolution stages, the short-term relationships are complemented with time lag analysis. Even though the presented methods for describing the past evolution do not explicitly mention the prediction aspect, results of both methods can be used to contemplate about the short-term future development.

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ANNEXES

Table I Czech Republic GDP by selected type of expenditure (million CZK current prices)

Year	Quarter	GDP	FCEh	FCEg	GFCF	GCF	Exports	Imports
1995	Q1	332 995	235 296	71 216	99 202	108 532	166 908	177 741
	Q2	366 618	258 344	76 417	108 370	126 279	189 006	207 011
	Q3	376 688	270 524	73 709	120 710	115 031	187 785	196 652
	Q4	390 221	288 141	84 984	133 543	127 842	200 395	226 157
1996	Q1	382 859	272 792	78 150	120 712	127 420	188 619	205 972
	Q2	423 953	299 659	83 537	132 244	144 375	208 267	228 348
	Q3	432 152	308 990	80 189	138 446	150 955	207 854	235 647
	Q4	444 324	333 143	98 533	148 950	144 266	218 859	251 944
1997	Q1	415 593	307 172	87 508	128 269	138 642	194 326	224 547
	Q2	455 790	339 298	97 883	130 264	143 688	230 461	257 657
	Q3	461 902	343 712	90 105	131 884	136 137	245 860	263 807
	Q4	477 809	362 898	103 820	151 725	133 390	272 814	291 293
1998	Q1	457 925	330 020	89 253	127 360	133 796	268 062	273 953
	Q2	512 225	360 270	99 866	142 042	147 493	287 496	283 034
	Q3	512 408	364 057	92 700	141 655	147 643	269 152	268 444
	Q4	513 925	396 971	117 891	151 351	137 965	257 872	278 883
1999	Q1	481 895	350 845	98 783	123 121	136 208	254 113	259 271
	Q2	532 968	383 934	109 602	141 441	149 629	295 663	296 258
	Q3	529 465	386 160	104 391	142 157	137 652	293 545	287 892
	Q4	536 469	420 385	127 844	155 541	140 285	310 597	334 798
2000	Q1	504 479	368 369	102 974	132 618	144 684	310 307	318 881
	Q2	558 691	402 203	117 252	155 495	168 048	346 433	357 993
	Q3	557 780	407 330	109 986	157 784	164 992	345 455	359 997
	Q4	568 219	432 271	130 721	166 572	167 392	385 175	416 619
2001	Q1	540 124	389 793	109 437	143 366	166 851	375 892	392 412
	Q2	598 842	428 962	125 828	168 663	180 824	389 458	400 402
	Q3	599 262	435 696	120 104	167 781	173 099	374 575	384 108
	Q4	613 986	462 532	141 298	179 478	173 271	397 283	419 100
2002	Q1	576 665	416 429	121 067	152 068	160 783	372 050	372 597
	Q2	630 141	452 160	136 986	174 844	182 055	375 545	379 619
	Q3	621 004	454 961	132 255	171 794	182 933	353 404	370 294
	Q4	636 622	488 299	159 186	179 081	178 186	383 102	412 965
2003	Q1	598 385	444 700	134 792	154 525	155 508	381 688	383 511
	Q2	660 401	482 305	150 984	175 021	187 641	395 233	404 778
	Q3	650 791	484 847	142 385	176 722	181 895	392 177	408 128
	Q4	667 533	523 793	175 014	181 200	175 218	423 070	454 548
2004	Q1	650 448	467 730	138 503	164 672	176 784	430 704	424 770
	Q2	715 163	507 117	156 092	185 897	208 424	523 786	524 164
	Q3	712 103	511 615	147 348	185 829	199 573	493 170	492 255
	Q4	737 048	552 017	179 643	190 784	189 588	526 866	531 423

Year	Quarter	GDP	FCEh	FCEg	GFCF	GCF	Exports	Imports
2005	Q1	695 181	483 469	145 524	164 816	174 614	490 557	453 459
	Q2	759 356	526 414	164 261	188 400	202 288	549 559	518 905
	Q3	753 526	538 471	162 836	189 200	200 452	534 117	519 514
	Q4	775 799	574 590	185 837	199 478	188 853	580 412	568 056
2006	Q1	749 678	515 747	155 776	175 355	195 338	582 240	543 647
	Q2	812 182	555 882	168 820	201 717	228 722	607 884	580 306
	Q3	819 685	568 623	166 272	203 802	228 392	599 224	576 554
	Q4	840 824	608 537	196 116	215 439	210 790	673 094	651 597
2007	Q1	830 715	549 809	161 828	198 983	223 470	676 808	619 372
	Q2	892 777	591 474	172 758	227 422	256 484	704 573	659 754
	Q3	895 030	603 266	170 847	229 445	255 438	699 096	662 770
	Q4	916 938	660 034	211 607	234 430	219 685	749 828	712 609
2008	Q1	875 731	594 969	165 623	202 880	218 569	733 347	671 154
	Q2	938 004	641 658	182 927	225 845	237 099	748 420	689 173
	Q3	935 145	654 697	182 668	227 113	238 567	696 789	654 908
	Q4	940 117	696 040	221 607	227 338	239 406	665 417	660 746
2009	Q1	875 540	615 784	177 805	189 386	209 183	617 958	567 385
	Q2	919 079	655 678	193 544	209 718	203 629	628 348	568 576
	Q3	907 575	661 185	194 875	202 626	198 372	610 790	562 772
	Q4	923 671	703 236	232 733	212 309	177 305	649 887	606 757
2010	Q1	870 089	620 317	181 769	171 655	191 429	676 243	617 900
	Q2	935 600	662 690	195 646	198 369	212 561	749 834	689 485
	Q3	923 475	668 737	195 027	202 073	231 362	719 131	695 755
	Q4	938 265	712 275	227 706	210 845	193 213	763 561	730 784
2011	Q1	888 885	628 810	180 057	176 215	198 776	781 943	720 644

