

TERRITORIAL DIFFERENCES BETWEEN THE LIVING STANDARDS IN BULGARIAN REGIONS AND DISTRICTS (2010–2017)

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Abstract: *The article reviews differences in the living standard at the level of regions and districts. Living standard is defined and assessed in terms of material living conditions by employing multiple indicators which are grouped in three modules (subject areas): economic development; income and consumption; income inequality and poverty. We employ relevant statistical indicators to measure differences and specific methodology to assess the living standard so that we could rank territorial units according to their distance from the best regional score. The findings of our empirical research of the living standard indicate that: (a) there is a slight trend towards a decrease in the differences between regions, while differences between districts remain the same; (b) there are significant changes in the arrangement of regions and districts according to their scores in the different years of the research; (c) divergent trends are identified in the development of territorial differences measured through the summary scores for the three modules; (d) the living standard has deteriorated in a significant number of the territorial units.*

Key words: *living standard; territorial differences; economic development; income and expenditures; income inequality; poverty.*

JEL: *C43, I31, I32, R11, R13.*

Introduction

Assessing the living standard of the population has been the subject of multiple research works over the last few decades. In related literature, there seems to be no uniform interpretation of the concept or the set of methodological instruments which should be employed to measure living

standard. Although all definitions approach living standard as a multi-aspect category indicating the extent to which the daily (material, financial and social) necessities of the population are met, they differ in terms of the aspects they focus on and the methodology of the assessment. Many research works interpret living standard by focusing on its material and financial aspects (income levels and income distribution, consumption and poverty levels (Corlett, A., St. Clarke, 2017; Atkinson, A., E. Marlier, 2010; Marinov, A., 2017, etc.). Some research works are wider in scope and include definitions and measurement of the social and political aspects of living standard (access to education and healthcare, social security, political freedom, etc.), thus ensuring a more comprehensive presentation and assessment of living standard.

Employed methodologies also differ in terms of assessing and/or measuring the living standard of the population, and may generally be grouped in two categories. The methodologies in the first group are based on identifying a set of indicators which are indicative of the living standard and making an in-depth analysis of those indicators afterwards. Most of the research of living standard conducted in our country or by international research entities employs the methodologies in this group. Research is conducted by employing ready statistical indicators or by carrying out specialized statistical surveys through targeted questionnaires (as in the case of the study conducted by the World Bank¹). The second category of research is based on computing a composite index of welfare by employing the values of the statistical indicators used in the research. To do this, specific methods are designed so that indicators could be ranked according to their weight in measuring the living standard (Sharpe, A., J. F. Arsenault, 2009; Osberg, L., A. Sharpe, 2009; Shopov, G., V. Tzanov, 2015).

The living standard of the population of Bulgaria is subject to several empirical surveys. The World Bank conducted five surveys (in 1995, 1997, 2001, 2003 and 2007), that studied household budgets by employing a specially designed questionnaire. The latest survey reviewed changes in the living conditions in our country before and after its accession to the European Union (World Bank, 2009). Another survey (Marinov, A., 2017) analysed changes in the living standard in our country, defining the living standard as a set of indicators about the GDP, income and consumption, employment and unemployment. The regional aspect of the living standard has also been subject of empirical research (Shopov, G., V. Tzanov, 2015). By employing a set of specially designed methods, the research assessed regional differences (at the level of statistical regions and districts) in the period from 2007 to 2012. Estimates are presented quantitatively (i.e. through indexes) and can therefore be ranked according to the size of those values. Estimates are based on numerous indicators which are divided in 6 modules (income and consumption, poverty and inequality, access to education, access to healthcare, social

¹ The World Bank carries out specialized statistical surveys of the living standard by employing a specially designed methodology: Living Standards Measurement Survey (LSMS).

services and migration). Approaching the issue from different perspectives provides more comprehensive awareness about the living conditions in the different regions of the country.

This research approaches and assesses living standard in terms of material conditions and their distribution among the population of Bulgaria. Hence, the assessment of regional differences in living conditions is narrower in scope and refers to the material and the distributive aspects of the living standard. A number of indicators were selected and grouped in several modules. Regional differences were assessed at the level of regions (NUTS 2) and at the level of districts (NUTS 3). Assessments are based on the accessible statistical data which is regularly provided by the National Statistical Institute (NSI).

1. Indicators and Methodology of the Assessment

1.1. Indicators

The criterion for selecting the indicators about the living standard of the population was to reveal as fully as possible the living conditions of and the existing distribution relation among the population. The national statistics employs a variety of such indicators therefore we selected only those of a more general character. Selected indicators were grouped in three modules:

Module 1 'Economic Development':

- Gross Domestic Product (GDP) per capita – BGN.

Economic development measured in per capita GDP provides insight about the output of goods and services equally distributed among all citizens of a territorial unit. The indicator is directly related to the material dimension of standard of living. An increase in the GDP indicates larger volumes of goods and services available to the population and greater opportunities for their consumption.

Module 2 'Income and consumption':

- Total income per household member – BGN;
- Total expenditure per household member – BGN;
- Mean wage.

Income and expenditure per household member are key indicators for assessing living standard. Total income represents the purchasing power of household members on different territorial units. The level of consumption is represented by the indicator 'Total expenditure per household member' and comprises all expenses on the purchase of goods and services, including food consumption by the household. Since both indicators include all kinds of income and consumer expenditure, they may be employed to reveal the total purchasing power and the level of consumption. Mean wages indicate the price

of labour, on the one hand, and determine the qualitative and the structural characteristics of household income, on the other hand.

Module 3 'Income inequality and poverty':

- Relative share of the population at risk of poverty - %;
- Population at risk of poverty or social exclusion - %;
- Income inequality – Gini coefficient.

The income inequality and poverty indicators give awareness about social stratification. They are essential for assessing the living standards since they reveal the distribution and redistribution relations within a society. The indicators refer to different aspects of inequality in terms of income, poverty and social inclusion. The indicator 'Relative share of the population at risk of poverty' gives information about the share of the population whose income is below the poverty line². Estimates are based on the poverty lines in the territorial units. On the other hand, the indicator 'Population at risk of poverty or social exclusion' is a summary measure of the share of the population that is at risk of social exclusion. The indicator is used to simultaneously measure three major factors: the poverty level, material deprivation and low work intensity of the population of working age. Gini coefficient measures the inequality in the distribution of household income.

1.2. The Methodology of the Assessment

Regional differences are measured by employing indexes which describe quantitatively the living standard of the population on each territorial unit (Shopov, G., V. Tzanov, 2015). The basic features of the methodology may be summarized into:

A. Assessment of territorial differences

Two indicators are used:

The spread measures the difference between the maximum and the minimum values of an indicator (x) in a set of territorial units in the same class. It is computed by the formula:

$$d = x_{max} - x_{min}.$$

The coefficient of variation measures the dispersion or the ratio of standard deviation to the mean value of the indicators:

$$V_{\sigma} = \frac{\sigma}{\bar{x}} \cdot 100,$$

where: σ is the mean square (standard) deviation and \bar{x} is the arithmetic mean of all indicators.

