

DYNAMICS OF HOUSEHOLD INCOME IN THE PERIOD 2010–2018

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Abstract

The current article studies the dynamics of household income in Bulgaria for the time interval from 2010 to 2018. The referred information has been provided from the website of the National Statistical Institute. The surveyed income sources include wages and salaries, self-employment income, pensions, family allowances, unemployment benefits, regular transfers from other households, etc. These data have been extracted, and subsequently, have been processed and analyzed.

An increase in income from wages and salaries has been established during the examined period. The results show a continuous change (decline or growth) in the values of other types of income, average per household and per person. As a whole, it can be concluded that an increasing tendency in the monetary income has been observed for the considered time interval.

Keywords: time series, monetary household income, Bulgaria.

INTRODUCTION

Over the last decades, the amount of data of all kinds available electronically has increased dramatically. Data are accessible through a range of interfaces including Web browsers, database query languages, application-specific interfaces, built on top of a number of different data exchange formats (Colombo et al., 2013).

A large amount of research in the field of economics is based on statistical data, which is often drawn from external sources like data agencies, statistical offices or affiliated institutes (Bahls et al., 2012). In most cases, the referred information can be extracted from the websites of the respective organizations.


After the data is stored in a precise structured format, further analysis and visualization of data is essential to discover the hidden valuable insight from the large dataset. Visualization supports extracting and understanding the information as it is represented in a graphical format. (Mahajan, Gokhale, 2019). The current paper considers part of these listed issues. The studied information includes mainly financial data.

The aim of this article is to present the dynamics of household income in Bulgaria in the period 2010–2018.

MATERIALS AND METHODS

Information about the monetary income of households by sources of income is provided on the website of the National Statistical Institute (NSI)

of Bulgaria (<http://www.nsi.bg>). These data from the examined time series are stored in xls files (fig. 1).

Table	Metadata and methodology
Time series:  HH_1.2.3_en.xls	

a) Annual data

MONETARY HOUSEHOLD INCOME BY SOURCE FOR THIRD QUARTER OF 2018		
Sources	Third quarter of 2018	
	Structure - %	Average per household - Levs
Monetary income	100.0	3 379.31
Monetary gross income	95.6	3 230.77
Wages and salaries	56.2	1 899.44
Other earnings	1.0	33.08
Self-employment income	6.5	220.64
Property income	0.2	7.96
Pensions	27.8	938.57
Unemployment benefits	0.3	11.60
Family allowances	1.3	44.81

b) Quarterly data

Source: National Statistical Institute, Bulgaria

Fig. 1. Considered data from the website of NSI

The current work studies the following incomes:

- Monetary gross income:
 - Wages and salaries;
 - Other earnings;
 - Self-employment income;
 - Property income;
 - Pensions;
 - Unemployment benefits;
 - Family allowances;
 - Other social benefits;
 - Regular transfers from other households;
- Receipt sale;
- Miscellaneous.

The indicated information is saved in a separate file. All these types of incomes have been analysed and summarised for the considered time interval from 2010 to 2018. The growth pace of some incomes, average per household and per person during the examined 9 years period has been studied.

Using the capabilities of MS Excel (Iliev et al., 2006; Levine et al., 2016), users can process and visualize the relevant data. The obtained results have been presented mainly in graphic form and relevant conclusions have been drawn.

RESULTS AND DISCUSSION

The listed incomes, average per household and per person are investigated for each separate year from the indicated time interval. Organising the information in the xlsx file and using lists of data and filters in Excel (Mihaylov, 2016), users can only display one part of the relevant examined objects. In this case, they include:

- Each of the surveyed sources of income for the considered time period. As can be seen from the table. 1A, unemployment benefits, average per household, are presented. The studied data, average per person (Table. 1B), can be visualized similarly;
- Several income sources in the years between 2010 and 2018;
- Chosen sources for one or more selected years;
- Indicated value for a given source of income, average per household or per person.

Subsequently, the referred information has been processed.

The current paper studies the dynamics in household income for nine years time interval. In this connection, the percentage change of the indicated sources of income for each year in comparison with the previous year has been

calculated. The obtained results show the following:

- The income from wages and salaries (average per household) increased steadily throughout the investigated period. It should be noted that the growth pace of this indicator is a little faster during the first 4 years (2010–2013) (fig. 2). Quite naturally, the highest value (7461 BGN) of the referred indicator was registered in 2018, while the lowest (4592 BGN) was obtained in 2010. The change of this income was about 1,6 times at the end of the time interval. A similar situation was established for the income from wages and salaries (average per person);
- A little different is the situation for the income sources from pensions (average per household).

