

Revision of Regional Accounts 2011

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Abstract

This paper builds on an extraordinary revision of regional accounts whose results were published in November 2011 following previous revision of the national accounts time series (September 2011). The first chapter provides description of working procedures and results of the gross value added (GVA) revision for the period 1995–2007. The second chapter deals with methodological corrections and models whose revision had the biggest impact on the change of the GDP regional structure. The most important was the implementation of a new method of the regional allocation of imputed rent, new regional GVA estimates from individual housing construction and from a segment of illegal economy. The following chapters provide results of regional accounts revision carried out in standard way, i.e. sets of accounts for 2008 and 2009 and preliminary versions for 2010 including the analysis of economic devolution in regions in the above years. Finally, the article deals with the impact of revision on international position of the Czech regions specifically in relation to the EU average.

Keywords

Gross domestic product (GDP), regional accounts, purchasing power standard (PPS)

JEL code

E01, R11, R12, R13

INTRODUCTION

Selected national accounts indicators broken by more detailed territorial units form a subject matter of regional accounts which except for specific regional classification (NUTS) use the same conception and definitions like the national accounts. The year 2011 was in the area of national accounts fundamentally affected by long prepared extraordinary time series revision which had an impact on the total amount of the GDP of the Czech Republic and many other indicators. As the definition of regional accounts suggests it was necessary to carry out respective revisions of the regional GDP. Concurrently, the results of regional accounts revision were monitored with the increased interest, among other things, also because of expected impacts on rights of the NUTS 2 Czech regions to the possibility of aid from EU structural funds (in respect to the expected increase of the total level of GDP per capita, i.e. criterion for re-allocation of regional subsidies).

Like in national accounts, an extraordinary revision of regional accounts linked mainly with the transition to a new classification of economic activities NACE was also used for the implementation of some long prepared methodological changes in calculations and assessments especially in the area of housing services, non-observed and illegal economy. EUROSTAT was informed in advance about the changes under preparation and a part of those changes at the national as well as regional level resulted directly

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from its requirements and recommendations. The applied procedures in calculation of the regional GDP was, among other things, acknowledged also during the control visit from EUROSTAT in September 2011 aimed at the regional accounts in the CZSO.

The difficulties related to concept of measurements of all regional transactions and treating the regions as independent economic areas explain why regional accounts are limited to monitoring of some aggregate indicators and to partial accounts of institutional sectors. Regional accounts are aimed at creation of the following macroeconomic indicators: gross value added by industries, gross domestic product, gross fixed capital formation, employment indicators (total employment, employees, hours worked), compensation of employees and households sector accounts (allocation of primary income account, secondary distribution of income account). Taking into account that the biggest volume of works and changes in the revision 2011 was aimed at the regional gross value added indicators and those of gross domestic product this paper is focused exclusively on changes implemented in these key indicators and in this respect also on changes produced by the revision of the regional GDP and their impact on international position of the Czech regions.

WORK PROCEDURES AND RESULTS

1 REVISION OF REGIONAL GROSS VALUE ADDED IN 1995–2007

In the whole time series from 1995 transition from classification CZ-NACE rev. 1 to NACE rev. 2 took place in connection with the revision of classification of economic activities implemented on international basis. The period 1995–2007 can be divided from the aspect of revision methods into two sub-stages (until 2001 incl. and from 2002 on). Until 2002, the information for calculation of data by the “bottom-up” method is not available and the assessment of the gross value added development is therefore determined according to the volume of wages in individual industries. Since 2002, current mixed method of regionalization of GVA (with the prevailing “bottom-up” method or the “pseudo-bottom-up” method)² has been used.

For the years 1995–2001 the transfer of regional GVA by CZ-NACE rev. 1 broken by letters to NACE rev. 2 broken by letters was realized through matrixes created for each region separately according to wages from the work statistics report in 2008. The values of regional GVA whose development prior to the revision copied the development of wages were converted. In connection with the revision the indices of converted GVA were applied only to the reported regional GVA in 2002 and further modification for the completeness of economy were allocated separately in the regional structure of the year 2002 (these modification prevalingly do not relate to wages, concurrently, however, their regional structures before 2002 are not available).

For the years 2002–2007 transition from the two-digit NACE rev. 1 to the two-digit NACE rev. 2 classification took place on the basis of wage matrixes for the year 2008 created separately for each region. Transferred were only previously observed values of GVA before methodological corrections and grossing-ups to the national accounts aggregate for each region separately.

In some industries it was necessary to modify the two-digit wage matrices when e.g. for the previous industry communications two new industries were created: postal activities and telecommunications while most of wages flew to postal activities but about 80% of GVA in the national account was directed to telecommunications (in such case matrixes included instead of wages the already mentioned contributions of GVA of industries to national accounts, in all regions identical). The total impact of revision on the regional GDP in 2007 is shown in Table 1.

² Data on gross value added are obtained directly for local units, or assessed for local units by distribution of data from the enterprise level (pseudo-bottom-up method) according to the structures of compensations of employees.