² The poverty line equals 60% of the median equivalised net income.

The following scale is used to assess territorial differences: values below 10% indicate very low variation; values between 11 and 29% indicate low variation; values between 30 and 59% indicate moderate variation; values between 60 and 80% indicate high variation, and values exceeding 81% indicate very high variation.

We compare changes in these measurers over the researched period (from 2010 to 2017) to assess changes in the territorial differences for the indicator or measurer of the living standard.

B. Indicators of living standard

The computation of the quantitative measurers of the living standard is based on a procedure for scaling (standardizing) all indicators which refer to the living standard, thus ensuring that all indicators are comparable. An indicator is standardized by calculating the ratio between the current value of that indicator and the maximum value of the same indicator in the whole set of territorial units. To do so, we use the formula:

$$H_{ij} = \frac{I_{ij}}{\max(I_{ij})} * 100 \quad (1)$$

Where H_{ij} is the standardized assessment of the i -th indicator for the j -th territorial unit; I_{ij} is the value of the i -th indicator for the j -th territorial unit; $\max(I_{ij})$ is the maximum value of the indicator in the group of territorial units; i is the number of indicators ($i = 1, 2, \dots, 7$); j is the number of territorial units³ (at the level of regions $j=1\dots7$; at the level of districts $j=1\dots29$).

When an increase in an indicator implies deterioration of the living standard (as it is the case with the indicators in Module 3 '*Income inequality and poverty*'), formula (1) should be adjusted in order to obtain comparable results. The formula will then be:

$$H_{ij} = \frac{\max(I_{ij}) - I_{ij}}{\max(I_{ij})} * 100 \quad (2)$$

The procedure we follow to do the necessary computation is: first, the maximum value of indicator ($\max(I_{ij})$) is identified for the set of researched territorial units; second, the current value of the indicator is deducted from its maximum value; third, the difference thus calculated is divided into the maximum value of the indicator.

Although these two formulas for standardization of indicators are equivalent, we use them in two different situations. Formula (1) is used when changes in living standard are unidirectional, whereas formula (2) is used for

³ The average value of the indicator for Bulgaria was added to the territorial units at the level of regions and the level of districts to ensure comparability between the values of the indicator for the different territories and its average value for the country.

changes in different directions. The levels of each indicator are thus presented as a percentage, 100% being assigned to the territorial unit with the highest level. The rest of the territorial units are assigned a percentage equal to the ratio between the value of the indicator for them and the highest value of the indicator. For example, if the value of an indicator is 20 for district X and the highest value of that indicator is for district Y and equals 80, district Y will be assigned 100% and district X – 25%.

On the basis of standardized indicators, two summary measurers of living standard are assessed. The first one measures the living standard in each module by employing the indicators included in that module. The second measurer gives a general assessment of the living standard on each territorial unit. The general assessment is based on the total scores in the three modules. Both summary measurers are calculated by employing the so-called Bennett method⁴. By applying that method, we compute a total score (S_j) about the living standard for each module in the j -th territorial unit as the unweighted average of the individual scores H_{ij} for a number (n) of individual indicators. We use the formula:

$$S_j = \frac{1}{n} \sum H_{ij} \quad (3)$$

The integral level of the material living standard (S^T_j) in the j -th territorial unit is calculated as the unweighted average of the individual summary measurers for the three modules:

$$S^T_j = \frac{1}{3} \sum_1^3 S_j \quad (4)$$

Those scores are the arithmetic mean values of the standardized indicators which we earlier represented as percentages. Scores are presented as percentages and indicate the deviation of a real territorial unit (i.e. region or district) from the benchmark which has the best values for each indicator. Territorial units are ranked in descending order.

At the level of districts, territorial units are divided into three groups: the first one is that of districts whose summary scores exceed the average for the country; the summary scores of the districts in the second group fall in the range between the average for the country and the so-called 'critical threshold' which is computed by subtracting from the average score half the difference of the worst and the average score. The districts in the third group are those whose scores are below the defined critical threshold.

⁴ Hristoskov Y. 'Statisticheski analiz na regionalnata infrastruktura', sp. 'Statistika', br. 2, 2014, p. 6-18.

2. Assessment of Territorial Differences in Terms of the Material Living Standard

2.1. Differences between Territories by Individual Indicators

The identified differences between the material living standard in the regions and districts are largely due to the different values of the indicators we employ in our survey for these territories. Hence, the interest in the level of territorial differentiation for these indicators and the trends in its development over the researched period.

Table 1 presents the different values of the indicators at the level of statistical regions. The major differences are those in the values of the GDP per capita indicator.

Table 1

Differences between the values of living standard indicators in the different regions (coefficient of variation - %)

	2010	2011	2012	2013	2014	2015	2016	2017	Growth rate 2010/2017
Per capita GDP	46.8	44.5	42.1	41.1	40.3	41.9	42.0	41.2	-12,0
Total income per household member	9.5	12.8	15.0	17.5	14.1	14.8	14.1	13.1	38,2
Total expenditure per household member	9.3	11.3	13.4	17.9	13.9	18.3	15.4	13.8	48,4
Mean wage	17.8	18.5	18.8	19.0	18.7	19.2	19.1	19.1	6,9
Share of population at risk of poverty	15.0	6.1	8.6	14.4	15.4	13.8	7.5	10.0	-33,3
Share of population at risk of poverty or social exclusion	11.9	10.2	9.8	10.1	11.4	11.4	8.2	8.2	-31,1
Gini coefficient	4.2	5.0	4.1	7.2	2.4	7.9	8.0	7.2	72,3

Source: Computations by the author.

Fluctuations in the values of the indicator are twice to four times as high as those in the values of the other indicators. This is due to the significant differences in the economic development of the regions. Thus the GDP per capita in the South-West Region (where the highest value of the indicator is registered) was 2.8 times as high as that in the North-West Region (the region with the lowest value of the indicator) in 2010 and 2.6 times as high in 2017. A slight downward trend (i.e. a decrease of 12%) in the difference between the values of the indicator was registered during the period.

The differences in the values of the indicators used to measure household income and expenditure are comparatively low. The coefficient of variation is in the range from 9% to 19%. Over the researched period, there was a trend towards an increase in the values of the indicators Total income per household member, Total expenditure per household member and Mean wage. The trend was most apparent for income and expenditure. In the period from 2010 to 2017, the total income per household member increased by more than a third, while differences in total expenditure went up by nearly 50%. Since household expenditure is directly related to household income, similar trends in the development of registered differences were identified. The coefficient of variation for both indicators nearly doubled and then declined in the period from 2010 to 2013. The dynamics of the differentiation in Mean wages was different, though. The coefficient of variation was in the narrow range from 17% to 19%, which indicated that the difference in the remuneration of workers in the regions continued, despite a slight increase during the period (nearly 7%).

Identified trends in the regional differentiation in terms of household income and expenditure are in line with the economic development of the country over the period. The stagnation of the economy from 2010 to 2013 contributed to rising differences between the income and the expenditure of the households in the different regions. The difference grew further due to the different rates of economic development in the different regions. When the economy slightly recovered in the period from 2014 to 2017, that differentiation declined as less developed regions registered growth and an increase in household income.