Explanations: GDP — gross domestic product, FCEh — final consumption expenditure by households, FCEg — final consumption expenditure by general government, GFCF — gross fixed capital formation, GCF — gross capital formation.
Source: Czech Statistical Office (www.czso.cz), own calculation

Table II Deviations of GDP adjusted values form the linear trend (%)

Year	Quarter	GDP y_t	GDP seasonally adjusted	Trend line Y_t	Deviations (%)
1995	Q1	332 995	349 797	352 185	0.7832
	Q2	366 618	357 826	361 892	1.2179
	Q3	376 688	373 681	371 598	–0.4745
	Q4	390 221	384 247	381 305	–0.6948
1996	Q1	382 859	402 177	391 012	–2.7864
	Q2	423 953	413 839	400 718	–3.2138
	Q3	432 152	428 702	410 425	–4.4004
	Q4	444 324	437 521	420 132	–4.0945
1997	Q1	415 593	436 563	429 838	–1.5284
	Q2	455 790	444 917	439 545	–1.1934
	Q3	461 902	458 215	449 252	–1.9730
	Q4	477 809	470 494	458 958	–2.4978
1998	Q1	457 925	481 031	468 665	–2.6293
	Q2	512 225	500 006	478 372	–4.5192
	Q3	512 408	508 318	488 078	–4.1495
	Q4	513 925	506 057	497 785	–1.6700
1999	Q1	481 895	506 210	507 492	0.2390
	Q2	532 968	520 254	517 198	–0.6094
	Q3	529 465	525 238	526 905	0.2929
	Q4	536 469	528 256	536 612	1.5295
2000	Q1	504 479	529 934	546 318	2.9673
	Q2	558 691	545 363	556 025	1.8811
	Q3	557 780	553 327	565 732	2.1521
	Q4	568 219	559 519	575 438	2.7222
2001	Q1	540 124	567 377	585 145	2.9885
	Q2	598 842	584 556	594 852	1.6784
	Q3	599 262	594 478	604 558	1.6113
	Q4	613 986	604 586	614 265	1.5161
2002	Q1	576 665	605 762	623 972	2.8561
	Q2	630 141	615 109	633 678	2.8650
	Q3	621 004	616 047	643 385	4.1814
	Q4	636 622	626 875	653 092	3.9433
2003	Q1	598 385	628 578	662 798	5.0899
	Q2	660 401	644 647	672 505	4.0658
	Q3	650 791	645 596	682 212	5.2887
	Q4	667 533	657 313	691 918	4.9199
2004	Q1	650 448	683 268	701 625	2.5301
	Q2	715 163	698 102	711 332	1.7703
	Q3	712 103	706 418	721 038	1.9357
	Q4	737 048	725 764	730 745	0.5860

Year	Quarter	GDP y_t	GDP seasonally adjusted	Trend line Y_t	Deviations (%)
2005	Q1	695 181	730 258	740 452	1.2792
	Q2	759 356	741 241	750 158	1.0887
	Q3	753 526	747 511	759 865	1.5240
	Q4	775 799	763 921	769 572	0.6292
2006	Q1	749 678	787 505	779 278	–1.1649
	Q2	812 182	792 807	788 985	–0.5952
	Q3	819 685	813 142	798 692	–1.9236
	Q4	840 824	827 951	808 398	–2.5359
2007	Q1	830 715	872 631	818 105	–6.7891
	Q2	892 777	871 479	827 812	–5.3997
	Q3	895 030	887 885	837 518	–6.1414
	Q4	916 938	902 899	847 225	–6.7017
2008	Q1	875 731	919 918	856 932	–7.4835
	Q2	938 004	915 627	866 638	–5.7858
	Q3	935 145	927 680	876 345	–5.9930
	Q4	940 117	925 724	886 052	–4.6126
2009	Q1	875 540	919 718	895 758	–2.8093
	Q2	919 079	897 154	905 465	0.7864
	Q3	907 575	900 330	915 172	1.4896
	Q4	923 671	909 529	924 878	1.5259
2010	Q1	870 089	913 992	934 585	2.0690
	Q2	935 600	913 281	944 292	3.1496
	Q3	923 475	916 103	953 998	3.8374
	Q4	938 265	923 900	963 705	3.9944
2011	Q1	888 885	933 736	973 412	3.9384

Source: Czech Statistical Office (www.czso.cz), own calculation