Welfare Analysis in Montenegro using the Household Budget Survey Series

A Methodological Note, including some results from the 2005 and 2006 HBS[1]

Podgorica, February 2008

Abstract

This note presents the key figures related to the level and profile of poverty in Montenegro for the years 2005 and 2006. Poverty estimates are based on the newly established national poverty line which is constructed in line with the methodology recommended by the World Bank. Calculations rely on the Household Budget Survey data collected by the Monstat. We find that 11.3 percent of the population or almost 71 thousand of Montenegrins lived in poverty in 2006. The poverty rate stagnated between 2005 and 2006, but the depth and the severity of poverty declined. Consumption and income inequality also declined. Further analytic work is presently underway on preparing updated poverty estimates for Montenegro using data from the 2007 HBS.

Analysis of the consumption patterns and profile of the poor shows that the poor in Montenegro, as in many other countries, have disadvantageous diet and expenditure pattern, and that they are deprived in housing standard and access to publicly provided services. Large households are more likely to be poor. Education and labor market status of the household head influence strongly poverty status of the people in the household. The poverty risk is the lowest for those headed by a person with higher education and a person in paid employment. Rural population faces substantially higher risk of poverty than urban population. We also find a higher poverty incidence in the North than in other parts of the country.

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1. INTRODUCTION

1. This note describes the main steps applied to set the new national poverty line for Montenegro and presents the key figures on poverty for the years 2005 and 2006. The new set of poverty estimates derived based on this poverty line rely on the Household Budget Survey (HBS) data and should be distinguished from previous poverty estimates that were based on the LSMS data (see Radević and Beegle, 2002; and subsequent papers from the ISSP). Switch to the HBS as the main data source for poverty analysis enables continuous monitoring of changes in poverty because the HBS is a regular annual survey conducted by the Statistical Office of Montenegro (Monstat). It also enables Monstat and the Government of Montenegro to autonomously conduct poverty analysis of their highest interest. However, it is important to emphasize at the outset that direct comparison of results between the new poverty estimates presented here and previous poverty estimates based on the LSMS is neither recommended nor possible due to different data sources and numerous differences in the methodology. Instead, the poverty line derived in this study should be seen as a new benchmark for regular monitoring of poverty in Montenegro.

2. METHODOLOGY

2. **The newly established poverty line used in this study is an absolute poverty line estimated following the key ingredients of the World Bank's methodology represented by Ravallion (1994).** This poverty line is a national-specific line and can be used for various national poverty estimates and monitoring of changes in poverty over time. Five major elements underlie the methodology for deriving the poverty estimates presented in this study: (i) construction of the appropriate consumption aggregate from the HBS data sets, which are then used as the main welfare measures; (ii) adjustments for differences in household composition, (iii) adjustments for differences in prices faced by households; (iv) construction of the absolute poverty line based on data from the 2006 HBS, and finally (v) use of this poverty line in conjunction with welfare measures derived from the 2005 and 2006 HBS data sets to estimate the incidence, depth, and profile of poverty in the country.

3. **The material well-being of the population is measured by household equivalent consumption.** Preference of consumption over income is fairly common practice in poverty estimations carried out in developing countries.[2] The consumption aggregate provides a good measure of household well-being, and is calculated as the sum of household expenditures on various food and non-food items consumed in the current period. It also includes personal consumption of home-produced goods; estimated value of gifts received in kind; and imputed housing rents (i.e. the self-estimated rental value of the owner-occupied dwellings). Expenditures on the purchase of the large durable goods are not included in the consumption aggregate because they are not consistently related to the well-being of the households.

4. **The modified OECD scale is adopted to adjust for differences in household size and composition and to calculate the household equivalent consumption.** The modified OECD scale is chosen because of its simplicity and compliance with current Eurostat practice. The same scale prevails in many Europe-wide welfare studies. Accordingly, the equivalent size of household is calculated as the weighted sum of household members, where the first adult person in the household counts as 1 unit, any other adults counts as 0.5 units each, and each child under age of 14 counts as 0.3 units.

5. **The household consumption is adjusted for differences in prices over time and across space.** Specific price indexes are derived for each year and for three major regions in Montenegro (North,

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[2] See Deaton and Zaidi (2002) for a discussion of some of the theoretical and practical reasons to consider when deciding between consumption and income to measure living standards, as well as for the various recommended steps to follow when constructing a consumption-based welfare measure from household survey data.

Central and South). Price changes over time are corrected by using the cost-of-living index, while regional price deflators are derived from price information collected by the HBS.