The lowest differences between the regions are those in terms of the indicators used to measure poverty and income inequality ('Share of the population at risk of poverty', 'Population at risk of poverty or social exclusion' and 'Gini coefficient'). Registered differences are in the range from 4 to 15%, which indicates that the level of income poverty and inequality is nearly the same in all six statistical regions.

In addition, different trends in the values of the indicators were identified. Thus the differences in the values of the indicator 'Share of population at risk of poverty' increased in the period from 2011 to 2014 and then declined, while differences in the values of the indicator 'Share of population at risk of poverty or social exclusion' declined in general. There was a steady upward trend only in the differences between the values of the

indicator measuring income inequality (Gini coefficient). Over the researched period, the coefficient of variation of the indicator nearly doubled.

Differences in the values of the indicators were substantially higher at the level of districts (table 2). This implies that the differentiation of the living standard is greater at the level of districts than it is at the level of regions. Predictably, the most notable differences between the districts are those in the values of the GDP per capita indicator. It should be noted that the trend towards a decline in those differences was rather weak⁵. The dynamics of the changes in the different values of the income and consumption indicators for the districts showed some specific features as well. In the first place, consumption differentiation increased more notably than income differentiation, especially over the last three years of the researched period (from 2015 to 2017). This could hardly be attributed to economic reasons, since incomes are the main source which generates consumption. In the second place, the district differentiation in terms of income from labour remained a constant value. And thirdly, the economic development of the country had only a minor impact upon registered changes in territorial differentiation.

Territorial differentiation in the values of the indicators which measure poverty and inequality was 2 to 3 times as high at the level of districts than it was at the level of regions. Despite the downward trend in its development over the last three years, differences between districts are still relatively high.

Table 2

Differences between the values of living standard indicators in the different districts (coefficient of variation - %)

	2010	2011	2012	2013	2014	2015	2016	2017	Growth rate 2010/2017
Per capita GDP	48.2	45.3	43.9	43.3	43.7	44.1	45.2	45.0	-6,6
Total income per household member	16.6	17.7	19.0	23.0	17.2	19.3	17.5	19.6	18,1
Total expenditure per household member	15.8	16.4	18.8	21.5	18.0	21.6	20.5	23.2	47,2
Mean wage	17.1	17.7	18.1	17.5	17.6	17.8	17.5	17.3	0,7
Share of population at risk of poverty	23.5	21.4	23.4	25.9	27.4	24.2	17.6	19.2	-18,2
Population at risk of poverty or social exclusion	19.9	21.0	16.5	17.6	21.2	20.9	18.0	17.3	-13,1
Gini coefficient	13.3	12.3	14.3	13.8	17.8	13.7	13.2	12.5	-6,5

Source: Computations by the author.

We could therefore arrive at several conclusions: first, the differences between districts are greater than those between regions due to the different

⁵ The coefficient of variation decreased by nearly 7% during the period.

sizes of the territorial units and the registered differences in the values of the indicators. Second, the level of differentiation between territorial units varies for the different indicators, i.e. it is high for some of them and low for others. Third, the identified trends in territorial differences are not the same. Territorial differences tend to decline in terms of economic development, poverty and inequality, and grow in terms of income and consumption both at the level of regions and at the level of districts.

2.2. Differences between the Territories for the Different Modules

This survey assesses material living standard in three modules (subject areas). The summary assessments for each module are based on the scores of the indicators employed in each module.

Module 1 'Economic development'

The summary assessment for this module is based on the GDP per capita indicator since it gives clear and accurate information about the economic development of territorial units (regions and districts).

Table 3 presents the assessments of regions for the years 2010, 2013 and 2017. In addition to the assessments of the six statistical regions, we have also included an assessment of the average level of economic development in the country. There are substantial differences between the regions in terms of the indicator, despite a slight downward trend in their differentiation. The distance between the region with the highest score (the South-West Region) and that with the lowest score (the North-West Region) was approximately 64.2 percentage points (p.p) in 2010 decreasing to 62 percentage points in 2017.

Table 3

Summary assessment for Module 'Economic development' by regions

2010		2013		2017	
South-West region	100.0%	South-West region	100.0%	South-West region	100.0%
BULGARIA	58.3%	BULGARIA	61.9%	BULGARIA	62.7%
North-East region	47.2%	South-East region	52.4%	South-East region	55.9%
South-East region	47.1%	North-East region	51.3%	North-East region	50.4%
South Central region	41.0%	North Central region	43.8%	South Central region	43.8%
North Central region	38.4%	South Central region	43.7%	North Central region	43.6%
North-West region	35.8%	North-West region	38.9%	North-West region	38.0%
Coefficient of variation	42.8%	Coefficient of variation	37.5%	Coefficient of variation	37.6%

Source: Computations by the author.

Over the researched period (from 2010 to 2017), the scores of all regions for the indicator improved. The period from 2013 to 2017 was an exception, though, since the economic situation in the North-West, the North Central and the North-East regions deteriorated. In other words, the economic growth that was registered during the period was concentrated in the regions in the southern part of the country. Nevertheless, during the period there was a trend towards convergence in terms of the economic development of the regions, which led to a decline in the coefficient of variation. The differentiation in the economic development of the regions declined by 5.2 p.p. over the period.

The scores of some of the regions went up, while those of others went down over the three years of the researched period. The best scoring region during the whole period was the South-West Region, while the North-West Region ranked at the bottom. There were changes in the position of regions which ranked in the middle. The situation in the North-East and the South-East Regions improved, while that in the North Central and the South Central Regions deteriorated.

The summary assessments about the economic development of districts are presented in table 4. The differentiation among the districts is strikingly high despite the observed downward trend. The overall decline in the differences of the economic development of the districts during the period was by 3.1 p.p. The processes, however, exhibited a peculiarity – in the years after 2013, there was a slight increase in the differentiation (by 1.7 percentage points) which implies that a faster rate of economic growth over the last three years was mainly observed in economically developed districts. Hence, achieving higher rates of economic growth does not automatically result in lower territorial differentiation. Rather, the latter could be achieved by ensuring the economic growth of less developed districts.

There were no major changes in the positions of districts in terms of GDP per capita over the researched period. The capital city remained at the top throughout the period, while the districts of Silistra, Vidin and Sliven stood at the bottom. The GDP per capita in those districts amounted to 21 – 23% of the GDP per capita in Sofia (city). A major growth in the values of the indicator in the period from 2010 to 2017 was registered in the districts of Stara Zagora (84.6%), Targovishte (62.8%), Ruse (62.8%), Sofia- district (56.1%), Montana (52%) and Yambol (50.6%). The rest of the districts also registered a positive growth which, however, was lower.

The number of districts whose economic development was below the critical threshold⁶ was remarkably high (20 districts) and remained constant over the entire period (the boxes which are highlighted in grey in table 4). There were only minor changes in the number of districts whose level of economic development was above or below the average for the country, too.

⁶ Calculated by subtracting from the average score half the difference between the average and the lowest score.

