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REGIONAL ACCOUNTS OF BULGARIA

The state of the art

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INTRODUCTION

1. In order to present the current situation in the field of regional accounts it is very important to describe the implementation of the requirements of Eurostat in the recent years and the method of calculating the regional indicators used up to now. This report also gives information about future work plans in the area of regional accounts.
2. The concepts used in the regional accounts of Bulgaria correspond to the relevant accounts of the national economy. Regional accounts use the same definitions and classifications as national accounts. Thus, the national accounts data are very important for regional accounts.
3. National accounts for Bulgaria are compiled according to the main methodological recommendations of the documents “System of National Accounts, 1993”(SNA’93), and “European System of Accounts, 1995” (ESA’95).
4. Bulgaria began studying the System of National Accounts in the 1980s. GDP estimates were derived from the production side, from the income approach and by expenditure categories for the years 1980 to 1991 in current prices. The last estimates for both Material Product System and System of National Accounts were made with data for 1992. Since 1993 only estimates according to 1993 SNA are available.
5. Economic statistics in Bulgaria are based on institutional approach. National Accounts for describing the production and generation of income are structured both by branches and institutional sectors. Non-financial accounts are compiled annually by institutional sectors. GDP estimations are based on three approaches – production, income and expenditure. These methods are integrated into yearly-calculated Supply and Use tables. Till 1995 the branch structure of national economy was presented by classification standards prepared to serve the MPS - Classification by Branches of the National Economy (CBNE-86). From 1995 to 2001 we used National Branch Classification (NBC), which closely corresponds to NACE rev.1. Since 2001 National Classification of Economic Activities (NCEA) – fully compatible to NACE rev.1 have been used.
6. The statistical unit used is a sub-division of an enterprise or an enterprise without any sub-divisions and classified with all its activity to the appropriate industrial branch on the basis of its principal activity. The sub-division of an enterprise corresponds to the local KAU in ESA 95 terminology.
7. The output is estimated in basic prices. Intermediate consumption is valued at purchaser’s prices. GVA estimations at basic and producer’s prices exist. GDP is measured at market prices.
8. Some of the most important data sources used to compile the accounts are:
 - Annual reports by enterprises on their revenues and expenditures, double-entry bookkeeping accounts for large private enterprises and state enterprises and less detailed single-entry bookkeeping accounts for small private enterprises;
 - Household budget survey and other sample surveys conducted by NSI;
 - Banking statistics;

- State budget statistics and the reports of different Ministries;
- Customs and tax statistics;
- Annual reports on labour statistics.

9. Information is collected according to the place of residence of the units. Exhaustive coverage survey based on Register of Economic Units in Bulgaria /national concept/ is used to compile yearly data for production account.

The state of the art of Regional Accounts in Bulgarian National Statistical Institute during the first stage of Eurostat's Pilot Project

10. Regional economic statistics have an important role in the formulation, implementation and evaluation of regional policies. Reliable, consistent and relevant regional statistics provide a solid basis for policies aimed to reduce economic and social disparities between the regions of Europe.

11. Indicators, so widely used as Gross domestic product (GDP), Gross value added (GVA) and Gross fixed capital formation (GFCF) per region, should be evaluated in a harmonized way, in order to provide comparable figures for the European regions.

Regional accounts definitions

12. NSI's first estimation of regional GVA was made on experimental basis with data for 1993. Then, for the first time in Bulgaria, a method was presented for regionalisation with distribution of intermediate consumption by regions using national matrix of direct expenses. In 1997, Bulgaria started to participate in Eurostat's Project for Regional GDP estimations in CEC^s (Central European Countries). As a result we have made an estimation of regional GDP for 1995 (for regions at level NUTS 2), which methodological framework is consistent with most of ESA95 requirements.

13. The Nomenclature of Territorial Statistical Units (NUTS) is the regional classification used to compile GVA, GFCF and other regional statistics in EU. For this first stage of the project we have used territorial classification levels in conformity with NUTS as presented:

Level 0		Level 1		Level 2		Level 3	
As on 1.1.1996		Geografski zoni (3)		Oblasti (9)		Grupi ot obshtini (28)	
People	Area	People	Area	People	Area	People	Area
1 000	1 000 km ²	1 000	1 000 km ²	1 000	1 000 km ²	1 000	1 000 km ²
8 385	111	2 795	37	932	12	299	4

The Classification of Branches of the National Economy (CBNE-86) was used. We do not use an extra-region.

