



Montenegro  
Government of Montenegro  
**Statistical office of Montenegro**  
IV Proleterske 2  
81000 Podgorica  
Tel: +382 (0) 20 230 811  
Fax: +382 (0) 20 230 814  
E-mail: [contact@monstat.org](mailto:contact@monstat.org)

**The explanation for the adjustment of preliminary quarterly data with the data of final annual GDP, for 2012, and revision of quarterly GDP for the I quarter of 2013**

Podgorica, November 2013.

Gross domestic product is a measure of total production of a country, and represents the basic macroeconomic aggregate.

The calculations of annual and quarterly gross domestic product are conducted in accordance with general methodological framework, that are based on principles and definitions of System of National Accounts (System of National Accounts 1993 – SNA 93), European System of Accounts (European System of Accounts 1995 – ESA 95), Handbook on quarterly national accounts (*Handbook on quarterly national accounts - EUROSTAT*), as well as international standards and recommendations for the calculation at the constant prices given in Eurostat manual (*Handbook on Price and Volume Measures in National Accounts*).

The main source of data for the calculation of annual gross domestic product is annual financial statement, in accordance with international accounting standards (balance sheet, cash flow statement, statement on changes in equity and statistical annex, hereinafter referred to as: balance sheet of the company). Balance sheet of the company, in accordance to Law on Accounting and Audit (Official Gazette of RM no. 69/05 and Off. Gazette of RM no. 80/08, 73/10 and 32/11), companies prepare with the balance of 31<sup>st</sup> December of financial year, and they submit it to Tax Authorities of Montenegro till the 31<sup>st</sup> March of current year, for previous year. Taking into consideration legal deadlines for submitting of balance sheet, as well as time

needed for entry and processing of data, earliest release on final data on GDP can be done in September of current year for the previous year (e.g. data on final GDP for current year, and taking into account legal deadlines for submitting balance sheet by the company – 31<sup>st</sup> March of 2014, as well as time for entry of data – July of 2014, and for processing and calculation of GDP – September of 2014, will be released by the end of September of 2014). Taking into consideration time issue and that with the final information on economical activity of economy (GDP), creators of economical politics, and other users, can dispose nine months after the end of business year, Statistical Office has, in compliance with international methodology and available data of statistical system of Montenegro, started on 2011 preliminary estimates of annual GDP, obtained by aggregating of quarterly data. As the legal framework, in sector of financial reporting, and Law on Accounting and Audit (Official Gazette of RM no. 69/05 and Off. Gazette of RM no. 80/08, 73/10 and 32/11), does not foresee preparation and delivery of quarterly balance sheets, except for the shareholding companies which make negligible percentage on non-financial sector, Statistical office uses indirect method of calculation for preliminary assessments of annual GDP, obtained by aggregating of quarterly data. Quarterly gross domestic product is calculated based on indirect method for most of activities, i.e. by using indicators that represent given activity, by extrapolating quarterly values (e.g. for preliminary assessment of quarterly value added in tourism is used data on overnights of tourists , in reporting quarter). As the preliminary results of quarterly gross domestic product are calculated by indirect method, using short term indicators, which are showing trend but not the result of business activity, and annual gross domestic product is calculated based on financial accounts, when final result of business activity of the company is known, all business outcomes and incomes, it's natural that certain differences occur arising from different data sources, that are used in calculation of quarterly and then final annual GDP.

*“Quarterly accounts apply same framework as annual calculations, i.e. these two calculations must be mutually consistent over time. However, in current year there is a time issue, because quarterly data are normally available before annual data. This issue can be solved in a manner that preliminary estimates of annual data, which are obtained by aggregating the quarterly data, adjust to the final annual data, when they become available.” (ESA 95, paragraph 12.06, Eurostat, Luxembourg 1996, page. 249)*

With publication of annual gross domestic product for 2012, there has been an adjustment of quarterly with annual data for 2012, as well as revision of data for the First quarter of 2013. With this method is ensured that sum of the values of quarterly calculations on annual basis is equal to the value of annual calculation. For adjustment of quarterly data with the annual data is used so called “pro ratio” method, or method of proportional distribution of annual variations.