Table 4
Summary assessment for Module 'Economic development' by districts

2010		2013		2017	
District Sofia (city)	100.0%	District Sofia (city)	100.0%	District Sofia (city)	100.0%
District Varna	42.2%	District Stara Zagora	50.4%	District Stara Zagora	60.6%
BULGARIA	41.7%	BULGARIA	45.9%	District Sofia	48.2%
District Stara Zagora	40.5%	District Varna	45.7%	BULGARIA	47.2%
District Sofia	38.1%	District Sofia	44.7%	District Varna	45.8%
District Burgas	37.0%	District Burgas	40.0%	District Burgas	40.6%
District Plovdiv	33.7%	District Plovdiv	38.3%	District Plovdiv	40.5%
District Vratsa	33.5%	District Gabrovo	36.7%	District Gabrovo	40.4%
District Gabrovo	32.8%	District Ruse	36.3%	District Ruse	38.5%
District Ruse	29.2%	District Vratsa	34.1%	District Vratsa	33.7%
District Smolyan	29.2%	District Razgrad	32.0%	District Targovishte	32.4%
District Dobrich	28.6%	District V. Tarnovo	31.7%	District Lovech	31.3%
District Pazardzhik	28.2%	District Dobrich	31.6%	District V. Tarnovo	30.7%
District V. Tarnovo	27.8%	District Blagoevgrad	31.0%	District Smolyan	30.6%
District Blagoevgrad	27.3%	District Lovech	29.9%	District Yambol	30.5%
District Pernik	26.6%	District Targovishte	29.8%	District Razgrad	30.3%
District Lovech	25.9%	District Pazardzhik	29.5%	District Blagoevgrad	29.5%
District Kyustendil	25.2%	District Shumen	29.5%	District Dobrich	29.4%
District Razgrad	25.0%	District Smolyan	29.2%	District Shumen	28.9%
District Yambol	25.0%	District Yambol	29.1%	District Montana	28.3%
District Shumen	24.9%	District Montana	27.6%	District Kyustendil	26.3%
District Targovishte	24.6%	District Pleven	27.1%	District Pleven	26.1%
District Kardzhali	23.1%	District Kyustendil	25.3%	District Haskovo	26.1%
District Pleven	23.0%	District Kardzhali	25.1%	District Pazardzhik	26.1%
District Montana	22.9%	District Haskovo	25.0%	District Kardzhali	24.3%
District Haskovo	22.5%	District Vidin	24.0%	District Pernik	23.9%
District Vidin	21.7%	District Pernik	23.4%	District Sliven	22.7%
District Sliven	21.2%	District Sliven	23.1%	District Vidin	22.6%
District Silistra	20.3%	District Silistra	22.8%	District Silistra	21.6%
Coefficient of variation	47.3%	Coefficient of variation	42.5%	Coefficient of variation	44.2%

Source: Computations by the author.

The conclusions we could make about the differences between territories for Module 'Economic development' are:

- There are substantial differences in the economic development of the different regions and districts of the country; progress was registered mainly in economically developed regions;
- There was a slight downward trend in the differentiation of the economic development of the territorial units included in the survey; the trend was most obvious during the period of economic stagnation, i.e. from 2010 to 2013;
- There were no significant changes in the scores of the different territorial units; the number of districts where the level of economic development was critically low remained relatively high.

Module 2 'Income and consumption'

The summary assessment for this module is based on scores for the indicators Total income per household member, Total expenditure per household member and Mean wage. These three indicators complement each other and adequately describe the basic parameters of this aspect of living standard.

In contrast to the summary assessments for Module 'Economic development', the differences registered by regions in terms of income and consumption are insubstantial (table 5). The difference between the regions with the highest and the lowest scores is in the range from 26 to 35 percentage points. In general, there was an upward trend in the differentiation of the economic development of regions. The coefficient of variation rose by 3.4 p.p. over the researched period, yet different trends of development were observed. Differences in summary assessments rose by 6 percentage points in the period from 2010 to 2013, while in the period after 2013 there was a slight decrease (by 3.1 p. p).

Table 5

Summary assessment for Module 'Income and consumption' by regions

2010		2013		2017	
South-West region	100.0%	South-West region	100.0%	South-West region	100.0%
BULGARIA	85.6%	BULGARIA	78.7%	BULGARIA	82.1%
South-East region	83.4%	North-East region	72.4%	North Central region	78.4%
North-West region	79.6%	South-East region	70.2%	North-East region	75.6%
South Central region	78.1%	North Central region	66.6%	South-East region	71.0%
North-East region	75.7%	North-West region	65.9%	South Central region	70.9%
North Central region	74.6%	South Central region	65.7%	North-West region	70.2%
Coefficient of variation	10.5%	Coefficient of variation	16.5%	Coefficient of variation	13.4%

Source: Computations by the author.

There were significant changes in the ranking of regions according to the value of their summary scores. The highest scores over the researched period remained those of the South-West Region and the average level for the country. The South- East and the North-West Regions lost their positions after 2010, while the North Central and the North-East Regions moved up. Such changes in the ranks of the regions largely depend on the dynamics of the indicators which are included in the module. The highest growth in the values of the indicator Total income per household member was registered by the North Central Region (76.2%), the South-West Region (60.5%) and the North-East Regions (55.1%), while the lowest growth rates were those in the South-East Region (33.3%) and the North-West Region (37.2%). The situation was similar in terms of the indicator Total expenditure per household member⁷. The dynamics of the indicator Mean wage followed a different pattern, though. The growth rate of remuneration in the different regions of the country was similar⁸, which did not have a major impact on the rank of the regions according to their summary scores.

The summary assessment of the differences between the districts of country is presented in table 6. A number of facts should be accounted for when considering the ranks of the territorial units. First, there are substantial differences between the in terms of the indicators Total income and Total expenditure per household member. Second, there were no major differences between the districts in terms of the median wage and that situation did not change significantly. Third, all indicators are employed with equal weight in the summary assessment. Hence, any differences in the summary assessment are largely due to the differentiation in household income and expenditure.

There were some significant changes in the positioning of the districts during the researched period. The number of districts which ranked above the average level for the country decreased substantially (from 8 districts in 2010 to just 3 in 2013, going up to 4 in 2017). The districts of Sofia (city), Varna and Stara Zagora retained their top position throughout the period. We should note that two other districts moved up to rank among the best scoring districts in 2010 and in 2017 - Pernik and Gabrovo. District Gabrovo, which is in the group of the districts with moderate economic development (see table 2), exhibited the highest rates of growth in household member income and expenditure (by more than 200%). The rank of district Pernik is harder to account for. The district ranked in the group of districts with low economic growth, yet held one of the top positions in terms of income and expenditure. This was probably due to the fact that a large share of the population of the administrative district works in Sofia city and receives higher remuneration.

⁷ The highest growth in the values of the indicator was registered in the North-East Region (78.3%), the North Central Region (78%) and the South-West Region (69.9%), while the lowest one was that of the South Central Region (39.1%) and the South-East Region (39.8%).

⁸ The mean wage grew by 48 to 62%.