Table 1 Change of the regional GDP after the revision, the year 2007 (last final version of regional accounts before revision) in CZK million

Territory, year 2007	Previously published	Revised	Difference	Change of GDP in %
Czech Republic	3 535 460	3 662 573	127 113	3.6
Capital of Prague	880 566	909 016	28 449	3.2
Středočeský Region	381 062	392 597	11 536	3.0
Jihočeský Region	185 742	193 864	8 123	4.4
Plzeňský Region	175 609	183 162	7 553	4.3
Karlovarský Region	74 503	80 355	5 852	7.9
Ústecký Region	224 047	235 905	11 859	5.3
Liberecký Region	114 071	118 481	4 409	3.9
Královéhradecký Region	160 439	166 175	5 736	3.6
Pardubický Region	145 872	151 391	5 519	3.8
Vysočina Region	147 647	152 657	5 010	3.4
Jihomoravský Region	357 437	369 283	11 847	3.3
Olomoucký Region	162 741	168 073	5 332	3.3
Zlínský Region	165 157	170 213	5 056	3.1
Moravskoslezský Region	360 568	371 399	10 832	3.0

Source: Czech Statistical Office, own calculation

2 METODOLOGICAL MODIFICATIONS AND MODELS

At regional level *some methodological modifications and adjustments to reach the completeness of economy* were allocated independently, some of which on entirely new basis other through revised methodological procedures. This referred to the following adjustments:

a) *Imputed rent (IR)* – its regional allocation is realized by more precise method when real market rent is newly considered while previous regional structure was based on market values of dwellings;³ computation of imputed rent is made newly by *stratification method* while data are available also broken by regions. GVA from the imputed rent is thereby allocated in regional structure of production of imputed housing from the national accounts (the time series is available from 2007, previously the regional development is assessed according to the development of values of dwellings in private ownership).

The impact of this most important item of revision was rather uneven in regional aspect (see Table 2) either due to a different contribution of privately owned dwellings in regions and also due to uneven impact of a change of methods of calculation on the total amount of imputed rent (transition from key of market value to actual market rent). More detailed causes of significantly above-average increment of impute rental values in the Karlovarský and Ústecký Regions and, on the contrary, below-average increase in Prague, are more explained in chapter 3.

³ Regionalization of the imputed rent was made on the basis of the estimated value of all dwellings in private ownership in individual regions based on the following formula: total areal of all dwellings in private ownership determined in the Population and Housing Census in square metres * average purchase price of a dwelling per a square metre published by price statistics (data on the number of dwellings were updated annually on basis of information on housing construction, privatization of municipal and co-operative dwellings and liquidation of housing fund).

Table 2 Impact of a change of imputed rent computation on regional GDP

Territory	Revision of IR in CZK million					Revision of IR in % of GDP				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Czech Republic	25 189	29 085	29 806	40 556	49 630	0.8	0.9	0.8	1.1	1.3
Capital of Prague	-745	-135	-261	1 275	2 060	-0.1	0.0	0.0	0.1	0.2
Středočeský Region	4 139	4 665	4 691	6 911	8 550	1.3	1.3	1.2	1.7	2.2
Jihočeský Region	1 943	2 123	2 080	3 049	3 339	1.1	1.1	1.1	1.6	1.7
Plzeňský Region	572	634	696	800	1 428	0.4	0.4	0.4	0.4	0.8
Karlovarský Region	1 789	1 772	1 747	2 068	2 186	2.5	2.4	2.2	2.5	2.7
Ústecký Region	3 413	3 508	3 865	4 406	6 346	1.7	1.6	1.6	1.8	2.5
Liberecký Region	997	1 190	1 199	1 274	1 857	0.9	1.0	1.0	1.1	1.6
Královéhradecký Region	1 057	1 272	1 266	2 199	2 405	0.7	0.8	0.8	1.3	1.4
Pardubický Region	1 820	2 092	2 080	2 299	2 834	1.4	1.5	1.4	1.5	1.9
Vysočina Region	1 429	1 604	1 562	1 896	2 387	1.1	1.1	1.0	1.2	1.6
Jihomoravský Region	2 546	2 982	3 144	3 579	5 749	0.8	0.9	0.9	0.9	1.5
Olomoucký Region	1 348	1 571	1 680	2 296	2 669	0.9	1.0	1.0	1.3	1.5
Zlínský Region	2 131	2 479	2 448	3 109	3 103	1.5	1.6	1.4	1.7	1.7
Moravskoslezský Region	2 748	3 328	3 608	5 396	4 717	0.8	1.0	1.0	1.4	1.3

Source: Czech Statistical Office, own calculation

b) Individual housing construction (IHC) – regionalization of gross value added from construction of new dwellings built by households for themselves was processed according to the regional structure of value of these dwellings; part of IHC formed by reconstruction of housing fund is regionally allocated on the basis of structure of the total number of dwellings owned by household sector.

Table 3 Impact of regional allocation of individual housing construction on regional GDP

Territory	IHC in CZK million					IHC in % of GDP				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Czech Republic	8 952	10 441	12 591	14 099	11 324	0.3	0.3	0.3	0.4	0.3
Capital of Prague	532	626	746	864	493	0.1	0.1	0.1	0.1	0.1
Středočeský Region	2 210	2 418	2 866	3 143	2 687	0.7	0.7	0.7	0.8	0.7
Jihočeský Region	613	741	860	1 002	825	0.4	0.4	0.4	0.5	0.4
Plzeňský Region	509	618	700	818	619	0.3	0.4	0.4	0.5	0.4
Karlovarský Region	241	257	303	338	267	0.3	0.3	0.4	0.4	0.3
Ústecký Region	438	493	700	758	590	0.2	0.2	0.3	0.3	0.2
Liberecký Region	320	370	461	501	453	0.3	0.3	0.4	0.4	0.4
Královéhradecký Region	432	568	631	765	532	0.3	0.4	0.4	0.4	0.3
Pardubický Region	459	543	618	747	586	0.4	0.4	0.4	0.5	0.4
Vysočina Region	494	586	758	783	595	0.4	0.4	0.5	0.5	0.4
Jihomoravský Region	987	1 272	1 438	1 534	1 310	0.3	0.4	0.4	0.4	0.3
Olomoucký Region	423	501	692	764	612	0.3	0.3	0.4	0.4	0.4
Zlínský Region	492	568	716	770	635	0.3	0.4	0.4	0.4	0.4
Moravskoslezský Region	804	880	1 102	1 313	1 120	0.2	0.3	0.3	0.3	0.3

Source: Czech Statistical Office, own calculation

In compliance with expectations the regional allocation of individual housing construction lead to the biggest increase of related gross value added in regions with the largest construction of new family houses (especially in the Středočeský Region), nevertheless, there are no significant differences between the regions as in case of imputed rent and also the total contribution of individual housing construction to the GDP is markedly lower (see Table 3). Regional allocation of individual construction was made for the first time in 2011 and thereby it affected regional structure of GDP in full force.

c) *Consumption of fixed capital (on roads and railways)* – this item has been included into regional GVA earlier, however, newly this adjustment is broken by two NACE economic activities (auxiliary transport activities and public administration) by type of roads – independent regional allocation of consumption of fixed capital on roads, highways, local roads and railways is implemented on the basis of structure of length of individual types of roads in regions.