6. **The poverty line is constructed in accordance with the cost-of-basic-needs method and it consists of two major components: (a) the food poverty line (i.e. cost of the minimum food basket), and (b) a corresponding allowance for basic non-food goods.** Both components summed together give the total poverty line. The minimum food basket is chosen so as to satisfy basic nutritional requirements for the population in this part of the world, as suggested by the FAO (2004), while the composition of the minimum food basket reflects actual diet of the population. Nutritional norm of 2288 kcal/day/reference person is applied.[3] The cost of the minimum food basket is calculated by multiplying the quantities from the minimum food basket with appropriate prices. The cost of the minimum food basket is estimated at €37.28 per month per nutritional equivalent adult, expressed in 2006 prices. Anchored at the cost of the minimum food basket, the total poverty line is estimated by a linear regression model, the same method that has been applied in other countries of the region (Luttmer; 2000; and Bogićević et al, 2003) as is well-accepted internationally. Application of this model to the 2006 HBS data gives us a **poverty line of €144.68 per equivalent adult per month**.[4]

7. The poverty line constructed in this study[5] can then be used to monitor changes in poverty over time after adjusting for inflation between 2005 and 2006. When making poverty comparisons across the two years, it is crucial that (i) the same coverage of goods and services is applied when constructing the consumption aggregates, (ii) the same equivalence scale is applied to the various data sets, and, more broadly, that the (iii) data sets used (in this case, the HBS rounds) as well as estimation procedures followed are indeed comparable and consistent across the years under consideration.

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[3] The same norm was used in the previous poverty study for Montenegro (Radević and Beegle, 2002), as well as in poverty studies for Serbia (Bogićević et al., 2003; Krstić, et al. 2007).
[4] The total poverty line is based on the equivalent consumption calculated using the modified OECD scale.
[5] A more detailed description of the exact procedures followed when setting the national poverty line for Montenegro using the 2006 HBS data sets are available upon request.

3. POVERTY ESTIMATES

8. Based on the new absolute poverty line derived following the process outlined above, an array of poverty analyses and comparisons have been prepared for Montenegro, and are presented in this note.

3.1. Poverty Comparisons

9. **Application of the new national poverty line indicates that 11.3 percent of Montenegro's population, or almost 71 thousand citizens, lived in poverty in 2005 and 2006.** Table 1 reports the main poverty indicators using the poverty line of €144.68 per month per equivalent adult. This poverty line is the cut-off point used in distinguishing between those who are materially deprived and the rest of the population. The population whose equivalent consumption falls below the line can be considered poor. The poor cannot afford all the basic food and non-food goods, and have to forgone some necessary material aspects of their lives. In 2006, 11.3 percent of the population had the equivalent consumption below the absolute poverty line. Poverty rate is estimated on the sample of the population surveyed, meaning that we have to accept certain margin of error in our estimates. For example, for 2006 we are 95 percent certain that the true poverty rate lies between 8.8 percent and 13.8 percent. The number of the poor in Montenegro is estimated at around 71,000 in 2006.

Table 1: Poverty Incidence in Montenegro

	2005	2006
National absolute poverty line in €/month/equivalent adult	144.68	
Poverty Rate (%)	11.3	11.3
95% Confidence Interval	*[8.5, 14.1]*	*[8.8, 13.8]*
Poverty Gap (%)	2.1	1.9
Poverty Severity (%)	0.7	0.6
Poverty line as a % of average consumption	52.6	53.6
Average consumption of the poor as a % of average consumption	42.8	44.4
Average deficit (%)	18.7	17.2
Estimated population	622,851	625,142
Estimated number of the poor	70,495	70,686

Note: Poverty line is expressed in monthly terms in 2006 prices. Source: Team estimates using the 2005 and 2006 HBS.

10. **The overall poverty rate in Montenegro remained more or less unchanged between 2005 and 2006, but the depth and severity of poverty declined slightly over this period.** Estimated poverty rate for 2005 was 11.3 percent and it remained the same in 2006, although a number of other poverty indicators suggest a slight improvement in the situation of the poorest population.

- The average consumption of the poor has increased measured relative to the average consumption of the population. Poverty gap, measuring the "depth" of poverty, declined from 2.1 percent to 1.9 percent in 2006. As suggested by the poverty gap, the poor needed resources in amount of 17.2 percent of poverty line to get out of the poverty in 2006, somewhat less than in previous year. In other words, in spite of the stagnating number of persons in poverty, the gap between actual consumption of the poor and the absolute poverty line decreased during this period.
- The poverty severity index measures inequality among the poor by looking at the average distance between the actual equivalent consumption of the poor and the poverty line, but with higher weights given to individuals that are deeper into poverty. It is encouraging that the poverty severity in Montenegro declined between 2005 and 2006.

11. **Consumption and income inequality are declining.** The consumption share of the bottom decile (the poorest 10 percent of the population) increased slightly, from 4.2 percent to 4.3 percent, while the

share of the top decile (the richest 10 percent of the population) declined from 21.6 percent to 20.2 percent (Table 2). Gini coefficient for the distribution of the equivalent consumption declined from 0.26 in 2005 to around 0.24 in 2006. Theil entropy index is sensitive to inequality at the upper parts of the distribution while the mean log deviation index is sensitive to inequality at the lower parts of the distribution. In 2006 the Theil entropy index and the mean log deviation both declined suggesting that inequality-reducing changes occurred at the top end, as well as the bottom end of the distribution. Inequality in the distribution of equivalent income is higher than inequality estimates based on equivalent consumption.[6] Nevertheless, the change in the income inequality between 2005 and 2006 went in the same direction as the change in the consumption inequality—indeed this observed decline for the income-based measure was slightly higher than that for the measure based on consumption.