Table 6
Summary assessment for Module 'Income and consumption' by districts

2010		2013		2017	
District Sofia (city)	100.0%	District Sofia (city)	100.0%	District Sofia (city)	98.4%
District Stara Zagora	80.8%	District Varna	68.9%	District Gabrovo	81.0%
District Vratsa	79.3%	District Stara Zagora	68.8%	District Pernik	78.1%
District Pernik	77.4%	BULGARIA	67.1%	District Varna	72.7%
District Pleven	77.3%	District Pernik	66.4%	BULGARIA	72.6%
District Ruse	76.8%	District Pleven	65.6%	District Smolyan	72.4%
District Sliven	76.8%	District Gabrovo	64.6%	District Stara Zagora	72.1%
District Smolyan	76.7%	District Vratsa	61.2%	District Pleven	68.9%
BULGARIA	76.3%	District Ruse	59.4%	District Ruse	67.4%
District Varna	75.5%	District Plovdiv	59.2%	District V. Tarnovo	66.9%
District Plovdiv	74.0%	District Burgas	59.1%	District Yambol	64.4%
District Sofia	71.3%	District Smolyan	58.7%	District Sofia	64.3%
District Haskovo	69.3%	District Yambol	58.0%	District Plovdiv	64.2%
District Yambol	69.0%	District Shumen	57.6%	District Dobrich	64.1%
District Burgas	68.2%	District V. Tarnovo	56.9%	District Burgas	63.0%
District V. Tarnovo	67.7%	District Dobrich	55.2%	District Vratsa	62.6%
District Gabrovo	65.8%	District Sofia	55.1%	District Haskovo	61.7%
District Kyustendil	65.3%	District Blagoevgrad	55.1%	District Shumen	60.9%
District Blagoevgrad	64.2%	District Haskovo	52.4%	District Silistra	60.3%
District Montana	63.4%	District Pazardzhik	52.2%	District Razgrad	59.1%
District Lovech	63.4%	District Razgrad	50.9%	District Pazardzhik	58.8%
District Shumen	63.1%	District Vidin	49.8%	District Blagoevgrad	58.0%
District Pazardzhik	62.1%	District Kardzhali	49.7%	District Kyustendil	56.2%
District Dobrich	60.3%	District Kyustendil	48.3%	District Montana	55.9%
District Vidin	59.1%	District Silistra	47.3%	District Lovech	54.6%
District Kardzhali	58.3%	District Montana	47.2%	District Kardzhali	50.6%
District Silistra	57.6%	District Lovech	46.7%	District Targovishte	50.4%
District Razgrad	55.7%	District Sliven	46.6%	District Sliven	50.1%
District Targovishte	52.2%	District Targovishte	46.3%	District Vidin	43.7%
Coefficient of variation	14.2%	Coefficient of variation	18.6%	Coefficient of variation	16.9%

Source: Computations by the author.

There were changes in the group of districts with critically low levels of income and consumption, too. In 2010, the number of districts in that group was 10. It grew to 14 in 2013 and went down to 8 in 2017. At the bottom of the ranking are the districts which scored poorly for all parameters included in the summary assessment. The groups in that category demonstrated low economic potential and insufficient capacity to generate high income of their population (Vidin, Targovishte, Sliven, etc.).

We should also note the growing difference between the performance of the districts and the 100% 'benchmark'. That difference increased both for the districts with the highest and the lowest income and consumption levels and for the other districts. It grew from 47.8 p.p. in 2013 to 56.3 p.p. in 2017 for the first category. In 2013, the scores of all districts in the second category were lower than in 2010, which indicated a growing distance. In 2017, the scores of most districts went up. Despite the improvement, nearly all districts registered scores which were below their level in 2010, the districts of Gabrovo, Dobrich, Razgrad, Silistra and Pernik being an exception. In addition to indicating a growing income and consumption differentiation between the administrative districts, this contributed to the growing contrast in the living standard of the population.

There was an upward trend in the differentiation between districts throughout the period, the coefficient of variation increasing by 2.7. percentage points. Similar to the situation with the statistical regions, the rate of differentiation went up significantly in the period from 2010 to 2013 and declined in the years after 2013.

Hence, we can make the following conclusions about the differences between territorial units in terms of income and consumption:

- The differences registered between regions and districts in terms of income and consumption were not substantial and ranged from 10 to 19%;
- The differentiation among regions and among districts in terms of the values of income and consumption followed a fluctuating pattern of development. It grew substantially in the period of economic stagnation and declined in the period of relatively stable economic growth;
- There were significant changes in the ranking of territorial units. For some regions and districts the situation improved, while other regions and districts moved further down the scale.

Module 3 'Income inequality and poverty'

The summary score of regions and districts for this module is based on their scores for the indicators 'Relative share of the poor' and 'Share of the population at risk of income inequality and poverty'. Both indicators have a negative impact on living standard, i.e. the living standard of the population deteriorates as poverty and income inequality grow. Therefore, all indicators in this module were adapted to the methodology of our research. Accordingly, the summary assessments of the territorial units were synchronized with the

summary assessments in the rest of the modules and were ranked in a descending order.

The summary estimates of the regions are extremely high (see table 7). Although the interregional differentiation for the different indicators employed in Module 'Income inequality and poverty' is not high (see table 1), their integration generated substantial differences. This is due to the major differences in the ranking of regions according to their scores for the different indicators applied to one and the same region⁹.

Changes in the differences between regions followed the same trend as that in Module 'Income and consumption', i.e. initially, they increased and declined after the year 2013. In the period from 2010 to 2013, regional differentiation grew by 5 percentage points and then went down substantially (by nearly 25 p.p.). Furthermore, the distance between the scores of the 'benchmark' region and the region which ranked at the bottom was tremendous, yet indicated a trend to decline. In 2010, the difference amounted to 87.3 p.p., in 2013 it went down to 69.4 p.p., and declined further to 56.4 p.p. in 2017. We could therefore conclude that the 'gap' between the best and the worst regions in terms of poverty and income inequality was narrowing.

Table 7

Summary assessment for module 'Income inequality and poverty' by regions

2010		2013		2017	
South-West region	100.0%	North Central region	83.2%	North Central region	75.2%
South Central region	57.7%	South-West region	50.6%	South-West region	66.7%
North-East region	41.6%	North-West region	34.1%	North-West region	59.9%
BULGARIA	40.6%	BULGARIA	24.8%	South Central region	40.8%
North Central region	32.2%	North-East region	16.4%	BULGARIA	37.6%
North-West region	18.2%	South Central region	14.3%	North-East region	20.4%
South-East region	12.7%	South-East region	13.8%	South-East region	19.3%
Coefficient of variation	66.7%	Coefficient of variation	71.0%	Coefficient of variation	46.4%

Source: Computations by the author.

⁹ In 2010, for example, the harmonized assessments of the South-East Region for the different indicators were Relative share of the poor - 1.2%; Population at risk of poverty or social exclusion - 36.9% and Gini coefficient - 0%. The summary assessment in this case is 12.7%.