Regional allocation of consumption of fixed capital on roads showed more significant impact on regional structures of GVA as early as at the moment of implementation of this item into regional accounts in 2005. Revision in 2011 showed only minor changes in methodology of calculations and classification of individual adjustments by industry. The total amount of regional consumption of fixed capital on roads and its contribution to GDP (i.e. not only the impact of the 2011 revision) is shown in Table 4. Bigger contribution is recorded mainly in some more extended and less populated regions which show more significant length of roads and railways (Vysočina and the Jihočeský Regions) and the smallest contribution is observed, on the contrary in the Capital city of Prague.

Table 4 Impact of regional allocation of the consumption of fixed capital (on roads and railways) on regional GDP

Territory	CFC in CZK million					CFC in % of GDP				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Czech Republic	45 219	46 724	48 613	51 515	53 234	1.5	1.4	1.3	1.3	1.4
Capital of Prague	1 248	1 289	1 339	1 405	1 449	0.2	0.2	0.1	0.1	0.2
Středočeský Region	7 025	7 314	7 617	8 143	8 364	2.2	2.0	1.9	2.0	2.1
Jihočeský Region	4 124	4 211	4 370	4 608	4 738	2.4	2.3	2.3	2.4	2.4
Plzeňský Region	3 386	3 504	3 631	3 838	3 946	2.1	2.0	2.0	2.2	2.2
Karlovarský Region	1 536	1 566	1 639	1 734	1 789	2.1	2.1	2.0	2.1	2.2
Ústecký Region	3 454	3 630	3 767	3 987	4 150	1.7	1.6	1.6	1.6	1.7
Liberecký Region	2 316	2 369	2 468	2 604	2 679	2.1	2.1	2.1	2.2	2.3
Královéhradecký Region	2 954	3 089	3 189	3 351	3 461	2.0	2.0	1.9	1.9	2.0
Pardubický Region	2 624	2 719	2 806	2 949	3 061	2.1	2.0	1.9	1.9	2.1
Vysočina Region	3 374	3 460	3 585	3 764	3 857	2.6	2.5	2.3	2.5	2.6
Jihomoravský Region	3 986	4 107	4 267	4 512	4 630	1.3	1.2	1.2	1.1	1.2
Olomoucký Region	2 953	3 032	3 177	3 444	3 605	2.0	2.0	1.9	1.9	2.1
Zlínský Region	2 000	2 063	2 125	2 260	2 335	1.4	1.3	1.2	1.2	1.3
Moravskoslezský Region	4 238	4 372	4 633	4 916	5 169	1.3	1.3	1.2	1.2	1.4

Source: Czech Statistical Office, own calculation

d) *Regional allocation of a segment of illegal economy* – entirely new in the regional GVA is regional assessment of a segment of illegal economy especially with respect to items with expected regional specifics (drugs, prostitution); data sources are similar to those in the national accounts, in case of drugs the regional value of consumed drugs is estimated, common regional structure is then applied to GVA

resulting from cultivation, production and sales of drugs to individual NACE; for the prostitution the regional production of services provided by the number of prostitutes is estimated.

Total weight of regionally independently allocated segments of illegal economy (it means only drugs and prostitution) is not too significant either in national or regional GDP. Approximately 1% was in the observed years monitored in the Karlovarský Region, in other regions its contribution ranged from 0.3 to 0.6% of GDP (see Table 5). Lower values of regionally independently allocated illegal economy are, however, affected by the fact that more important parts of non-observed economy (especially intentional misreporting) are not regionally known and their distribution into regions is made in proportion to the total observed regional GVA.

Table 5 Impact of regional allocation of a segment of illegal economy (N.2) on regional GDP

Territory	N.2 in CZK million					N.2 in % of GDP				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Czech Republic	12 270	12 444	12 472	12 339	11 610	0.4	0.4	0.3	0.3	0.3
Capital of Prague	3 177	2 796	3 052	2 857	2 295	0.4	0.3	0.3	0.3	0.2
Středočeský Region	777	772	738	842	836	0.2	0.2	0.2	0.2	0.2
Jihočeský Region	1 063	1 061	961	944	738	0.6	0.6	0.5	0.5	0.4
Plzeňský Region	876	873	844	867	818	0.6	0.5	0.5	0.5	0.5
Karlovarský Region	921	883	813	739	654	1.3	1.2	1.0	0.9	0.8
Ústecký Region	1 278	1 278	1 199	1 155	1 178	0.6	0.6	0.5	0.5	0.5
Liberecký Region	356	348	325	485	424	0.3	0.3	0.3	0.4	0.4
Královéhradecký Region	372	411	529	442	404	0.3	0.3	0.3	0.3	0.2
Pardubický Region	278	278	294	329	326	0.2	0.2	0.2	0.2	0.2
Vysočina Region	275	281	343	338	309	0.2	0.2	0.2	0.2	0.2
Jihomoravský Region	1 237	1 421	1 440	1 376	1 329	0.4	0.4	0.4	0.3	0.3
Olomoucký Region	518	699	558	570	728	0.4	0.5	0.3	0.3	0.4
Zlínský Region	384	485	574	503	635	0.3	0.3	0.3	0.3	0.4
Moravskoslezský Region	758	858	803	892	937	0.2	0.3	0.2	0.2	0.3