Explanation of the method used for the regionalisation of GDP for 1993 and 1995

14. We adopted the following sequence of work for calculation of Gross Value Added by regions with data for 1993 and 1995:

- Constructing supply matrix according to the structure region-producers of goods and services (rows), by goods and services produced in these regions (columns).
- Modelling square Input-Output matrix products by products (using the so-called Industry technology assumption). This is obtained by multiplying the Use matrix in the form of commodity groups consumed by industries consumers (Coefficient table; Gross output at producer's prices = 1) and Make matrix presenting industries producers by commodities produced (Coefficient table; Commodity output at producer's prices = 1). The coefficient structure received in this way serves as a basis for regionalisation of the intermediate consumption and respectively value added data (as multiplication of the rows of regional production make matrix by square expenditure coefficient table, and finally columns' totals give the intermediate consumption for the relevant region).
- Compiling a new use matrix, structured in the following way: goods and services, by regions consumers of goods and services for Intermediate consumption, constructed on the basis of the balanced structural data from the so described two matrixes.

15. The regional GVA by the production approach is obtained as a difference between the gross production and intermediate consumption.

16. Two approaches for constructing of the so-called regional supply matrix may be distinguished:

The first may be defined as direct approach, as to a great extent it is based on the available basic information for production at regional level:

- Annual data for produced industrial products structured by industry groups by regions: this data are compiled on the basis of information from exhaustive annual survey of all industrial enterprises. The products covered by this survey are approximately eight thousands, and the initial data are collected in twenty-eight Territorial Statistical Bureaux situated in respective territorial part of the country at NUTS 3. The construction of Supply matrix for industrial products is made directly on the basis of data received from 28 Territorial Bureaux. The products are grouped initially in 101 groups and then in 18 commodity groups.
- Annual characteristics in quantities and values for produced agricultural products by regions (NUTS 3): this information is gathered separately for different agricultural firms in accordance with the type of ownership. For public and cooperative firms, this is the annual report and the coverage of the survey is exhaustive. For private firms the source of information is the report of administrative units on the place of registration of these firms. The coverage is considered to be exhaustive. Two surveys of private agricultural firms were made during 1995. For plant growing, the number of examined products is about eighty. For livestock breeding, this number

is about sixty. Data are grouped in two groups – plant-growing and livestock breeding. The number of employees is the indicator used for the regionalisation of agricultural services.

The second approach is based on indirect information closely related to the content of the aggregates, which are in the focus of regionalisation. In this case, the basic indicator is the number of employees by regions. This indicator is used for regionalisation of data in the following industries: transport; communication; construction; non-financial market services; banking sector; government institutions. The number of employees per region is compiled from the annual exhaustive survey of all resident firms in Bulgaria.

17. For regionalisation of trade we use annual data for output of trade enterprises by regions (obtained by subtracting the reported value of goods sold from the sales receipts of the firm).

18. In respect of imputed data, worked out by National Accounts Division, it is necessary to note the following:

- For distribution of imputed rent of owner-occupied dwellings, we used information for the regional structure of the household dwelling stock.
- Households agricultural production for own-consumption is distributed by regions on the ground of available regional information for agricultural products, which are produced in households' agricultural plots.

19. Supply matrix is structured by regions-producers of goods and services (rows) and goods and services produced in these regions (columns). Use matrix is structured by goods and services, by region consumers of goods and services.

20. The adjustments from GVA to GDP were regionalized according to the obtained regional structure of GVA.

Results and improvements, which followed the first stage of the Pilot Project on Regional Accounts

21. The main benefits from the first stage of the project are as follows:

- Regionalisation of GVA with financial and methodological help from Eurostat for 1995;
- Acquaintance with the work of other European countries in this field, which is very useful for the work in this area;
- The Eurostat's publication "Regional GDP in the Central European Countries" helped to popularize the statistical work in this area.

22. As far as the short-term improvements are concerned, we have made experimental estimation of GVA for the same year (1995), with another "key" for regionalisation of the branches, which required top-down method. This "key" is 'wages and salaries' by branch and by region.

The current state of the art of Regional Accounts in Bulgaria. Improvements that have been made in the final phase of Eurostat's Pilot Project and afterwards

Introducing the new practice of collecting the necessary data and calculating GDPR

