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An Overview of Poverty Measurement in Bosnia and Herzegovina

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Abstract

In the last two decades poverty indicators in Bosnia and Herzegovina were calculated on the basis of data collected within Living Standards Measurement Survey (LSMS) and Household Budget Survey (HBS). Since 2003, European Union member states use Statistics on Income and Living Conditions (EU-SILC) for data collection related to living standards and poverty measurement. Two pilot ILC surveys were conducted in Bosnia and Herzegovina in order to test survey methodology, both in terms of the cross-sectional and longitudinal data collection.

LSMS in Bosnia and Herzegovina was conducted in 2001 and 2004, while HBS was conducted four times: in 2004, 2007, 2011 and 2015. In both surveys, household consumption expenditure was used as a monetary measure of people`s well-being. Within the LSMS, the poverty methodology was based on the concept of absolute poverty, which was developed by the World Bank. Since 2004 and the first HBS, European methodology of relative poverty and modified OECD equivalence scale become a standard for official poverty measurement. From the first full-scale ILC survey, which should be conducted in 2019, income will be used as a monetary measure of living standards and poverty, which will be a significant progress in the harmonization of poverty measurement. There is a lot of room for further improvement, especially in terms of survey instruments design, which should allow the collection of data needed for the calculation of more SDG indicators.

The aim of this paper is to give an overview of poverty methodology development in Bosnia and Herzegovina, progress made towards harmonizing poverty statistics and to point out still existing constraints. It focuses on main definitions, data collection tolls, monetary measures and methods used for poverty analysis. These topics will be discussed in relation to monitoring the 2030 Sustainable Development Goals and the possibilities for disaggregating SDG indicators by standardized dimensions. The paper ends with conclusions and several proposals for future work.

Keywords: poverty, methodology, income, consumption expenditure
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1. Introduction

Global socio-economic environment is rapidly changing over the past decades. However, very rapid global economic development was not followed by an adequate social progress and the gap between the rich and the poor constantly increases. The concentration of wealth becomes extreme and it creates a very few individuals possessing huge wealth, on the one hand, and a lot of extremely poor people on the other hand. For all these reasons, poverty reduction became an

important part of strategies of development in every country in the world. This issue is particularly crucial for transition countries and societies without well-developed social security systems, which often suffer of extreme poverty and huge inequality in terms of available resources. At the international level, UN agencies developed the agenda for 2030 Sustainable Development Goals, whose aim is to balance the three main dimensions of sustainable development: the economic, social and environmental. This global framework should stimulate actions towards the integrated and indivisible human development. A significant part of this agenda is dedicated to worldwide reduction of poverty and inequality. Therefore, poverty measurement and analysis have been key aspects of government's developing strategies for years.

There are various approaches, definitions and data collection methods for poverty measurement across countries. Their variability allows the diversity in describing these phenomena, but it also reduces the possibility for comparisons of poverty and inequality levels between countries. Need for standardization of poverty statistics is increasing and it reflects in the standardization of surveys and methodologies for measuring, analyzing and monitoring of poverty and social inclusion.

There are two main methodological issues defining poverty assessment methods:

(i) which monetary measure of well-being is used: consumption expenditure or income, and
(ii) which poverty line is used: absolute or relative?

Bosnia and Herzegovina started to measure poverty and social inclusion within Living Standards Measurement Survey (LSMS) in 2001 and 2004 and within Household Budget Survey (HBS) in 2004, 2007, 2011 and 2015. The change in survey collecting data for poverty analysis also meant changing the methodology of measuring the poverty, i.e. switching from absolute to relative poverty measures. In order to introduce EU-SILC as a European standard in measuring poverty, the Agency for Statistics of Bosnia and Herzegovina conducted two SILC pilot surveys, while the first full-scale SILC should be conducted in 2019.

This paper aims to give an overview of poverty methodology development in Bosnia and Herzegovina and progress made towards the standardization of poverty statistics, as well as to point out still existing constraints. In section 2, the overview of basic references on poverty measurement is presented. Section 3 deals with the methodology of poverty measurement in Bosnia and Herzegovina over time. In the section 4 we present newest efforts for methodological harmonization of poverty. The paper ends with conclusion and proposal for future work.

2. Literature review

Many relevant authors discussed whether income or consumption is better monetary measure of well-being. By analyzing this issue, authors put this topic in the relationship to the level of development of the country. They examined the effect of the used measure of well-being on specific population subgroups (for ex. poor and rich households, families with children, single parents households, low-educated single mothers, disabled, elderly people, jobless households, etc.) in order to define their correlation and to be able to select better welfare measure (Somun,

Delalić, Šabanović, 2017). Comparing the power of consumption and income in poverty measurement, Meyer and Sullivan (2003) analyzed their percentile distributions and found out that consumption approach is better in assessing the poverty of disadvantaged families. They also recommended the use of income as the main eligibility criteria for transfer programs because of its ease of reporting. The authors analyzed reporting possibilities of both monetary measures in the context of developing level of the country, which justifies the use of income or consumption approach.