Source: Czech Statistical Office, own calculation

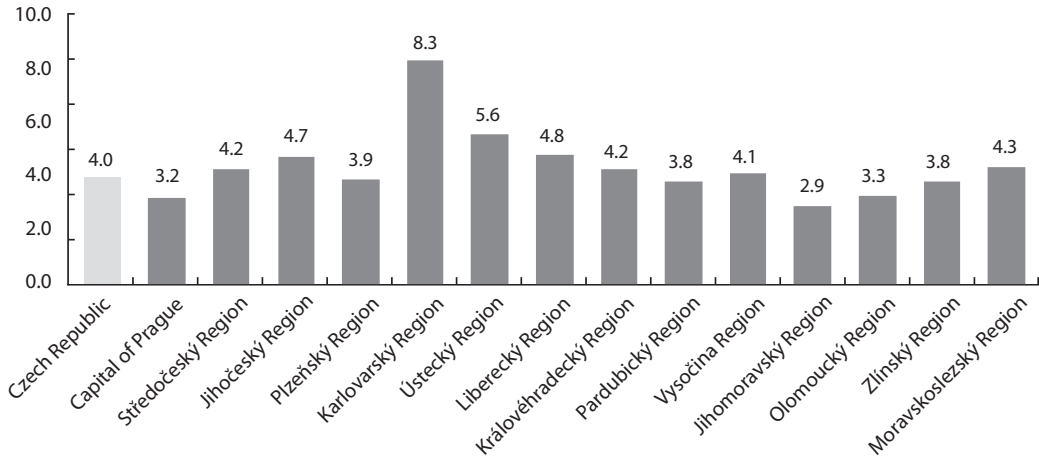
For economic activity NACE 97 (activity of households as employers of household personal) a key was used in form of the structure of managers and chiefs in the region in the whole time series. The reason was an absence of suitable statistical data and expected bigger correlation of the mentioned indicator with the economic activity of industry compared to previously used disposable income of households or total GVA.

3 IMPACT OF REVISION ON REGIONAL GDP

Aggregate impact of revision on the structure of regional GVA was not of fundamental importance especially because individual methodological and other *adjustments showed often a contradictory effect*. While the new approach to regional allocation of imputed rent reduced the contribution of Prague and increased that of the Středočeský Region, adjustments to reach a completeness of economy (especially intentional misreporting) in respect of bigger weight of services compared to industry increased, on the contrary, the contribution of Prague and reduced that of Středočeský Region. Similarly, e.g. individual housing construction increased the contribution of the Středočeský Region compared to Prague, and illegal economy (drugs, prostitution), on the contrary, reduced the contribution of the Středočeský Region compared to Prague.

The biggest impact on the absolute GDP amount showed the revision in the Karlovarský Region whose contribution to the national GDP is, however, very low (only 2.1%). In 1995–2010 total GDP was increased there by 8.3%, on average, mainly due to the revision of regional allocation of the imputed rent and illegal activities. The same impacts at lesser extent, showed in the above-average increase of the revised GDP in the neighbouring Ústecký Region (5.6%) and partly also in the Liberecký Region (4.8%), see Figure 1.

Figure 1 Average change of GDP after revision in period 1995–2010 (in %)



Source: Czech Statistical Office

In these above mentioned regions the key reason of more significant GDP growth after the revision was the difference between market prices of dwellings used earlier for allocation of imputed rent and actual market rent currently applied. In the Karlovarský and Ústecký regions market prices of dwellings compared to market rent and compared to other regions were significantly lower which made the earlier calculations of imputed rent undervalued. The opposite cases were Prague and Jihomoravský regions where market prices of dwellings compared to market rent were higher and imputed rent were therefore overvalued and total revision of GDP was a bit below the average (3.2% for Prague and 2.9% for the Jihomoravský Region) compared to the nation-wide average, as shown in Figure 1.

4 REVISION OF REGIONAL GVA IN 2008–2009

In addition to revision of time series until 2007 the regional GVA of the last two years (published the year before) was made more detailed on standard basis. The impact of the revision on regional structures of GVA was much bigger than usual due to some reasons. First of all during these years the above mentioned methodological modifications and adjustments to reach the completeness of economy were also made and moreover previous estimates for both years published in 2010 were based only on preliminary version of regional accounts.

The biggest changes of revised values were monitored in 2009. As opposed to preliminary version, bigger revision of regional GVA took place especially for the Capital of Prague (drop of contribution to the national GVA by 0.8 p.p.). The cause subsisted mainly in the fact that the development of regional GVA was in preliminary version in individual industries assessed on the basis of wage volumes which, however, may not in the particular moment copy the development of GVA since the operating surplus in the period of economic crisis often falls faster than the compensations of employees (their contribution to GVA in 2009 increased).

Main factors affecting regional GVA and GDP in 2008

In 2008 in three regions signs of upcoming global economic recession appeared causing general y-o-y fall of GDP (in the Jihočeský, Plzeňský and Karlovarský regions) by 0.7% up to 3.6% while in the Vysočina Region the growth almost stopped (increase only by 0.3% was registered). This referred to regions relatively more dependent on export to West European markets (mainly to Germany) where the start of economic recession came earlier than in the Czech Republic. The drop of GDP in these regions often correlated also with bigger growth of registered unemployment rate.

The contribution of the *Capital of Prague* to the formation of gross value added in the Czech Republic increased y-o-y from 24.8% to 25.4% mainly due to the development in electricity, gas and heat supply (administrative headquarters of companies), land transport, wholesale, retail sale and insurance. At constant prices, however, the y-o-y growth of GDP (3.2%) does not deviate from the national average which was attested to higher deflators in key industries in Prague.