23. Experimental calculations of regional indicators-GDPR and for the first time for GFCF, with data for 1998 at current prices were made. This experiment uses a different way for estimating the necessary variables.
24. The new territorial breakdown levels have the following differences with the old ones: two areas at NUTS4 changed their belongings; for NUTS3 the new name is 'oblasti'; for NUTS2 we have six 'rajoni za planirane' and at level NUTS1 there are 2 'geografski zoni'. We don't use extra-region.
25. The statistical unit is a sub-division of an enterprise or an enterprise without any sub-divisions and classified with all its activity to the appropriate industrial branch on the basis of its principal activity. The residence of the local KAU is a criterion for the allocation of the aggregates on production activities to a particular region.
26. The GDP is calculated by production approach – gross output less intermediate consumption. The main sources of information concerning output and intermediate consumption are the annual reports on revenues and expenditures of the economic units in the public sector and private firms, which have double-entry bookkeeping; these reports represent part of the annual statistical data collected by the NSI. The annual statistical questionnaires are designed to be as close as possible to the bookkeeping records in order to be filled easier. They are differentiated by branches to include additional information about the components of output and intermediate consumption. Private firms, which have single-entry bookkeeping system, fill in a specific annual questionnaire, which contains a limited number of questions.
27. If an enterprise has 'sub-divisions' these are the statistical and reporting units used in the annual statistical reports by branches; otherwise the enterprise as a whole is treated as a single unit. The reports on revenues and expenditures are differentiated by branches, but follow a standard scheme. The items of revenue and expenditure to be specified are shown in the following tables:

Standard revenue items requested:

Revenue from principal activity

- receipts from sales of goods and services
- value of own-account gross fixed capital formation
- value of changes in inventories of finished goods and work-in-progress

Revenue from other activities

- receipts from secondary activities specifying the industrial branch to which the output should be classified; these may include proceeds from trade, transport activities, income from rentals, commissions etc.

Receipts of subsidies

Total

Standard expenditure items requested:

Cost of materials and fuels

- raw materials and materials for processing
- energy
- fuels of all kinds
- spare parts
- other

Cost of external services

- current repairs and maintenance
 - of buildings
 - of machinery and equipment
- rentals on buildings and other fixed assets
- heating and lighting
- communications
- transport
- insurance
- advertising and consultancy services
- taxes and fees
- payments for piecework
- other

Consumption of fixed capital

Wages

Social insurance contributions

Other expenditure

- business travelling expenses
- scholarships
- expenditures on behalf of employees
- bonuses paid to employees for saving fuel
- payments to the state fund for unemployment and requalification
- other

Cost of goods for resale

Total expenditure

28. We use the report for revenues and expenditures for obtaining gross output and intermediate consumption for twenty industries by B40 (classification for work purposes which can be transformed to A17) - C, D, E, F by A17.

29. For branch K - Real estate, renting and business activities, we use as a distribution key number of employees and for the part that corresponds to imputed rent for owner-occupied dwellings we use distribution of housing fund by regions (obtained through Census).

30. For livestock - part of A - Agriculture, hunting and forestry, we use as distribution key the number of different kinds of animals by regions by its average price. For plant-growing we use data for gross output and intermediate consumption obtained from the report on revenues and expenditures.

31. For other branches we use as distribution key number of employees.
32. Adjustments from GVA to GDP are distributed to the respective region according to GVA structure.

Improvements in the presented way for regionalization of GVA

33. Regionalization of GDP at current prices with data for 1999 were made with the following improvements:
- the distribution key used for services - number of employees has been changed with one that showed higher correlation with the variable measured (GVA). This key is obtained when multiply number of employees (by regions and economic activities) by average wages and salaries per region and economic activities divided by average wages and salaries for whole country.
 - Data for Value Added Tax by regions were obtained directly from the regional public administration.

Presenting the Gross Value Added and Gross Domestic Product at current prices with data for 1999 at regional levels NUTS-2 and NUTS-3

34. Data presented in the Table show that the highest value of GDP is attributed to “Sofia-Stolica” region, which covers the capital city of Bulgaria: there, we can see the extremely high figure for services. The region with the lowest GDP – Vidin has also the smallest Industry figures.

Advantages of the new practice of estimating regional variables in comparison with the old ones