Use of consumption or income in measuring inequality over time was discussed by Johnson et al. (2005). For this purpose, the authors used Gini coefficient as an inequality measure and examined distribution of income and consumption over different types of households. They concluded that, in many cases, it does matter, which measure is used for measuring inequality. The authors suggested using both measures for each household to evaluate its well-being and resulting distribution of resources.

Slesnick (1993) concluded that consumption based poverty indicators are substantially lower than those based on income, but he recommended the use of consumption for identification of people who need social assistance.

The dilemma of calculating an absolute or relative poverty line was also a subject for discussion of many authors. Foster (1998) discussed the age-old question whether an "absolute" or a "relative" approach in measuring poverty should be used. Instead of confronting the two methods, the author went on to combine them. He presented a "hybrid" approach to setting the poverty threshold that is, unlike the absolute method, sensitive to changes in the general living standard, but less sensitive than a purely relative approach.

Sen (1983) stressed the absolute nature of poverty, which stays irrespective of its relative dimensions. From the other hand, he underlined the value of the relativist contribution in opening up the question of how poverty lines should be determined. He also stressed that the relative approach prevented the premature proclamation of victory over poverty, which is one of hypothesis of the absolute approach.

Ravallion (1992) believed that the poverty line needs not be defined stringently but must retain its absolute character to allow comparisons.

The literature review has highlighted following elements:

a) There are substantional differences in poverty rates based on income or consumption, since percentile distributions of income and consumption are different, especially for specific population subgroups;
b) The choice of monetary measure of poverty has an impact on effects on national and international activities in developing comparable and reliable measures for monitoring the first Sustainable Development Goal (SDG) on ending poverty;
c) The level of development of the country influences the choice of monetary measure of poverty and the nature of the poverty line;
d) The majority of authors suggested the use of both monetary measures or their combination in assessing the poverty,

and many more.

3. Methodology of poverty measurement in Bosnia and Herzegovina

The first poverty assessment in Bosnia and Herzegovina was made in 2001 within the Living Standards Measurement Survey (LSMS). It was the first post-war survey, whose aim was to produce basic statistical data on Bosnian population in terms of size, socio-demographic structure, living standard, employment and other activities. For this purpose, the LSMS was a very complex survey, whose instruments consisted of following modules:

M1: Roster of household members;
M2: Housing;
M3: Education;
M4: Health;
M5: Labor;
M6: Credit;
M7: Voucher/Certificate;
M8: Migration;
M9: Social assistance;
M10: End of first visit;
M11: Household consumption;
M12: Non-agricultural household business and activities;
M13: Agricultural activities.

Since this survey was prepared and implemented in the co-operation with the World Bank, the natural choice of poverty methodology was related to absolute measure of this phenomenon. There were also other factors determining the selection of this approach: low development level of the country that time, transition of the Bosnian economy, comparison with other countries, etc. Parallel to the implementation of absolute method in assessing poverty and on the basis of similar criteria, the consumption expenditure was selected as a monetary measure of well-being. The LSMS was repeated in 2004 by using the same methodology of poverty analysis in order to allow monitoring changes in living standard of the population.

Within the poverty analysis based on LSMS, following poverty and inequality indicators were produced:

(i) Head Count;
(ii) Poverty Gap;
(iii) Severity of Poverty;
(iv) Shortfall.

a) Gini coefficient;
b) Gini coefficient using OECD scale;
c) Theil index;
d) Entropy index;
e) S90/S10;
f) S50/S10;
g) S90/S50.

The majority of poverty and inequality indicators were disaggregated by regions (Bosnian entities), type of location (urban, rural and mixed), age, war displacement status, education of the head of household, employment status of the head of household, employment status of adults and household size.

In the same year, efforts in implementing European regulation and methodology in measuring poverty have led to the implementation of household budget survey (HBS) in Bosnia and

Herzegovina. Survey instruments were designed to collect data on consumption expenditures of households by COICOP classification. For this purpose, following three survey instruments were used:

(i) Diary of purchase;
(ii) Self-consumption diary;
(iii) Final interview.

The Diary of purchase was kept for 14 days in order to collect data on goods and services purchased on the market. The self-consumption diary was used to record consumption of goods, which were produced by households themselves and consumed within 14 days of diary keeping period. Both diaries were self-completed by every selected and responding household. The Final interview was used in order to collect data on consumption expenditure for all other goods and services of the final household consumption, as well as for basic data on household income. The aim of the income module was to allow the comparison of consumption and income data and poverty analysis on the basis of both monetary measures.