In the *Středočeský Region* the above-average growth of GDP at constant prices continued (7.7%). Crucial was the growth of value added in manufacture of machinery and equipment, manufacture of fabricated metal products, land transport and in construction. Traditional industry such as manufacture of motor vehicles, trailer and semi-trailers and manufacture of other transport equipment at current price has shown almost no changes this year (growth by 0.3%). Contrary to Prague the contribution of region to the total GVA in the Czech Republic at current prices basically stagnated (growth by 0.1 p.p.).

In the *Jihomoravský Region* in 2008 the above-average increase of GDP was recorded for the second consequent year (5.1% at constant prices) which was most contributed to by commercial services (real estate activities, data processing and other business services).

The big growth of GDP in *Zlínský Region* by 9.4% at constant prices was, as in previous years, most contributed to by manufacture of rubber and plastic products, manufacture of food products, and also by manufacture of chemicals and chemical products and construction.

Main factors affecting regional GVA and GDP in 2009

The year 2009 was characterised by the biggest y-o-y drop of real GDP in the Czech Republic from the beginning of the 90th. All regions reported negative development of the real GDP, however, the drop rate was significantly different. Quite unexpectedly, the area of Central Bohemia and Prague, which previously recorded the biggest increases of economic performance, belonged to regions most affected by crisis.

Relatively less favourable development of GVA in *Capital of Prague* (GDP index 94.3% at constant prices) was mainly due to drop in construction of buildings (y-o-y index 74.8% at current prices), wholesale (86.0%), accommodation (68.8%) and also e.g. in insurance, public administration and defence. Wholesale and retail trade, accommodation and food service activities recorded also at the national level a bigger drop of GVA compared to e.g. manufacturing both at current and constant prices. In addition, in Prague the GVA drop in these industries was more marked than in other regions. In Prague, in addition to the above, a drop in electricity, gas, steam and heat supply at constant prices was recorded which was an important factor for decrease of real GDP.

In the *Středočeský Region* after two years of big GDP increases a drop of GDP both at constant (-6.8%) and current (-5.0%) prices was recorded. Among industries with regional importance showing most marked drops belong manufacturing of motor vehicles (GVA index at current prices 86.1%) and building construction (74.8%).

The GDP growth at current prices in the *Ústecký Region* (1.2%) was pulled mainly by the development in electricity, gas, steam and heat supply (index 126.2% at current prices), also by mining of coal and lignite (index 114.7%), manufacturing of basic metals (index 114.7%) and developments in land transport or retail trade. At constant prices, however, also this region recorded a drop by 0.2% due to stagnation of GVA in electricity, gas, steam and heat supply.

In the *Liberecký Region* (drop of GDP at constant prices by 6.2%), like in previous years, structural problems were monitored first in manufacturing of glass (traditional industry) and, subsequently, in manufacturing of machinery and equipment. At current prices the drop of gross value added by 3.9% was recorded.

A significant drop of GDP in the *Moravskoslezský Region* in 2009 (index 92.9% at current prices, 92.4% at constant prices) was caused mainly by fall in mining of coal (index 61.0%), manufacture of basic metals and fabricated metal products (index 41.0%) and related industries (manufacturing of coke, manufacturing of metal structures and metal products) – drop in these industries was only in part compensated by growth of manufacturing of motor vehicles industry (GVA index 141.0%).

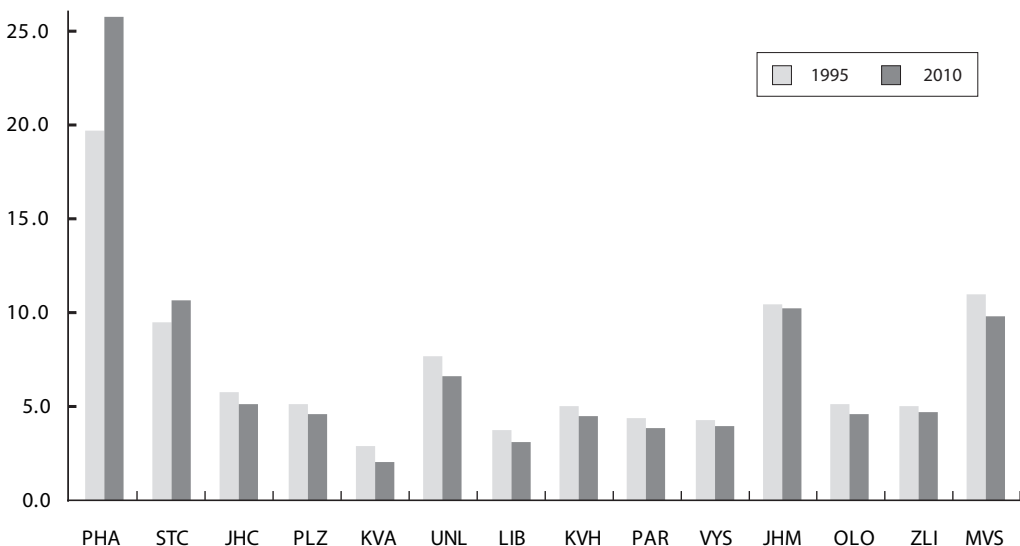
In other regions the drop of regional GDP at constant prices ranged from –2.6% to –4.8%, i.e. by growth rates not much deviating from the national level.