Table 1. Presentation of the unemployment benefits

A	B	C
Year	Income	Average per household - BGN
2010	Unemployment benefits	57
2011	Unemployment benefits	65
2012	Unemployment benefits	67
2013	Unemployment benefits	76
2014	Unemployment benefits	64
2015	Unemployment benefits	48
2016	Unemployment benefits	47
2017	Unemployment benefits	46
2018	Unemployment benefits	46

A)

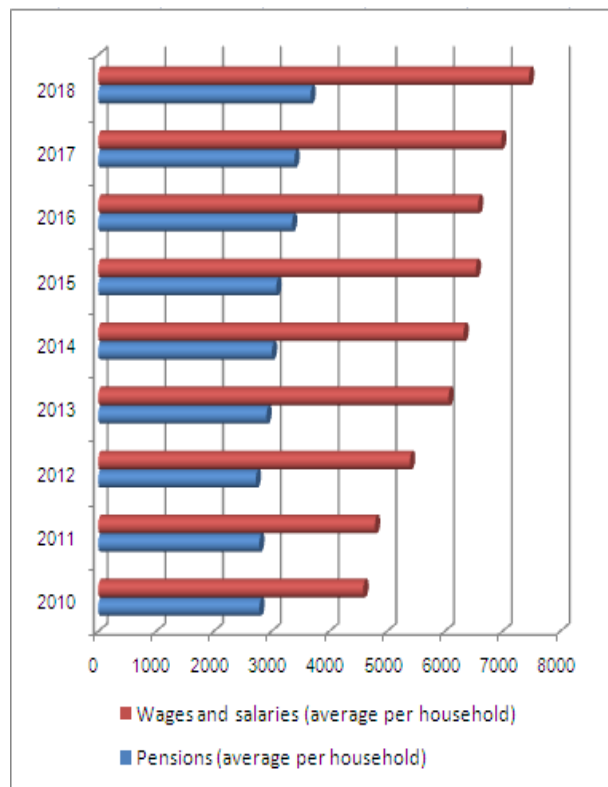
A	B	C
Year	Income	Average per person - BGN
2010	Unemployment benefits	23
2011	Unemployment benefits	27
2012	Unemployment benefits	29
2013	Unemployment benefits	32
2014	Unemployment benefits	26
2015	Unemployment benefits	20
2016	Unemployment benefits	20
2017	Unemployment benefits	20
2018	Unemployment benefits	20

B)

Source: Data from National Statistical Institute

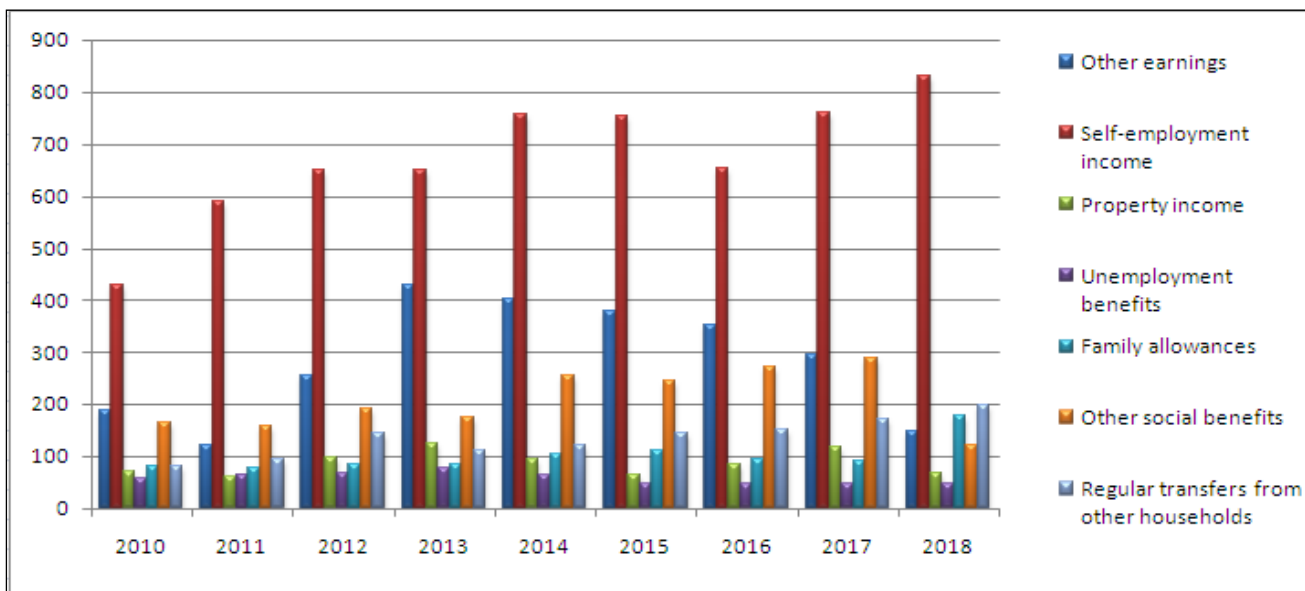
Some decline was observed during two consecutive years at the beginning of the period. The lowest value (2730 BGN) was presented in 2012. In this case, the reduction of the studied income is about 2%. The reverse process was observed in the years between 2013-2018 (fig. 2). The values of the studied indicator rise with faster pace in 2016 and 2018. As can be expected the incomes from pensions (average per person) gradually increased for the examined nine years time interval;