Unlike to LSMS, in HBS relative poverty line was calculated as 60% of national median household equalized consumption expenditure. For this purpose, the modified OECD scale was used and this approach was considered as a step forward in the harmonization of poverty methodology. That was in line with the orientation of the Agency for Statistics of Bosnia and Herzegovina towards European standards and regulations. Although data on household income was also collected within HBS, this data was considered as underestimated in comparison to consumption data and income data was not used for poverty analysis.

In the second household budget survey in 2007 the same relative poverty methodology was implemented. In comparison to the previous household budget survey, the income module within the Final interview questionnaire was better designed in order to collect data on every kind of income at household level. The aim of this module was to improve data collection on income in order to allow poverty analysis also by income approach. Despite the improved income module, data on income was again considered as underestimated and was not used for poverty analysis.

Upon experiences from previous two household budget surveys, income modules within household budget surveys in 2011 and 2015 were significantly improved in order to record income data at level of household members. Income data were split into two parts: (i) income from employment and properties and (ii) income from pensions, social benefits and savings.

Except these improvements, in HBS 2011 following two ad hoc modules of EU-SILC type were introduced in order to get more data for the calculation of social indicators:

a) Social inclusion and migration;
b) Health and health services.

Each ad hoc module was applied on a different half of the HBS sample in order to reduce respondents' burden. These ad-hoc modules were designed as a bridge to EU-SILC in nearest future.

The only difference in survey instruments in HBS 2015, compared to HBS 2011, was the integration of ad hoc modules into one module on health and social inclusion, which was implemented on the whole HBS sample. Feedback on income data in this survey was the same as in previous survey: income data was still considered as underestimated and was not used in poverty analysis.

On the basis of household budget survey data, following poverty and inequality indicators were calculated:

(i) Poverty incidence at household level;
(ii) Poverty incidence at individual level;
(iii) Poverty gap.

a) Gini coefficient
b) S80/S20.

The majority of these indicators were disaggregated by regions (Bosnian entities and Brcko district BiH), type of location (urban, rural), type of households, size of households, age, sex, education and employment status of the head of household and age and sex of household members.

Except the standardized poverty threshold set at 60% of median household equalized consumption, the poverty threshold was also set at 50% and 70% of median household equalized consumption in order to show a relative nature of the poverty line.

It is very evident that there are problems in collecting and analyzing income data in Bosnia and Herzegovina. There are several reasons for that and the main ones are as follows:

(i) Bosnian households were reluctant to submit income data;
(ii) Interviewers did not give enough attention to the income module during the interview;
(iii) Field work controls were not enough effective in order to detect violation of the methodology of data collection;
(iv) Income data was never edited nor imputed as consumption data and the analysis of income data was only performed on raw data on income. Such an approach did not allow a correct comparison of consumption and income data and it was one of reasons that income data were not used for poverty measure.

These reasons have to be considered in the preparation phase of next surveys aiming to collect income data for the purposes of poverty analysis. Income data are condition sine qua non for fully harmonization of poverty methodology in Bosnia and Herzegovina.

4. Recent efforts in harmonizing poverty methodology

The Agency for Statistics of Bosnia and Herzegovina is strategically oriented to the harmonization of statistical methodologies to European standards and regulations. In terms of poverty analysis, it means the introduction of survey on income and living conditions (EU-SILC) and defining the relative poverty line as 60% of national median household equalized income. For these purposes, the Agency for Statistics conducted two pilot ILC surveys in the period 2015-2017. The first pilot survey was cross-sectional survey aiming designing of SILC instruments for data collection, organization of all field work activities, data processing and

analysis and preparation of data files and quality report for Eurostat. The second pilot survey was designed as longitudinal survey.

In both pilot ILC surveys there were two survey instruments designed for data collection:

(i) Household questionnaire and
(ii) Household member questionnaire.

Data collection was performed by using CAPI technique on the basis of software application in Blaise, which was prepared by the Agency for Statistics of Bosnia and Herzegovina. In collecting data, all relevant definitions and international statistical classifications were implemented. The design of pilot ILC surveys allowed the calculation of following poverty and inequality indicators:

(i) At-risk-of-poverty rate;
(ii) At-risk-of-poverty rate before social transfers;
(iii) Relative at-risk-of-poverty gap;
(iv) People at-risk-of-poverty or social exclusion;
(v) Persistent at-risk-of-poverty rate (in future).

a) Gini coefficient;
b) S80/S20.

All these indicators can be disaggregated by sex, age, education and activity status of household members, as well as by type of household, work intensity of household and its tenure status. The calculation of these indicators is also possible for specific demographic and socio-economic sub-groups, as elderly people, pensioners, single parents, and households with children, disabled people and other vulnerable groups.