5 PRELIMINARY VERSION OF REGIONAL GDP IN 2010

Preliminary version of regional GDP for 2010 was based on estimate of the development of regional GVA in compliance with the index of development of the volume of wages in industries and regions. Except for the *Karlovarský Region* (drop by 0.9%) all regions recorded a growth of the regional GDP at constant prices, the biggest increase was monitored for the *Středočeský Region* (5.5%), the *Liberecký Region* (4.2%) and *Prague* (3.4%), i.e. regions which in previous year showed more significant drops of GVA. In other regions the growth of regional GDP at constant prices ranged from 1.0% to 3.1%, i.e. by growth rates which did not much deviate from the national growth rates.

Contribution of the region in the GVA of the Czech Republic at current prices recorded the biggest growth in *Prague* (+0.5 p.p.) and in the *Středočeský Region* (+0.1 p.p.). In *Prague*, the GVA at current prices was most contributed to by financial and insurance activities (index 109.0%). In other regions the contribution to the national GVA either stagnated (the *Jihočeský*, *Liberecký*, *Vysočina*, *Olomoucký* and *Moravskoslezský* Regions) or dropped by 0.1 p.p. (all remaining regions). Change of regional contributions to the national GDP between two border years of revised period 1995–2010 is shown in Figure 2.

Figure 2 Regional contribution to GDP of the Czech Republic in years 1995 and 2010 (in %)



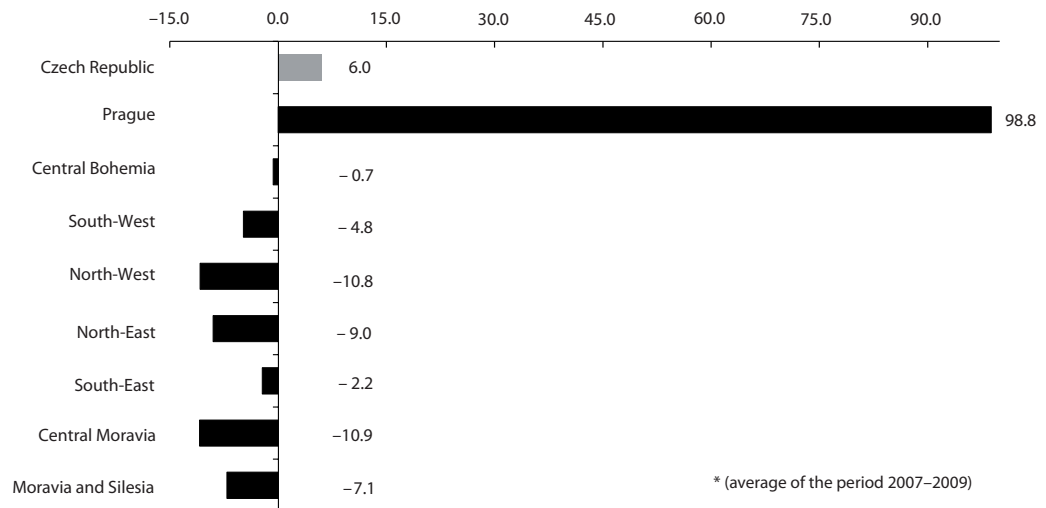
Source: Czech Statistical Office

6 IMPACT OF REVISION ON INTERNATIONAL POSITION OF CZECH REGIONS

Results of regional accounts revision in 2011 were expected mainly due possible impacts on rights of NUTS 2 Czech regions to drawing subsidies from the EU structural funds. For international comparison the indicator of total GDP is converted to the units of purchasing power standard (PPS)⁴ according to coefficients used by EUROSTAT. In case of the GDP increase due to revision it was generally expected that also an increase of the regional GDP per capita in international comparison will take place and, as a consequence, it was assumed that two Czech NUTS 2 regions (Central Bohemia and the South-East) may exceed 75% of the GDP average per capita in PPS in EU 27. The limit of 75% is a criterion for subsidies from the structural funds and probably will stay as limit indicator also in new budget framework for the years 2014–2020.

EUROSTAT converted data on national gross domestic product into PPS for the purpose of international comparison in December 2011. At the regional level for the whole EU 27 the data were converted in March 2012. Contrary to expectations, an increase of nominal GDP of the Czech Republic resulted in the increase of regional and national GDP per capita in purchasing power standard compared to the EU average to a minimum extent only. This was due to the fact that also other EU member countries revised their national accounts and first of all the nominal increase of GDP in the Czech Republic was, according to EUROSTAT methodology in major part included into the growth of domestic price level and did not lead to a real increase of GDP in international comparison. This was linked mainly to the methods of calculation of paid and imputed rents. The increase of total housing expenses resulted into an increase of housing costs (prices). The result had therefore an almost negligible impact on the position of the Czech Republic and their regions in international comparison in PPS as opposed to the current prices data.

Figure 3 Deviation of GDP per capita from 75% of the EU average in NUTS 2 regions (in p.p.)*



Note: average for 2007–2009 is chosen because this refers to the most probable period on the basis of which regions entitled to aid from the EU structural funds in 2014–2020.

Source: Eurostat

⁴ PPS (Purchasing Power Standard) is artificially created monetary unit used for international comparison to express the volume of economic aggregate indicators. Using this unit the conversion of value of all items of GDP to the average price level in the EU is made and thus to exclude difference in price levels (or malformation related with exchange rates of national currencies against EUR).

EUROSTAT publishes regional GDP two years after the reference period which means that the latest available data at the European level date back to the year 2009. Years 2007–2009 will probably serve as reference period on the basis of which the regions entitled to aid from the EU structural funds in new budget framework for the years 2014–2020 will be determined (if the budget is approved in 2012, which is not for sure – in case of late approval a reference period will be changed to years 2008–2010). All regions NUTS 2 outside Prague continue to remain below the 75% of the EU average (see Figure 3).