The ranking of regions underwent certain changes which were due to the changing values for some of the indicators. The South-West Region, which ranked at the top in 2010, moved down by one position, mainly because the share of the population at risk of poverty and income inequality in the region increased (29.6% and 35.5%). The situation in the North-East region was similar. In contrast, the situation in the South Central Region, which ranked below the average level for the country in 2013, improved and the region ranked above the average level for the country in 2017. This was due to the dramatic deterioration of all three indicators in the period till 2013 and their considerable improvement after the year 2013.

There were some positive changes in the North-West and the North Central Region. After the year 2010, they moved up to the group of regions whose assessment was above the average level for the country. Those positive changes were mainly due to changes in the values of the indicators for poverty and income inequality. In the period from 2010-2017, the poverty level declined by 12.8% in the North-West Region and by 4.5% in the North Central Region. Income inequality, measured through the Gini index, slightly increased in both regions, though (8.6% in the North-West Region and 5% in the North-Central Region).

There are significantly lower differences in the scores of districts in terms of poverty and income inequality, compared to the scores of the different regions (table 8). There was a minor decline (by nearly 3 p.p.) in the differentiation between districts during the period of economic stagnation (from 2010 to 2013), which was followed by an increase by 7.2 p.p. during the period of relatively stable economic growth. Obviously, the economic development of the districts contributed to the differences in their poverty and income inequality levels, yet these differences were also affected by a number of other factors.

The arrangement of the districts with reference to the average level for the country also underwent changes which might be assessed as an improvement. This was mainly the case with the districts which ranked above the average level for the country and the districts below the critical threshold. In the first case, we should note the large share of districts whose level of income poverty and inequality was above the average for Bulgaria. In 2010, more than half of the districts (15) scored better than the average score for the country and despite the growing differentiation, their number increased to 19 in 2017.

There were changes in the group of districts in a critical situation since their number declined, too. There were five of them in 2010, 2 in 2013 and only 1 in 2017. That was district Sliven with a summary assessment representing only 2.1% of the summary assessment of the best-ranking district. The low score of district Sliven was due to the high share of the population at risk of poverty (28.2); the extremely high share of people living at risk of poverty and social exclusion (48.5%) and the highest registered level of income inequality (43.9%).

Table 8

Summary assessment for module 'Income inequality and poverty' by districts

2010		2013		2017 r.	
District Blagoevgrad	94.8%	District Blagoevgrad	91.9%	District Blagoevgrad	89.2%
District Sofia (city)	70.7%	District Kyustendil	90.7%	District Kyustendil	80.1%
District Smolyan	65.2%	District Gabrovo	87.2%	District Pernik	78.9%
District Pernik	63.9%	District Ruse	84.3%	District Silistra	75.1%
District Ruse	63.7%	District Yambol	77.8%	District Targovishte	74.7%
District Kyustendil	62.2%	District Pleven	77.3%	District Pleven	71.9%
District Gabrovo	58.8%	District Dobrich	74.7%	District Razgrad	71.0%
District Sofia	57.3%	District Montana	73.8%	District Gabrovo	65.7%
District Kardzhali	56.5%	District Silistra	69.8%	District Yambol	62.4%
District Plovdiv	55.9%	District V. Tarnovo	66.8%	District Dobrich	56.5%
District Dobrich	55.2%	District Smolyan	66.7%	District Sofia	55.7%
District Burgas	51.5%	District Sofia	64.4%	District Plovdiv	53.3%
District Haskovo	47.2%	District Plovdiv	64.0%	District Haskovo	52.7%
District Varna	47.0%	District Haskovo	63.3%	District Vidin	52.3%
District Vratsa	44.6%	District Razgrad	60.2%	District Sofia (city)	50.6%
BULGARIA	43.7%	District Targovishte	59.2%	District Ruse	50.4%
District Pleven	41.4%	District Sofia (city)	58.9%	District Montana	48.0%
District Vidin	40.6%	District Burgas	58.6%	District Stara Zagora	44.1%
District Pazardzhik	39.6%	BULGARIA	52.7%	District Vratsa	37.2%
District Montana	38.4%	District Pernik	52.6%	BULGARIA	36.1%
District Razgrad	35.1%	District Shumen	45.4%	District V. Tarnovo	35.9%
District Targovishte	34.2%	District Varna	43.9%	District Shumen	35.0%
District Stara Zagora	33.5%	District Kardzhali	42.7%	District Smolyan	33.2%
District Silistra	31.1%	District Vratsa	39.9%	District Burgas	30.4%
District Sliven	26.1%	District Lovech	37.8%	District Kardzhali	28.0%
District V. Tarnovo	25.5%	District Stara Zagora	32.3%	District Pazardzhik	26.9%
District Shumen	25.1%	District Sliven	31.2%	District Lovech	21.8%
District Yambol	22.2%	District Vidin	27.4%	District Varna	20.9%
District Lovech	16.0%	District Pazardzhik	8.5%	District Sliven	2.1%
Coefficient of variation	37.2%	Coefficient of variation	34.4%	Coefficient of variation	41.6%

Source: Computations by the author.

There were changes in the ranks which most of the districts occupied, even though some of them were substantial, while others were insignificant. District Blagoevgrad ranked at the top in the three years included in the research, despite the fact that it did not score the maximum of 100%. This was so because the district was not the leader in terms of all three indicators in the three researched year. Special attention should be paid to the changes in district Sofia (city), which was the best scoring district in the other three

Modules. District Sofia (city) lost its position among the best scoring districts moving down from the second position it held in 2010 to just 17th in 2013 and further down to 15th in 2017. This resulted from the substantial deterioration of its scores for all three indicators¹⁰. Negative changes were also registered in the ranks of districts Varna, Kardzhali, Smolyan, Burgas, Pazardzhik, Ruse, etc., mainly due to the indicators of poverty and income inequality.

A relatively small number of districts (Targovishte, Silistra, Razgrad, Pleven, etc.) underwent positive changes and moved up the scale to the group of districts whose scores were above the average for the country. Improvements in district Silistra were mainly the result of the declining percentage of people at risk of poverty – their share declined from 20.7% in 2010 to 17.2% in 2017, and that of the population at risk of poverty and social exclusion, which was 65.1% in 2010 and went down to 31.7% in 2017. The improvements registered in district Targovishte were due to positive developments for both indicators – the share of the population at risk of poverty and social inclusion declined from 69.2% in 2010 to 36.4% in 2017; income inequality went down from 31.2% in 2010 to 27.7% in 2017).

The trend in the development of another group of districts (Pernik, Vratsa, Lovech) was fluctuating. In 2013, district Pernik moved down the ranking from the groups of districts that scored better than the average level for the country to the group of districts scoring below the average level for the country and then, in 2017, ranked third. The situation with district Vratsa was similar. In contrast to them, district Lovech left the group of the districts with critically poor scores, but its results remained below the average level.

The conclusions which we could be made at after analysing those changes in the summary assessments of regions and districts for Module 'Income inequality and poverty' are:

- The researched territorial units demonstrate the highest level of differentiation, the differences between them being most obvious at a regional level;
- The situation in terms of poverty and income inequality improved both in the regions and the districts of the country;
- There were significant changes in the ranking of territorial units for the module.