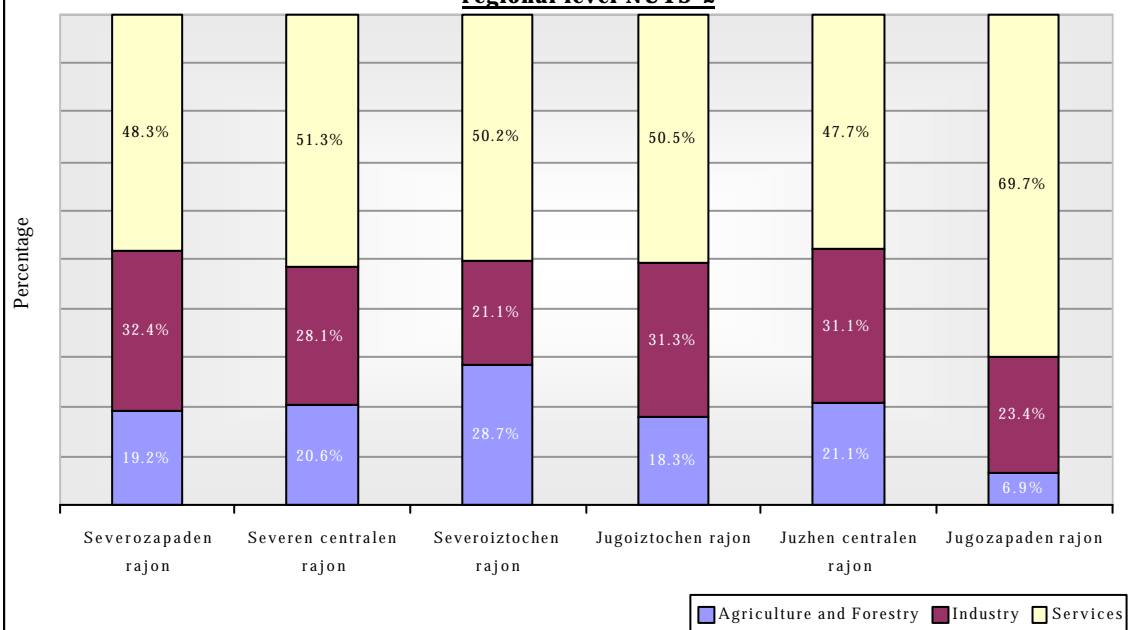
35. The new practice of estimating GDPR has the following main advantages:
- Expanding the range of use of the more preferable bottom-up method. In current estimate we obtained information regarding both gross output and intermediate consumption directly from statistical units at regional level (in 1995 experiment, the intermediate consumption was calculated through national Input-Output table);
 - In this experiment we use data directly from the report on revenues and expenditures that is prepared with smaller time lag in comparison with Input-Output tables. It gives us the possibility to prepare the data more rapidly compared with the old method;
 - The results are internationally comparable when using a classification that corresponds closely to NACE rev.1 groupings.
36. The new practice of processing data, with use of basic data directly from database NOAC Data Warehouse, give us the possibility to reduce the number of people involved in this work.

GVA and GDPR at current prices with data for 1999 at regional levels NUTS-2 and NUTS-3

Preliminary data

Planning regions (NUTS2) and oblasti (NUTS3) / by economic sectors	Structure of GVA by economic sectors			GVA, Mln.lv.	GDP, Mln.lv.	GDP per capita, lv.
	Agriculture and Forestry	Industry	Services			
Bulgarija	3440	5326	11125	19891	22776	2774
Severozapaden rajon	249	420	626	1294	1399	2373
Vidin	64	21	161	247	259	1851
Vraza	104	345	268	717	788	3068
Montana	81	53	197	331	352	1825
Severen centralen rajon	554	758	1382	2694	2873	2332
V.Tarnovo	125	190	345	659	705	2327
Gabrovo	34	145	173	353	376	2441
Lovech	63	97	209	369	388	2190
Pleven	217	145	339	701	744	2317
Ruse	116	181	315	612	660	2387
Severoiztochen rajon	894	656	1566	3116	3400	2522
Varna	142	341	692	1175	1343	3032
Dobrich	273	68	250	591	638	2820
Razgrad	115	72	140	327	344	2081
Silistra	137	38	133	308	322	2106
Targovishte	103	50	138	291	306	2111
Shumen	123	87	214	424	447	2076
Jugoiztochen rajon	365	624	1008	1997	2384	2882
Burgas	170	512	640	1321	1667	3890
Sliven	114	69	205	389	412	1789
Jambol	80	43	163	286	305	1812
Juzhen centralen rajon	939	1382	2119	4440	4902	2365
Kardjali	89	64	170	323	340	1690
Pazarjik	140	160	276	576	613	1938
Plovdiv	305	394	809	1508	1765	2420
Smoljan	81	54	159	294	317	2162
St.Zagora	146	572	426	1143	1220	3163
Haskovo	178	138	280	596	647	2206
Jugozapaden rajon	440	1486	4424	6350	7819	3650
Blagoevgrad	143	235	317	696	735	2120
Kjustendil	56	146	185	387	412	2407
Pernik	46	44	169	258	278	1806
Sofia stolica	35	861	3458	4353	5711	4737
Sofia	159	201	295	655	683	2580

Structure of GVA by economic sectors and regions with data for 1999 at regional level NUTS-2



Methodology for regionalizing Gross Fixed Capital Formation (GFCF)

Defining contents of GFCF at national level

37. Gross fixed capital formation is measured by the value of capital investments made for long term tangible and intangible fixed assets, and major improvements to land during the current period, irrespective of their acquisition (construction or purchase).