In the data for 2009 the position of the Středočeský Region (to date, in addition to Prague, the most economically effective region) compared to other NUTS 2 regions worsened (73.6% of the EU average) due to relatively less favourable development of economy affecting traditionally export-aimed industries in the region (e.g. y-o-y drop of GVA in manufacturing of motor vehicles by 13.9%). The biggest GDP per capita outside Prague was reached in 2009 in the NUTS 2 region South-East (74.6% of the EU average) that depends less on export industries than Středočeský Region.

CONCLUSION

Revision of regional accounts in 2011 enabled besides a change of classification of economic activities (NACE) to implement a number of methodological improvements and specification in calculation of regional gross value added. In the first place, emphasize should be placed on revision of the method of regional allocation of imputed rent which for the first time takes into account actual market rent. New calculation is made by the stratification method “bottom up”, i.e. like in the national accounts. Entirely new estimate of regional gross value added was made from individual housing construction (i.e. construction of new dwellings built by households for themselves) and for segments of illegal economy for which certain regional specific features not depending on real reported gross value added are assumed (i.e. drugs, prostitution).

In almost fifteen-year history of regional accounts in the Czech Republic it was the second important revision of time series with more marked impact on regional structure of GDP (the first important change was transition from universally used “top-down” method to prevailing “bottom-up” method completed in 2005). At present, preparations for the upcoming extraordinary revision of national and regional account scheduled for 2014 are in process. The revision will include in addition to impacts of changes of national accounts methodology (resulting from transition to methodological standard ESA 2010) also changes, if any, in data sources and improvement of method of calculations and estimates. Methodological changes will be introduced retroactively into time series of national and regional accounts depending on availability of necessary information, however from 2010, at minimum. Regional accounts time series based on the extraordinary revision will be published in November 2014. It will definitely apply, also in future, that revisions of annual national accounts in future, if any, should directly follow revisions of regional accounts to ensure consistency of national and regional data.

In addition to revisions of regional accounts the attention will focus on possible further development beyond the regional GDP and GVA. In the area of household accounts there is a demand at a European level for regionally disaggregated final consumption of households. As another possible area appears to be the regional allocation of government accounts in some limited number of parameters, mainly for items of government expenditure (so called regional tables of the government sector). The regional tables for the government sector may serve as model of the impact of government spending (including EU funds) on the development of the regional GDP.

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ANNEX

Table 6 Regional structure of GDP in % (CR = 100)

Territory	1995	2000	2005	2006	2007	2008	2009	2010
Capital of Prague	19.7	22.5	24.1	24.3	24.8	25.4	25.3	25.8
Středočeský Region	9.5	10.4	10.2	10.7	10.7	10.8	10.6	10.7
Jihočeský Region	5.8	5.7	5.6	5.5	5.3	5.1	5.2	5.2
Plzeňský Regionj	5.2	5.0	5.1	5.1	5.0	4.6	4.7	4.6
Karlovarský Region	2.9	2.6	2.3	2.2	2.2	2.1	2.2	2.1
Ústecký Region	7.7	6.7	6.6	6.6	6.4	6.4	6.7	6.6
Liberecký Region	3.8	3.8	3.5	3.4	3.2	3.1	3.1	3.1
Královéhradecký Region	5.0	5.1	4.7	4.5	4.5	4.5	4.6	4.5
Pardubický Region	4.4	4.3	4.1	4.1	4.1	4.0	4.0	3.9
Vysočina Region	4.3	4.2	4.2	4.2	4.2	4.0	4.0	4.0
Jihomoravský Region	10.5	10.2	10.0	10.0	10.1	10.3	10.4	10.3
Olomoucký Region	5.2	5.0	4.7	4.6	4.6	4.6	4.6	4.6
Zlínský Region	5.0	4.9	4.6	4.7	4.6	4.8	4.8	4.7
Moravskoslezský Region	11.0	9.7	10.4	10.1	10.1	10.2	9.8	9.8

Source: Czech Statistical Office

Table 7 Regional GDP per capita in % (CR = 100)

Territory	1995	2000	2005	2006	2007	2008	2009	2010
Capital of Prague	168.2	195.7	210.0	210.4	214.1	216.1	213.5	216.5
Středočeský Region	88.5	95.8	91.0	93.8	93.2	92.5	89.5	89.9
Jihočeský Region	95.1	93.3	90.6	90.3	86.5	83.6	86.0	85.5
Plzeňský Region	96.3	93.1	94.7	95.2	92.6	85.4	86.7	85.4
Karlovarský Region	97.0	87.2	78.0	74.7	74.1	71.5	74.0	72.3
Ústecký Region	96.2	82.8	82.2	81.9	80.5	80.1	84.0	83.4
Liberecký Region	91.4	90.3	83.0	81.3	77.3	75.0	74.5	74.8
Královéhradecký Region	93.6	95.0	87.0	84.8	85.1	85.0	86.9	86.1
Pardubický Region	89.4	86.1	82.0	83.6	83.8	81.4	80.8	79.0
Vysočina Region	84.6	83.5	83.7	83.7	83.9	80.3	82.3	81.5
Jihomoravský Region	94.9	92.1	90.3	91.0	91.7	94.2	94.5	93.6
Olomoucký Region	84.0	79.6	75.2	73.8	74.0	74.6	75.3	75.5
Zlínský Region	86.3	83.7	80.6	81.3	81.3	84.9	85.8	84.0
Moravskoslezský Region	87.9	78.2	84.9	83.2	83.8	85.3	82.3	82.8