Preliminary results of quarterly gross domestic product are subject of change, or revision until the time when final annual calculation of gross domestic product is published (as outlined in statements for quarterly GDP).

Quality of assessment of preliminary GDP, which is obtained by aggregating of quarterly data, is measured by comparing with the final data of GDP, that are obtained on results of business activities, that are shown in final accounts of company. The following table shows the quality of assessment of GDP for 2012.

**Table 1: The quality of assessment of preliminary GDP for 2012, on quarterly basis, compared with final annual calculation**

	<b>The final data of GDP for 2012,</b> based on enterprises balance sheet (annual accounts)	<b>Preliminary assessment of GDP</b> <b>for,</b> based on short term indicators (quarterly calculation)	<b>The deviation of final data from</b> <b>the preliminary assessment, in</b> <b>thousands of EUR</b>	<b>The deviation of final data from</b> <b>preliminary assessment, in %</b>
	(1)	(2)	(1) – (2)	(1) - (2) / (2)
<b>Nominal value,</b> GDP in current prices, in thousands of EUR <sup>1</sup>	3 148 857	3 276 313	-127 456	-3,89%
<b>Real value,</b> GDP in constant prices, in thousands of EUR <sup>2</sup>	3 151 727	3 216 430	-64 703	-2,01%

The deviation of final data of GDP in relation to preliminary assessment of GDP for 2012 ranges below minimal statistical error (5%), and final data of GDP for 2012 is less than preliminary assessment for 3,89%.

The deviation between nominal growth rate, based on final data (-2, 6%), and nominal rate on quarterly basis (1, 3%) was -3, 9% percentage points.

The deviation between real growth rate, on final data base (-2, 5%), and real growth rate on quarterly basis (-0, 5%) was -2, 0% percentage points.

The following table's shows deviation for gross domestic product, net taxes and gross value added, in absolute and real values.

<sup>1</sup> **The nominal growth rate of GDP, in%** = (GDP in current prices of current year / GDP in current prices of the previous year) \* 100 - 100. GDP in current prices of the previous year (nominal GDP for 2011) was 3 234 060 thousands of Euros. Accordingly, nominal growth rate of GDP, on final annual calculation basis, was -2, 6%, and on quarterly calculation basis was 1, 3%.

<sup>2</sup> **Real growth rate of GDP, in %** = (GDP in constant prices of current year / GDP in current prices of the previous year) \* 100 - 100. GDP in current prices of the previous year (nominal GDP for 2011) was 3 234 060 thousands of Euros. Accordingly, real growth rate of GDP, on final annual calculation basis, was -2, 5%, and on quarterly calculation basis was -0, 5%.

**Table 2. Comparison between the preliminary assessment of GDP on quarterly basis and final annual calculation, 2012**  
– Comparison of relative values –

	2012					
	Nominal growth rate			Real growth rate		
	On the basis of final annual calculation, %	On the basis of quarterly calculation, %	Difference in p.p. (final - quarterly)	On the basis of final annual calculation, %	On the basis of quarterly calculation, %	Difference in p.p. (final - quarterly)
	(1)	(2)	(1) - (2)	(1)	(2)	(1) - (2)
<b>1. Gross domestic product</b>	<b>-2,6</b>	<b>1,3</b>	<b>-3,9</b>	<b>-2,5</b>	<b>-0,5</b>	<b>-2,0</b>
1.1 Net taxes	-3,1	-3,1	0,0	-5,3	-3,9	-1,4
1.2 Gross value added	-2,6	2,2	-4,8	-2,0	0,1	-2,1

The results of annual preliminary gross domestic product obtained by summing of quarterly data for 2012, have shown nominal growth of 1, 3% and real growth of -0, 5%. After the calculation of final annual gross domestic product, nominal rate was -2, 6%, while the real rate was -2, 5%, as shown in table No. 2. The same table shows differences in percentage points.