38. GFCF is measured by expenditures on acquisition of fixed assets (the actual expenditure on construction activity, on delivery and mounting of fixed assets, including non-finished construction, paid by customer) less disposal of existing fixed assets.

Long-term tangible assets include:

- Dwellings and structures
- Machinery, equipment and vehicles
- Expenditure on planting forests and fruit-bearing plants until reaching their productive age
- Purchases of productive and breeding animals
- Other instruments and equipment

Long-term intangible assets include:

- Foundation and reimbursement expenditures
- Research and development products – products as a result of scientific work
- Patents, licenses, concessions, know-how, trade marks
- Computer software and other intellectual products, purchased goodwill
- Prospecting and drilling and hydrologic prospects
- Designing related to the construction

Acquisition of military equipment is included in IC of General Government.

Data sources used for estimation of Gross Fixed Capital Formation

Main data sources are:

- Annual Balance sheets of General Government units, financial sector enterprises and establishment that compile separate balance sheet. The reports contain a number of attachments with data about: investment, availability and movement of fixed assets;
- Annual reports of incorporated enterprises (with single entry bookkeeping) that present about investment of tangible fixed assets;
- Reports on dwellings construction with information on number of dwellings distributed into three groups (permissions for construction of dwellings, dwellings under construction, finished dwellings approved by legal act).
- Import and export statistics based on Customs declarations:

- Reports on the execution of the State budget.

39. The elements of GFCF are estimated at purchasers' prices (including all costs associated with ownership transfer) if they are bought, and at basic prices if they are produced for own consumption. Data for regional purposes are used at 2-digit levels, which correspond to the National Classification of Economic Activities (NCEA).

The main criterion for regionalisation of long-term tangible assets is the place, where the investments are made.

40. The estimation of dwellings and structures, machinery, fruit-bearing plants, prospecting and drilling and hydrologic prospects and designing related to the construction, is made on the basis of data from the enterprises annual reports on their expenses. The estimates of dwellings and machinery are adjusted for the expenditure of second hand tangible assets. For estimation of expenditure made by households on own-account we use information on construction permissions issued to households.

41. For estimates of expenditure of productive and breeding animals we use data from annual reports of agricultural enterprises /public, cooperative and private firms /and data of annual report for number of animals in private enterprises /5000 municipalities/. We use data by kind of animals in the group of productive and worked animals by regions. Information for import breed animals is received from customs statistics data of firm – direct importers.

42. The estimation of long-term intangible assets for financial and budget institutions follows the region distribution according to the number of the employees.

Program for medium-term future work in the field of regional accounts in Bulgaria

43. In medium-term period, the National Accounts Division intends to adopt the above-mentioned method for calculation of GDP on a regular basis and its practical implementation regarding the estimations of GDP for 1998 and 1999 with National Accounts revised data. We also plan to go back and regionalize the data for 1996 and 1997 with the same method.

44. We will revise our data in the part of data per capita using final results from the Population Census 2001. In addition an experimental research of the possibility to regionalize budget data for local expenditure is foreseen.

ANNEX

Breakdown regions - NUTS 0 to NUTS 3NUTS levels:

Level 0		Level 1		Level 2		Level 3	
As on 1998 average		Geografski zoni (2)		Planning regions (6)		Oblasti (28)	
People	Area	People	Area	People	Area	People	Area
1 000	1 000 km ²	1 000	1 000 km ²	1 000	1 000 km ²	1 000	1 000 km ²
8 257	111	4193	56	1398	19	299	4

NUTS-0: Balgarija**NUTS-1: NUTS-2: NUTS-3:**

Severna Balgarija	Severozapaden rajon	Vidin
		Vraza
		Montana
	Severen Centralen rajon	Veliko Tarnovo
		Gabrovo
		Lovech
		Pleven
		Ruse
	Severoiztochen rajon	Dobrich
		Shumen
		Varna
		Razgrad
		Silistra
		Targovishte
Jizhna Balgarija	Jugozapaden rajon	Sofia stolica
		Blagoevgrad
		Kjustendil
		Pernik
		Sofia
	Juzhen Centralen rajon	Pazarjik
		Plovdiv
		Smoljan
		Kardjali
		Stara Zagora
		Haskovo
	Jugoiztochen rajon	Burgas
		Sliven

		Jambol
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Territorial breakdown of Bulgaria for regional levels NUTS 2 and NUTS 3

Territorial breakdown of Bulgaria according NUTS levels 2 and 3