¹⁰ In 2013, the percentage of people at risk of poverty grew from 15.9% in 2010 to 22% and then went down to 20.6% in 2017. The situation with the indicator Population at risk of poverty or social exclusion was similar – its value increased from 33.4% in 2010 to 39% in 2013 and then decreased to 31% in 2017. The situation was even more unfavourable in terms of the indicator Income inequality – there was an upward trend in its development during the entire period, the registered growth of the value of the indicator thus amounting to 40% at the end of the researched period.

3. An Integral Assessment of the Differences between Territories in Terms of the Material Living Standard

In compliance with the methodology of this research, the assessment of the material living standard of the territorial units is based on an integral measurer applied to the three modules. The integral measurer is calculated as the unweighted average of the summary assessments for each of the three modules. The integral assessment thus takes into account all changes in the values of the indicators which are applied to measure the living standard.

Table 9 shows the ranking of regions according to the integral assessments of the living standard in each of the. The South-West Region was the region with the highest living standard in the three years included in the research. The region failed to score the maximum of 100% in 2013 and 2017 due to the deteriorating situation in terms of poverty and income inequality. The North Central Region joined the group of the best scoring regions in 2013. The region ranked fourth in 2010, yet moved to the second position in 2013 and 2017. The dramatic improvement in the position of the region was the result of the its high scores for Modules Income and consumption and Income inequality and poverty. The living standard in the North-West Region improved as well. That, however, was due to the better values of the indicators in terms of poverty and income inequality.

Table 9

Integral assessment of the material living standard by regions

2010		2013		2017	
South-West region	100.0%	South-West region	83.5%	South-West region	88.9%
BULGARIA	61.5%	North Central region	64.6%	North Central region	65.7%
South Central region	59.0%	BULGARIA	55.2%	BULGARIA	60.8%
North-East region	54.9%	North-East region	46.7%	North-West region	56.0%
North Central region	48.4%	North-West region	46.3%	South Central region	51.8%
South-East region	47.7%	South-East region	45.5%	North-East region	48.8%
North-West region	44.6%	South Central region	41.2%	South-East region	48.8%
Coefficient of variation	35.1%	Coefficient of variation	29.8%	Coefficient of variation	25.8%

Source: Computations by the author.

The most dramatical decline in the living standard was registered in the South Central Region in 2013. The integral assessment of the region went down by nearly 18 percentage points compared to its level in 2010, which sent the region to the bottom position. This was due to the worse scores of the region for the three modules, especially for module of income, consumption, poverty and income inequality. The situation in the region improved in all

aspects of the living standard in the period of a more stable economic development (2014-2017) and the region moved up the ranking, its score being close to the average for the country, yet remained below that average level.

The differences between the living standards in the regions might be assessed as moderate with a tendency to converge. Over the period, the coefficient of variation decreased by more than 9 percentage points, the downward trend being most obvious in the years of economic stagnation (2010-2013). There were differences both in the groups of regions which scored above and those which scored below the average level for the country. The difference between the integral assessments of the two regions that ranked above the average level for the country slightly increased, while the differentiation in the group of the regions below the average score for the country decreased. The spread between the integral assessment of the country and that of the region which scored worst went down from 17 percentage points in 2010 to 13.9 p.p. in 2013 and fell to 12 p.p. in 2017. Hence the conclusion that the convergence of living standards referred mainly to the regions where the living standard was comparatively low.

There were some changes in the arrangement of districts according to the integral assessments of the living standard in them (table 10), which could be summarized into several aspects.

In the first place, we should note the substantial change in the number of districts in the following groups: 1) districts with high living standard (i.e. above the average for the country); 2) district with a moderate *среден* living standard (i.e. between the average and the worst level) and 3) districts with poor living standard (i.e. below the critical threshold). The number of the districts in the first group declined from 8 in 2010 to 5 in 2013 and then went up to 14 in 2017. The only districts which retained their positions during the three years in the research were Sofia (city), Blagoevgrad and Ruse. The rest of the districts moved down to the scale. In 2013, two other districts (Gabrovo and Pleven) joined the group of the districts with the highest score and remained there in 2017 as well. The number of districts in the group increased substantially in 2017 when some districts (Plovdiv, Pernik, Sofia-District) recovered their initial positions and a few districts from the group of those with the lowest scores (Targovishte, Silistra, Yambol and Razgrad) joined it.

There was a steady downward trend in the number of districts in the group with critically low living standard. The trend was most marked during the period of stagnation (2010-2013), when the number of districts was twice as low. In the period of more notable economic growth (2013-2017), there were only 4 districts in that group. The districts of Lovech, Pazardzhik and Sliven remained at the bottom of ranking over the entire period of the research.

There were major changes in the group of the districts with a moderate living standard. The number of the districts doubled in 2013 and then went down to 10 in 2017.

Secondly, we should note that the differentiation between the districts in terms of the living standard remained relatively low. There were only slight

changes in the value of the coefficient of variation. The more notable differences were those between the districts in each group. In the group of the best scoring districts, there was a trend towards convergence, which is confirmed by several facts. First, the difference between the integral assessment of the leading district (Sofia-city) and the second district in the group (Gabrovo) declined. That was due mainly to the deteriorating integral assessment of Sofia-city. Second, the distance between the scores of the best and the worst performing districts in the group also went down – from 35.7% in 2010 to 30.9% in 2017). Third, the variation of the districts near the average level for the group declined (from 18.6% in 2010 to 13.5% in 2017).

Table 10

Integral assessment of the material living standard by districts

2010		2013		2017	
District Sofia (city)	90.2%	District Sofia (city)	86.3%	District Sofia (city)	83.0%
District Blagoevgrad	62.1%	District Gabrovo	62.8%	District Gabrovo	62.4%
District Smolyan	57.0%	District Ruse	60.0%	District Pernik	60.3%
District Ruse	56.6%	District Blagoevgrad	59.4%	District Stara Zagora	59.0%
District Pernik	56.0%	District Pleven	56.7%	District Blagoevgrad	58.9%
District Sofia	55.6%	BULGARIA	55.2%	District Sofia	56.1%
District Varna	54.9%	District Yambol	54.9%	District Pleven	55.7%
District Plovdiv	54.5%	District Kyustendil	54.8%	District Kyustendil	54.2%
BULGARIA	53.9%	District Sofia	54.7%	District Razgrad	53.5%
District Gabrovo	52.5%	District Dobrich	53.9%	District Plovdiv	52.6%
District Vratsa	52.5%	District Plovdiv	53.8%	District Targovishte	52.5%
District Burgas	52.2%	District Varna	52.9%	District Yambol	52.5%
District Stara Zagora	51.6%	District Burgas	52.6%	District Silistra	52.3%
District Kyustendil	50.9%	District V. Tarnovo	51.8%	District Ruse	52.1%
District Dobrich	48.0%	District Smolyan	51.5%	BULGARIA	52.0%
District Pleven	47.2%	District Stara Zagora	50.5%	District Dobrich	50.0%
District Haskovo	46.3%	District Montana	49.6%	District Haskovo	46.8%
District Kardzhali	46.0%	District Razgrad	47.7%	District Varna	46.5%
District Pazardzhik	43.3%	District Pernik	47.5%	District Smolyan	45.4%
District Montana	41.6%	District Haskovo	46.9%	District Burgas	44.7%
District Sliven	41.4%	District Silistra	46.6%	District Vratsa	44.5%
District Vidin	40.5%	District Targovishte	45.1%	District V. Tarnovo	44.5%
District V. Tarnovo	40.3%	District Vratsa	45.1%	District Montana	44.0%
District Yambol	38.8%	District Shumen	44.2%	District Shumen	41.6%
District Razgrad	38.6%	District Kardzhali	39.2%	District Vidin	39.5%
District Shumen	37.7%	District Lovech	38.1%	District Pazardzhik	37.3%
District Targovishte	37.0%	District Vidin	33.7%	District Lovech	35.9%
District Silistra	36.3%	District Sliven	33.6%	District Kardzhali	34.3%
District Lovech	35.1%	District Pazardzhik	30.1%	District Sliven	25.0%
Coefficient of variation	22.8%	Coefficient of variation	21.6%	Coefficient of variation	22.0%

