

Zadání

Popište sezónnost čtvrtletního časové řady HDP s.c. roku 200

- řadu vyrovnejte centrovaným klouzavým průměrem

- vypočítejte sezónní faktory pro jednotlivá čtvrtletí

10 v ČR za období 1996-2006

HDP s.c. 2000

1	1996	Q1	498,778
2		Q2	537,635
3		Q3	539,037
4		Q4	540,155
5	1997	Q1	505,793
6		Q2	536,386
7		Q3	528,894
8		Q4	529,070
9	1998	Q1	497,415
10		Q2	531,216
11		Q3	526,879
12		Q4	528,693
13	1999	Q1	498,865
14		Q2	536,452
15		Q3	535,642
16		Q4	541,162
17	2000	Q1	514,660
18		Q2	556,769
19		Q3	556,739
20		Q4	561,001
21	2001	Q1	531,316
22		Q2	570,874
23		Q3	568,876
24		Q4	571,877
25	2002	Q1	542,468
26		Q2	582,671
27		Q3	577,999
28		Q4	582,350
29	2003	Q1	558,627
30		Q2	603,723
31		Q3	600,785
32		Q4	604,683
33	2004	Q1	578,525
34		Q2	629,289
35		Q3	626,574
36		Q4	633,227
37	2005	Q1	609,820
38		Q2	668,417
39		Q3	663,999
40		Q4	675,372
41	2006	Q1	648,899
42		Q2	709,617
43		Q3	703,232
44		Q4	714,631

HDP s.c. 2000			3-násobný	7-násobný	centrováný	Sezónní index
1996	Q1	498,778				
	Q2	537,635	525,150			
	Q3	539,037	538,942		529,778	1.017477
	Q4	540,155	528,328	526,668	530,499	1.018202
1997	Q1	505,793	527,445	530,996	529,075	0.955995
	Q2	536,386	523,691	525,250	526,421	1.018929
	Q3	528,894	531,450	524,133	523,989	1.009362
	Q4	529,070	518,460	522,236	522,295	1.012972
1998	Q1	497,415	519,234	525,508	521,397	0.954005
	Q2	531,216	518,503	520,147	521,098	1.019417
	Q3	526,879	528,929	521,227	521,232	1.010834
	Q4	528,693	518,146	522,166	522,068	1.01269
1999	Q1	498,865	521,337	528,416	523,818	0.952364
	Q2	536,452	523,653	526,050	526,472	1.018957
	Q3	535,642	537,752	530,320	530,005	1.010636
	Q4	541,162	530,488	534,327	534,519	1.012429
2000	Q1	514,660	537,530	543,204	539,695	0.953612
	Q2	556,769	542,723	542,470	544,812	1.021946
	Q3	556,739	558,170	547,503	549,374	1.013406
	Q4	561,001	549,685	551,462	553,219	1.014066
2001	Q1	531,316	554,397	559,636	556,500	0.954746
	Q2	570,874	557,022	557,593	559,376	1.020555
	Q3	568,876	570,542	561,298	562,130	1.012001
	Q4	571,877	561,074	563,726	564,998	1.012175
2002	Q1	542,468	565,672	571,016	567,613	0.9557
	Q2	582,671	567,713	569,267	570,063	1.022117
	Q3	577,999	581,007	574,245	573,392	1.008035
	Q4	582,350	572,992	578,375	578,043	1.007451
2003	Q1	558,627	581,567	587,263	583,523	0.957335
	Q2	603,723	587,712	586,670	589,163	1.024713
	Q3	600,785	603,064	593,997	594,442	1.010671
	Q4	604,683	594,664	600,315	600,125	1.007596
2004	Q1	578,525	604,166	610,972	606,544	0.953805
	Q2	629,289	611,463	611,843	613,336	1.026011
	Q3	626,574	629,697	621,505	620,816	1.009275
	Q4	633,227	623,207	629,979	629,619	1.005731
2005	Q1	609,820	637,155	643,814	639,188	0.954055
	Q2	668,417	647,412	646,615	649,134	1.029706
	Q3	663,999	669,263	658,479	659,287	1.007147
	Q4	675,372	662,757	668,479	669,322	1.009039
2006	Q1	648,899	677,963	683,452	679,376	0.95514
	Q2	709,617	687,249		689,187	1.029643
	Q3	703,232	709,160			
	Q4	714,631				