- Income from other earnings (average per household) decreased continuously during the second half of the surveyed period. An interesting fact should be noted. The value of the examined indicator is 147 BGN in 2018 and decreases by 50,34% compared to 2017. The same process was observed with income from unemployment benefits in the years between 2013 and 2018, as can be seen from fig. 3. The highest registered value is 76 BGN and the lowest 46 BGN, respectively. Another fact is of an interest. The incomes from unemployment benefits (average per person) remain unchanged for the last four years of the time interval;
- The situation with the investigated data on other social benefits is quite dynamic. The values of the indicated variable changed each year. They decreased and grew again or vice versa.



Source: Data from National Statistical Institute

Fig. 2. Income from pensions, wages and salaries (average per household)



Source: Data from National Statistical Institute, Bulgaria

Fig. 3. The change of seven studied income sources (average per household) for the considered time interval

One exception is 2016 and 2017, where only a percentage increase of 10,98% and 5,86% in the indicator values were found. Similar results were also obtained for the income from other social benefits (average per person).

- The change of the income from family allowances and self-employment income was about 2,2 and 1,9 times respectively at the end of the period. The highest values of these two indicators are 178 BGN and 831 BGN. The highest decline in the values of property income was calculated in 2018. Compared to the year 2017, the examined

variable decreased by 42,37%. In this case, the obtained value is approximately equal to those in 2011 and 2012.

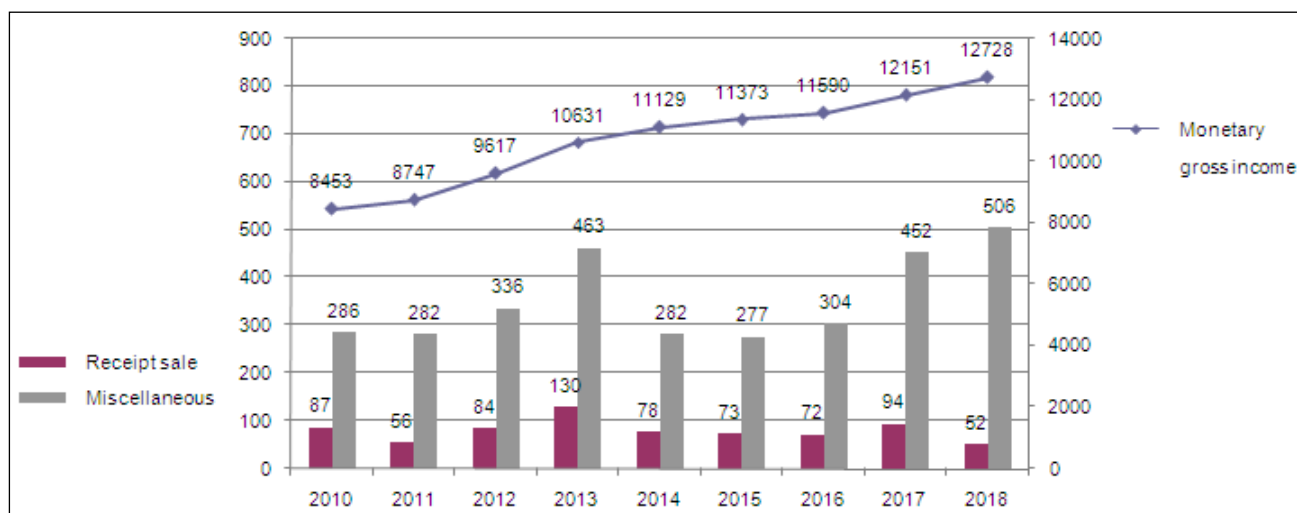
The analyzed information about the listed above seven types of income sources is shown in figure 3.