**Table 3. Comparison between preliminary estimates of GDP, on quarterly basis, and final annual calculation, 2012**  
- Comparison of the absolute values –

In thousands of EUR

	2012					
	Nominal values			Real values		
	On the basis of final annual calculation, %	On the basis of quarterly calculation, %	Difference (final - quarterly)	On the basis of final annual calculation, %	On the basis of quarterly calculation, %	Difference (final - quarterly)
	(1)	(2)	(1) - (2)	(1)	(2)	(1) - (2)
<b>1. Gross domestic product</b>	<b>3 148 857</b>	<b>3 276 313</b>	<b>-127 456</b>	<b>3 151 727</b>	<b>3 216 430</b>	<b>-64 703</b>
1.1 Net taxes	513 243	513 243	0,0	501 499	509 007	-7 508
1.2 Gross value added	2 635 614	2 763 070	-127 476	2 650 228	2 707 423	-57 195

In Table No. 3 are shown differences between value of annual gross domestic product, obtained by summing of quarterly data for 2012, and final annual gross domestic product, in absolute amounts.

Quarterly gross domestic product, which is calculated by applying indirect method, basically is used to show the trend of movement of economic activity.

**Table 4. Preliminary and revised data, I quarter of 2013.**  
– Comparison of relative values –

	Revised data, %		Preliminary data, %		Difference in p.p. (revised – preliminary data)	
	Nominal growth rate	Real growth rate	Nominal growth rate	Real growth rate	Nominal growth rate	Real growth rate
	(1)	(2)	(3)	(4)	(1) - (3)	(2) - (4)
<b>1. Gross domestic product</b>	6,5	1,1	7,4	4,3	-0,9	-3,2
1.1 Net taxes	25,9	1,3	25,9	21,5	0,0	-20,2
1.2 Gross value added	2,8	1,0	3,8	1,4	-1,0	-0,4

Preliminary data of quarterly GDP, for the first quarter of 2013, compared to the same quarter of previous year, showed nominal growth of 7,4% and real growth of 4,3%. Nominal value (in current prices) amounted 675.3 thousand of Euros, while real value (in prices of the same quarter of the previous year) amounted 655.8 thousand of Euros. Data were published on 1<sup>st</sup> July 2013, in accordance with the calendar of publishing of statistical data, before publication of the results of quarterly GDP for 2012.

**Table 5. Preliminary and revised data, I quarter of 2013.**  
– Comparison of the absolute values –

In thousands of EUR

	Revised data, %		Preliminary data		Difference (revised-preliminary data)	
	Nominal values	Real values	Nominal values	Real values	Nominal values	Real values
	(1)	(2)	(3)	(4)	(1) - (3)	(2) - (4)
<b>1. Gross domestic product</b>	635 145	602 725	675 345	655 786	-40 200	-53 061
1.1 Net taxes	119 627	96 250	119 627	115 470	0	-19 220
1.2 Gross value added	515 518	506 475	555 718	540 316	-40 200	-33 841

Revised results of quarterly GDP for the first quarter of 2013 showed nominal value of 635, 1 thousand of Euros and real value of 602, 7 thousand of Euros. Nominal growth was 6, 5%, while the real growth was 1, 1%. Revised data of quarterly GDP for the first quarter of 2013, and preliminary data for the second quarter of 2013, were published together with the data of final annual GDP for 2012, in accordance with the calendar of publishing of statistical data on 25<sup>th</sup> September of 2013.

## Reasons for revision of preliminary data of quarterly GDP for the First quarter of 2013

1. Revision of nominal value from 675, 3 thousands of Euros to 635, 1 thousands of Euros, and rate of nominal growth from 7, 4% to 6, 5%, is result of a different basis for calculation of quarterly GDP, that emerged after adjusting of the preliminary quarterly with the final annual data. With this adjustment, structure of quarterly data for 2012 was changed, which led to minor difference in nominal rate of 0, 9 p.p. At the time of preliminary calculation for the first quarter of 2013, calculation was based on preliminary assessment of annual data of GDP for 2012, obtained as sum of quarterly values.
  2. Revision of real value of 655, 8 thousands of Euros to 602, 7 thousands of Euros, and rate of real growth of 4, 3% to 1, 1% is a result of revised calculation of net taxes, and implementation of different method of calculation, change of data of gross value added for certain activities, as well as change of structure of quarterly data for 2012, which is result of adjustment of quarterly and annual data.
- 2.1 Reason for revision real growth rate of net taxes of 21, 5% to 1, 3%.