The main aim of the pilot surveys was the completion of ILC survey methodology and the preparation for the introduction of the first full-scale EU-SILC in Bosnia and Herzegovina in 2019. Final data sets at level of household and household members were sent to Eurostat in SPSS format. The quality reports were prepared for both pilot surveys and in this way, almost every methodological aspect of this survey was covered.

Although a lot of job was done in order to introduce ILC survey in Bosnia and Herzegovina, there are also several drawbacks, which were caused by late starting of both pilot surveys, insufficient number of staff in statistical offices and insufficient methodological support of experts in some survey phases and/or specific survey activities (such as net-gross conversion of EU-SILC income variables, calculation of cross-sectional and longitudinal weights, standard error calculation, calculation of complex social indicators, etc.). This is a room for further improvement in the preparation of the first full-scale ILC survey and for direct technical assistance of Eurostat experts in nearest future.

5. Conclusions

There are two main issues, which have to be defined in measuring poverty in terms of lack of monetary capacities to meet basic needs. The first one is related to the monetary measure, which is used for the calculation of poverty line. Regarding this issue, there are two main monetary aggregates, which are usually used for this purpose: income and consumption expenditure. The

second issue is related to the nature of the selected poverty line, where absolute and relative approaches exist.

Bosnia and Herzegovina always used household consumption as a monetary measure of the poverty of its population. Although income data were collected, for several reasons, this data was never used for official assessment of poverty in the country. The most important reason for such behavior was low quality of income data, which was considered as significantly underestimated. The selection of consumption approach was explained as better option for the country in transition and with unreliable administrative sources of data.

But, situation regarding the nature of the poverty line was changing over time. The first poverty assessments within LSMS in 2001 and 2004 were made on the basis of absolute approach, where the World Bank methodology was applied. Since 2004 and the first full-scale household budget survey in Bosnia and Herzegovina, the European methodology of relative poverty was accepted as a standard approach in measuring poverty. But, due to the lack of reliable income data, poverty threshold was set to 60% of national median household equalized consumption expenditure. For this reason, the poverty methodology in Bosnia and Herzegovina is still not fully harmonized to European standards and regulations.

Since the strategic orientation of the Agency for Statistics of Bosnia and Herzegovina is fully methodological harmonization to European standards in Statistics, a lot of efforts were made in order to introduce European survey of income and living conditions (EU-SILC). In coordination with Eurostat two pilot ILC surveys were conducted in the period 2015-2017 and the majority of methodological preparation for the first full-scale ILC survey was successfully done. Survey instruments were designed and tested in order to allow the collection of all relevant data for poverty analysis and for the disaggregation of poverty indicators by main socio-demographic characteristics of Bosnian population (sex, age, education, employment, disability, size and type of households, type of location, geographical regions, etc.). In such a way, the Agency for Statistics will be able to calculate the majority of indicators within the first Sustainable Development Goal - End poverty in all its forms everywhere.

However, there is still a lot of room for improvement of poverty methodology. First of all, the net-gross conversion of EU-SILC income variables should be improved. Within the two pilot ILC surveys, this conversion was made by using simple model, which was made by Bosnian statisticians by respecting the valid income legislative. The improvements should go towards the implementation of the Siena Microsimulation model (SM2), which should facilitate this issue. A bigger methodological support is expected from Eurostat in terms of the calculation of cross-sectional and longitudinal weights and standard errors of survey estimates, as well as in the production of complex social indicators. Parallel to these methodological assistances, an adequate software support is needed. The Agency for Statistics of Bosnia and Herzegovina does not possess SAS and therefore there is no possibility to use several tailor made SAS based applications for various statistical-methodological calculations. Among them, the methodological and software support is especially needed in data editing and imputations phases, as well as in data analysis. One very important issue for appropriate implementation of full-scale EU-SILC in Bosnia and Herzegovina is an updated sampling frame, which does not exist.

Although the Census of population was conducted in 2013, its results are still not used for sampling purposes.

Apart of the above mentioned drawbacks, there are two positive facts regarding the implementation of EU-SILC in Bosnia and Herzegovina. Fist one is related to current activities in creating the sampling frame for sample selection for household surveys in Bosnia and Herzegovina. These activities started in the last quarter of 2017 and would be financially supported by European Commission in Bosnia and Herzegovina and Eurostat. The second fact concerns the budget for SILC data collection, which was provided almost three years ago by courtesy of the World Bank and Trust Fund for Statistical Capacity Building.

Finally, we can conclude that a lot of methodological job was done in the last two decades in order to introduce and to standardize the poverty measurement in Bosnia and Herzegovina. These efforts have increased the level of the harmonization of poverty methodology with European and international standards. Further work should be focused on improvements in few surveys stages and methodological activities, as explained before, and to fine tuning of survey instruments and the field work organization for data collection. From the point of view of the Agency for Statistics of Bosnia and Herzegovina, efforts should be made in increasing the number of employed in living standards division and in better coordination with entity statistical offices.

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