Data concerning investigated incomes, average per person have been summarized. A pivot table has been created for this purpose. The total sum of the examined sources, in the years between 2010–2018, was calculated. Applying certain filters, the chosen subsets were displayed, as can be seen from table 2. In addition, the sum of the considered values for each surveyed income was visualized.

Table 2. Results about the examined incomes, average per person

Sum of Average per person - BGN	Year <input type="text" value="2012"/>							
Income <input type="text" value="Unemployment benefits"/>	2012	2013	2014	2015	2016	2017	2018	Grand Total
Unemployment benefits	29	32	26	20	20	20	20	167
Family allowances	35	36	42	46	40	39	79	317
Other earnings	108	181	166	158	150	129	66	958
Other social benefits	80	74	105	103	116	126	54	658
Pensions	1153	1229	1242	1286	1432	1479	1645	9466
Property income	41	52	39	27	36	51	30	276
Self-employment income	275	274	313	314	278	331	371	2156
Wages and salaries	2281	2557	2610	2726	2807	3038	3336	19355
Grand Total	4002	4435	4543	4680	4879	5213	5601	33353

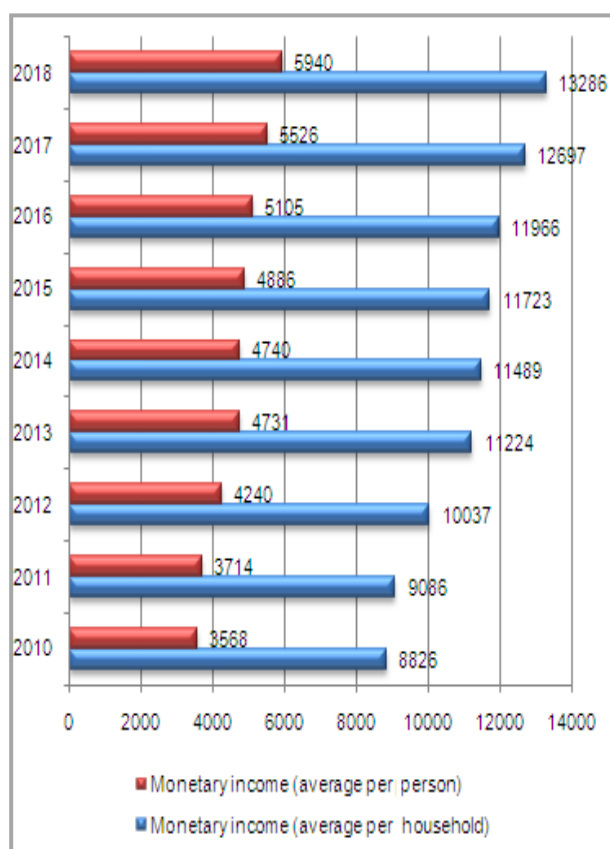
Source: Own calculations on the basis of data from the National Statistical Institute



Source: Data from the National Statistical Institute of Bulgaria

Fig. 4. Graphical visualization of the three types of income sources (average per household) for 2010–2018

The columns in figure 4 present the values of two incomes: receipt sale and miscellaneous (shown on the primary vertical axis), whereas the line presents the values of the monetary gross income (shown on the secondary vertical axis). Some variation (decline or growth) in the two listed indicators was observed in 2010–2018. The growth pace of the values of the third indicator (monetary gross income) is faster in the first half of the period. Practically, the increase in this income was more than 1,5 times at the end of the studied time interval.



Source: Data from National Statistical Institute

Fig. 5. Presentation of the change of monetary income in the period 2010–2018

As can be expected, a steady increase in the values of the monetary income (average per household and per person) for the surveyed period is observed. However, it should be noted that the growth of this variable in 2011 and 2014–2016 is lower in comparison with this from the other years of the surveyed time interval (fig. 5).

Quite naturally, the highest values 13286 and 5940 BGN, respectively were registered in 2018.

CONCLUSIONS

1. This paper studies the dynamics of household income in Bulgaria for the time interval from 2010 to 2018. The referred information has been provided from the website of the National Statistical Institute. Data concerning wages and salaries, pensions, unemployment benefits, family allowances, self-employment income, etc. have been processed and analyzed.

2. The results showed that the incomes from wages and salaries (average per household and per person) increased continuously over the investigated period. A similar situation was also obtained for the surveyed data on pensions (average per household) after 2012.

3. A gradual decrease in the income from unemployment benefits and other earnings (average per household) was established in the years from 2014 to 2018. The values of the first listed indicator (average per person) remained the same for the last four years of the period.

4. Other types of income are continuously changed (reduce or increase) during the considered time interval.

5. In addition, it can be concluded that an increasing tendency in the monetary income (average per household and per person) was observed for the examined time interval 2010–2018.

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