Source: Computations by the author.

Differences between the districts with a moderate living standard increased. The spread between the scores of the districts which ranked at the top and in the bottom of the group grew from 6.5 percentage points in 2010 to 10.5 percentage points in 2017. Although the difference between the two extreme levels nearly doubled, the increase in the coefficient of variation was insignificant - from 5.2% in 2010 to 7.2% in 2013 and to 6% in 2017).

Throughout the entire period of our research, there was a marked trend towards an increase in the differences between the districts with the lowest living standard. The spread between the scores of the districts which ranked at the top and in the bottom of the group grew from 8.2 p.p. at the beginning of the period (i.e. in 2010) to 12.3 p.p. at the end of the period (in 2017). The coefficient of variation in the integral assessments of the districts in the group was more than twice as high at the end of the period as it was at the beginning (from 6.1% in 2010 it increased to 14.5% in 2017). The declining number of districts in this group was obviously accompanied by growing differences between the living standards in the districts.

The third point to be made relates to the significantly improved living standard in some districts:

- District Gabrovo moved up from the second to the first group of districts ranking second after District Sofia (city). This was mainly due to its better score for the modules Income and consumption and Income inequality and poverty.
- District Pleven ranked better at the end of the research period due to its high scores for module Income and inequality.
- District Silistra showed steady improvement ranking at the bottom of the districts in 2010, joining the districts in the second group in 2013 and then those in the first group in 2017. Over the period, the integral assessment of the living standard in the district grew by 16 percentage points.
- District Razgrad also made a slow transition from the group of the districts with the lowest living standard, through the group of the districts with a moderate living standard, to finally join the group of the districts with the highest living standard. The integral assessment of the district increased in result of declining levels of poverty and income inequality.

Hence the conclusion that the factors which led to the significant improvements in some of the districts are mainly due to their better position in terms of income inequality and poverty and less so to any improvements in terms of income and consumption.

The fourth point we should make refers to the districts whose integral assessments of the living standard substantially deteriorated. Compared to the year 2010, nearly half of the districts scored worse. The most dramatic decline was registered by the districts of Sliven (16.4 p.p.), Kardzhali (11.6 p.p.), Smolyan (11.6 p.p.) and Varna (8.4 p.p.). District Sliven, which remained at the

bottom of the ranking, lost its position due to the extreme decline in its scores for income and poverty. The summary score of the district for the levels of income and consumption went down from level 76.8% in 2010 to 50.1% in 2017, and that for income inequality and poverty declined from 26.1% to 2.1%. District Kardzhali moved to a lower position mainly in result of its poor performance in the sphere of inequality and poverty¹¹. The situation was similar in District Smolyan and District Varna. The score of District Smolyan for inequality and poverty decreased by 32 p.p., and that for income and consumption – by 4.3 p.p. The decrease in the scores of District Varna was less marked.

The changes which were registered in the integral assessments of the living standard are summarized below:

- The integral assessments of a significant number of territorial units declined in the period from 2010 to 2017. The integral assessments of half of the regions (the South-West Region, the South Central Region and the North-East Region) declined, the most dramatic drop being that in the score of the South-West Region (11.1 p.p.). The situation was similar at the level of districts.
- There were substantial changes in the ranking of territorial units (both regions and districts), some of them moving up and some of them moving to lower positions.
- Changes in the living standard of territorial units were mainly due to changes in the sphere of inequality and poverty and less so due to changes in income or consumption. Economic development did not have a major impact on the process, since scores for the Module hardly fluctuated.
- The differentiation in the living standard of the population in the regions and in the districts is different –it declined dramatically at the level of regions, but remained constant at the level of districts.
- Some progress in the positioning of the territorial units is mainly observed in the territories with relatively low economic development which managed to significantly improve the levels of income, consumption, poverty and income inequality. The North Central and the North-West regions are typical examples, and at the level of districts such are Gabrovo, Kardzhali, Silistra and Pernik.

¹¹ The summary score for Module ‘Income inequality and poverty’ declined by 28.5 p.p., and that for Module ‘Income and consumption’ – by 7.7 p.p.

Conclusion

The findings of the research of the material living standard at a territorial level may be summarized into several major conclusions.

First, the methodology we employed enabled us to arrange the territorial units in terms of their position to the maximum level of the researched indicators. The territorial units were thus ranked for the different indicators according to the distance (gap) between their levels and the best level for each indicator. To assess the differences between the territorial units, the most appropriate measurer was used – the coefficient of variation. The modification of the Benet method enabled us to calculate summarized and comparable indicators of the living standard, by taking into account the values of all indicators we employed in the research. Therefore, the set of methodological tools we employed produced relevant and adequate assessments of the differences in the arrangement of territorial units according to the researched indicators of the living standard.

Second, to describe the material living standard, we used adequate and logically sound indicators, which relate directly to the economy, income, consumption, poverty and inequality. They were selected so as to indicate general trends in development without focusing on the specific features of groups or the entities within those groups.

Third, the territorial differences in the summary assessments for the different modules followed divergent trends in their development over the researched period. They were due to the factors which caused them. While there was a slight decrease in the differences in module Economic development, the differences in Income and consumption increased both at the level of regions and at the level of districts. The most significant differences between the territorial units were those in module Income and poverty where the differentiation between the regions declined, but increased at the level of districts.

Fourth, the differences in the integral assessments of the living standard followed divergent trends of development over the researched period. There was a slight trend towards convergence between the regions, while the differentiation between the districts remained. Furthermore, the assessments of a considerable number of the territorial units declined compared to their values in 2010, which was a prerequisite for the declining level of the living standard. Despite those unfavourable trends, the number of districts in a critical situation declined.

Fifth, there were changes in the arrangement of the territorial units both in terms of the employed indicators and in terms of their summary and integral assessments. Some of them were minor, yet others were significant. The slightest changes were registered in the sphere of economic development, therefore the arrangement of districts according to that indicator remained nearly constant. As for the other two modules, the arrangement of the

territorial units underwent more serious changes, which resulted in significant changes in their arrangement according to the integral indicator of the living standard.

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