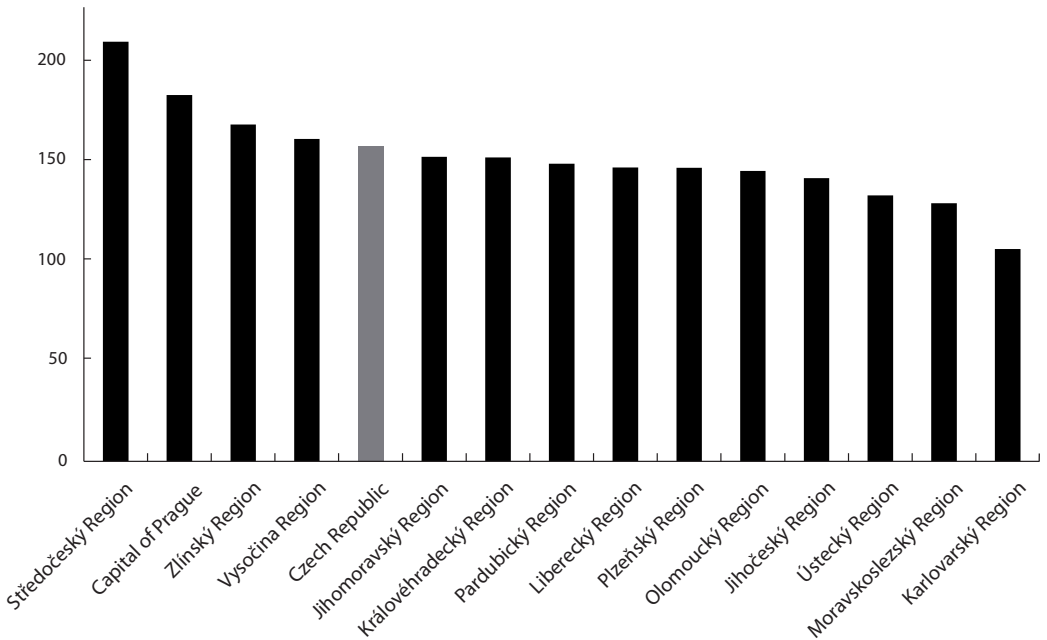
Source: Czech Statistical Office

Table 8 Regional GDP volume indices (previous year = 100)

Territory	1996	2000	2005	2006	2007	2008	2009	2010
Czech Republic	104.5	104.2	106.8	107.0	105.7	103.1	95.3	102.7
Capital of Prague	105.7	104.1	106.3	105.9	109.1	103.2	94.3	103.4
Středočeský Region	103.9	106.4	106.5	114.2	107.9	107.7	93.2	105.5
Jihočeský Region	104.6	103.8	108.4	105.6	100.7	99.3	97.2	102.0
Plzeňský Region	106.0	105.7	105.5	107.8	102.1	96.4	97.0	101.5
Karlovarský Region	98.8	104.8	103.3	101.5	103.2	97.4	97.4	99.1
Ústecký Region	102.7	101.1	105.6	107.4	103.5	101.8	99.8	101.3
Liberecký Region	102.4	105.2	113.1	106.3	101.5	103.8	93.8	104.2
Královéhradecký Region	104.3	105.9	106.1	104.2	105.3	104.2	96.7	101.9
Pardubický Region	102.5	104.2	105.9	109.0	105.5	101.0	95.2	101.0
Vysočina Region	104.2	106.6	109.0	106.9	104.5	100.3	97.4	102.4
Jihomoravský Region	104.4	103.8	105.9	106.8	106.2	105.1	95.8	101.9
Olomoucký Region	107.0	104.1	104.1	104.6	104.8	103.4	96.4	103.1
Zlínský Region	102.6	104.7	108.9	109.2	105.9	109.4	97.0	101.8
Moravskoslezský Region	106.6	101.6	108.2	104.9	104.1	101.5	92.4	102.9

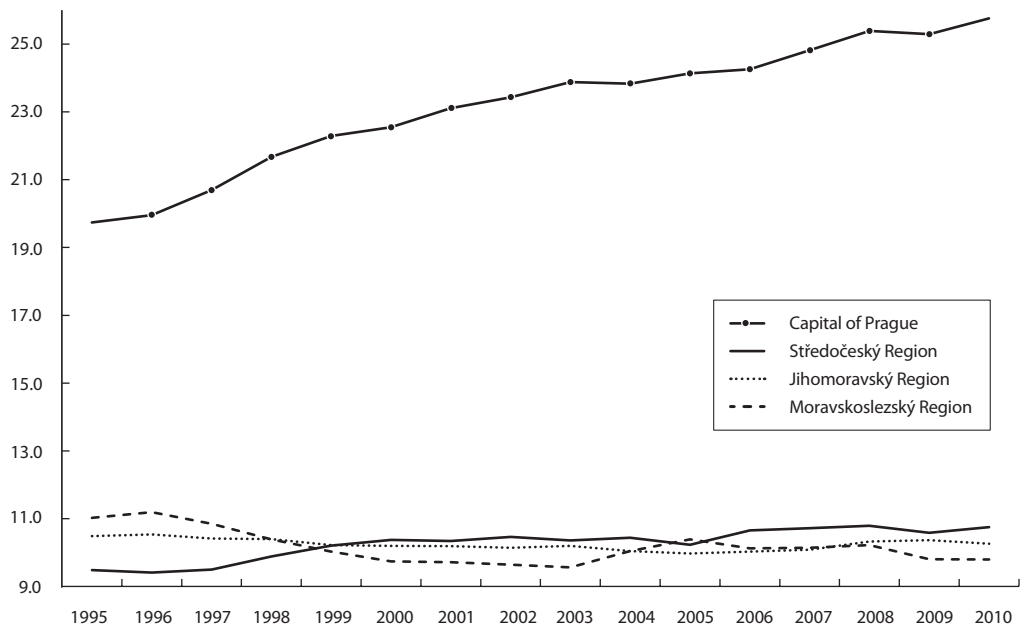
Source: Czech Statistical Office

Figure 4 GDP at constant prices, year 2010, 1995 = 100



Source: Czech Statistical Office

Figure 5 Contribution of four best economically performing regions in the total GDP of the Czech Republic in %



Source: Czech Statistical Office