Net taxes, according to accounting principle, in first quarter of 2013 relating to the same quarter of previous year, recorded nominal growth of 25, 9 % which represents a very high growth of nominal value. To obtain real value of net taxes, in previous calculation was used method of deflation; i.e. nominal value for certain type of taxes was deflated with certain indexes of price changes. As implicit deflator of net taxes was 4, 4% result was that the real increase of net tax was 21, 5%. The applied method of the calculation is based on prescribed method B, which is defined by handbook on measurements of volume and prices published by Eurostat. In this handbook defined are three methods of calculation of real values: A or B or C. According to the quality and availability of data, and analysis of trend of movement of certain indicators, and their relation with other indicators, selection is made for method of calculation of real values. During the calculation of second quarter of 2013 the conclusion was reached that trend and level of movement of real net taxes is not in compliance with the trend and movement of real gross value added, which in calculation of first quarter considered as temporary aberration, and due to that method B was applied. As, till the moment of calculation of second quarter, there was not at the disposal indicator which will separate real tax increase from efficient tax collection, and with which would additionally deflate nominal value of net taxes, it was necessary to access the use of other available method, which would provide a clearer picture of economic

*„Data produced by national statistical institutes are often subject of audit process as a result of different quantitative assessment, of the same phenomenon that is studied There are various reasons why revision of data need to be performed, e.g. revision may be caused by improvement in techniques that are used by national statistical institute; by improvement of informatics background, by placing it in relation with basic statistics; changes in accounting definitions and classifications...“ (Handbook on quarterly national accounts, paragraph 14, European Communities 1999, Luxembourg, page. 300)*

activity. That was the main reason to access change of, till then used, method for calculation of real values of net taxes, i.e. change of method B to method C, which is calculated on basis of extrapolation of values from previous period, as well as to carry out revision of data for the first quarter.

Application of extrapolation, i.e. method C, to obtain real increase of net tax, implies that the nominal value of net tax from previous period is used (ignoring current nominal value) multiplying it with certain coefficient / indicator that represents real increase. For the application of this method it has been used indicator of real gross value added, corrected with nominal increase of net taxes.

## 2.2 Reasons for revision real growth rate of gross value added from 1,4% to 1,0%

- Availability of new direct data for activity of financial intermediation. In previous calculation they were not completely available. Rate of real growth of this activity, in previous calculation was 0,3%, while in revised calculation is 1,6%;
- Adjusting of the structure of preliminary quarterly data with the final calculation of annual GDP for 2012, has led to change in structure of certain areas (area of activity G Trade and H Transportation), which led to different weighting structure relating to previous calculation. All of this has resulted that implicit rate of growth in these activities is different in relation to previous calculation. Indicators of real growth are the same in both calculations for all areas;
- For activity O Public Administration and defence and mandatory social insurance, which is calculated by direct method, there were slightly changes, which were registered in next quarter. Database for activity O Public Administration and defence and mandatory social insurance is SAP base of Ministry of Finance.

*Handbook, on measuring volume and prices in national accounts, describes three methods by which can be calculated real values, based on which are measured real values. These are the methods A, B and C. Method A involves deflation of output and deflation of intermediate consumption, to specifically calculate output and intermediate consumption in constant prices. Based on calculated output and intermediate consumption in constant prices, gross value added in constant prices is calculated as derived value, i.e. difference of these categories. This is a double deflation method and for its application are needed price indices which are deflating output and intermediate consumption. Method B is method of single deflation of added value and its used when there are not disposable appropriate price indices, for deflation of output and deflation of intermediate consumption, and then is deflated directly added value with the available price index. This procedure involves assumption that prices of intermediate consumption are changing at the same rate as value of output. Method C is method that uses certain indicator that is used to extrapolate the value from the previous period. The selection of method depends from source and quality of data. **Handbook on price and volume measures in national accounts, Chapter 3. A/B/C Methods by transaction category, European Communities 2001, Luxembourg, str. 30)***