sezónní faktor

I	0.955	0.955
II	1.023	1.023
III	1.011	1.011
IV	1.011	1.011
	3.999995	4

			HDP s.c. 2000	Lineární trend	Et	et-et-1
1	1996	Q1	498,778	487,691	11,087	
2		Q2	537,635	491,815	45,820	34,734
3		Q3	539,037	495,938	43,099	-2,721
4		Q4	540,155	500,061	40,094	-3,005
5	1997	Q1	505,793	504,185	1,608	-38,485
6		Q2	536,386	508,308	28,078	26,470
7		Q3	528,894	512,431	16,463	-11,615
8		Q4	529,070	516,555	12,515	-3,947
9	1998	Q1	497,415	520,678	-23,263	-35,778
10		Q2	531,216	524,801	6,415	29,678
11		Q3	526,879	528,925	-2,046	-8,460
12		Q4	528,693	533,048	-4,355	-2,309
13	1999	Q1	498,865	537,171	-38,306	-33,951
14		Q2	536,452	541,295	-4,843	33,464
15		Q3	535,642	545,418	-9,776	-4,933
16		Q4	541,162	549,541	-8,379	1,397
17	2000	Q1	514,660	553,665	-39,005	-30,625
18		Q2	556,769	557,788	-1,019	37,986
19		Q3	556,739	561,911	-5,172	-4,153
20		Q4	561,001	566,035	-5,034	139
21	2001	Q1	531,316	570,158	-38,842	-33,808
22		Q2	570,874	574,281	-3,407	35,435
23		Q3	568,876	578,405	-9,529	-6,121
24		Q4	571,877	582,528	-10,651	-1,122
25	2002	Q1	542,468	586,651	-44,183	-33,532
26		Q2	582,671	590,775	-8,104	36,080
27		Q3	577,999	594,898	-16,899	-8,795
28		Q4	582,350	599,021	-16,671	228
29	2003	Q1	558,627	603,145	-44,518	-27,846
30		Q2	603,723	607,268	-3,545	40,973
31		Q3	600,785	611,391	-10,606	-7,061
32		Q4	604,683	615,515	-10,832	-225
33	2004	Q1	578,525	619,638	-41,113	-30,281
34		Q2	629,289	623,761	5,528	46,641
35		Q3	626,574	627,885	-1,311	-6,838
36		Q4	633,227	632,008	1,219	2,530
37	2005	Q1	609,820	636,131	-26,311	-27,530
38		Q2	668,417	640,255	28,162	54,474
39		Q3	663,999	644,378	19,621	-8,541
40		Q4	675,372	648,501	26,871	7,250
41	2006	Q1	648,899	652,625	-3,726	-30,596
42		Q2	709,617	656,748	52,869	56,595
43		Q3	703,232	660,871	42,361	-10,508
44		Q4	714,631	664,995	49,636	7,276
45				669,118		
46				673,242		SUMA
47				677,365		
48				681,488		

$$d = \frac{\sum_{i=1}^{12} (\varepsilon_t)}{12}$$

						$d =$

$$\sum_{i=1}^{12} (\varepsilon_i)$$

$$\sum_i$$

et-et-1 na 2	et na 2	
	122,917,672	
1,206,427,091	2,099,516,716	
7,405,695	1,857,536,120	
9,032,072	1,607,512,979	
1,481,121,446	2,587,149	
700,642,865	788,380,875	
134,916,139	271,023,134	
15,581,498	156,636,229	
1,280,089,661	541,162,566	
880,763,464	41,149,124	
71,577,364	4,184,407	
5,333,054	18,965,355	
1,152,693,533	1,467,369,839	
1,119,816,496	23,450,817	
24,337,850	95,569,101	
1,950,657	70,212,429	
937,911,491	1,521,360,877	
1,442,910,315	1,038,294	
17,250,239	26,752,767	
19,226	25,337,616	
1,143,003,898	1,508,700,110	
1,255,615,082	11,609,895	
37,470,812	90,795,558	
1,259,649	113,444,035	
1,124,417,870	1,952,168,564	
1,301,741,818	65,669,829	
77,358,017	285,577,316	
51,829	277,934,699	
775,418,688	1,981,826,887	
1,678,758,813	12,567,415	
49,862,532	112,495,628	
50,778	117,326,511	
916,959,592	1,690,285,097	
2,175,351,103	30,554,167	
46,762,903	1,718,087	
6,399,176	1,485,720	
757,919,657	692,291,854	
2,967,379,562	793,110,620	
72,954,500	384,978,895	
52,557,561	722,025,834	
936,136,062	13,881,602	
3,202,955,466	2,795,116,049	
110,425,223	1,794,413,351	
52,935,219	2,463,749,944	
29,180,590,750	26,069,724,118	
D-W	1.1193	

$$d = \frac{\sum_{i=1}^{12} (\varepsilon_t - \varepsilon_{t-1})^2}{\sum_{i=1}^{12} \varepsilon_t^2}$$

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