Table 2: Inequality in Equivalent Consumption and Income

	2005	2006
Consumption		
Consumption share of the bottom decile	0.042	0.043
Consumption share of the top decile	0.216	0.202
Gini coefficient (per eq. adult)	0.259	0.243
Theil entropy measure	0.114	0.097
Mean log deviation	0.110	0.097
Income		
Income share of the bottom decile	0.017	0.022
Income share of the top decile	0.289	0.273
Gini coefficient (per eq. adult)	0.382	0.359
Theil entropy measure	0.266	0.239
Mean log deviation	0.301	0.256

Note: Equivalent consumption and equivalent income are adjusted for differences in regional prices. Income does not include imputed housing rent. Source: Team estimates using the 2005 and 2006 HBS.

12. **Looking ahead, our projections suggest that substantial poverty reduction in Montenegro is possible through balanced growth.** Table 3 presents possible scenarios for poverty rate in case of equitable growth. Annual growth of 1 percent sustained over 5 years without changes in the distribution of the equivalent household consumption should lead to the decline in poverty rate from 11.3 percent to 8.9 percent. If the average growth rate could be lifted to 3 percent per year, after a 5-year period the poverty rate is projected to decline to 5.7 percent. The 3 percent-age annual growth rate over 10 years should decrease the poverty rate to 2.6 percent. Poverty reduction could be more pronounced if paralleled with declining inequality.

Table 3: Poverty projections

	Poverty Rates after		
Average annual growth rate	**1 year**	**5 years**	**10 years**
-1%	11.6%	13.5%	16.3%
0%	11.3%	11.3%	11.3%
1%	10.2%	8.9%	7.2%
2%	9.8%	7.2%	4.7%
3%	9.3%	5.7%	2.6%
4%	9.1%	4.7%	1.3%
5%	8.9%	3.5%	0.9%

Note: Average annual growth rate refers to the household consumption starting from 2006. Projections assume that the distribution of equivalent consumption remains unchanged, i.e. each household experiences exactly the same consumption growth. Source: Team estimates using the 2006 HBS.

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[6] This pattern is consistent with that found in many other countries as well.

13. **The focus of social policy should not be on the poor alone; around a quarter of the population was in a materially vulnerable position in spite of improvements in 2006.** Notion of poverty in Montenegro seems broader than not having enough resources to afford necessary food by nutritional standards plus basic non-food goods, as it was suggested by the absolute poverty line. Additional resources for vulnerable population might be needed to provide minimum of acceptable social standard and to absorb unfavorable fluctuations in acquisition of resources. For example, it is possible, indeed likely, that many of those who have the equivalent consumption just above the absolute poverty line at one time could easily fall into poverty at other time in the event that they experience an unfavorable shock. Therefore, we introduce a broader poverty line calculated to be the absolute poverty line plus 25 percent to identify the vulnerable population—i.e. that share of the population that includes both the currently poor as well as the population at high risk of poverty. Table 4 shows vulnerability estimates by applying the broad poverty line of €180.85 per month per equivalent adult. In 2005, around a quarter of the population of Montenegro was materially vulnerable. In 2006 there was a decline in the proportion of population with equivalent consumption below the broad poverty line. The poverty gap and the poverty severity measures also show improvements in the situation of the vulnerable population between 2005 and 2006.

Table 4: Population at risk of absolute poverty

|	2005	2006
Broad poverty line=*absolute poverty line plus 25%* in €/month/equivalent adult	180.85	
Poverty rate (proportion of the vulnerable population)	25.3%	23.6%
95% Confidence Interval	*[21.9, 28.8]*	*[20.3, 26.9]*
Poverty gap	5.3%	5.0%
Poverty severity	1.7%	1.6%
Vulnerable population	157,750	147,430

Note: Poverty line is expressed in monthly terms in 2006 prices. Source: Team estimates using the 2005 and 2006 HBS.

3.2. Characteristics of poverty

14. Poverty means more than a lack of appropriate income and/or consumption. It involves various dimensions by which everyday life of the poor differs from the life of the non-poor. We examine some of these dimensions.

15. **Expenditure pattern of the poor is disadvantaged.** The poor have to spend almost one-half of their total budgets on food, while the other half is spent on other necessities for day-to-day life (Figure 1). Expenditures on health, education, and recreation usually lead to a healthier and a more productive life. However, the poor spend relatively low amounts for these purposes. For example, the poor devote only 1.4 percent of their budget on health, compared to 2.6 percent among the non-poor. In absolute amounts, the difference in spending on health between the poor and the non-poor is even starker. Disadvantaged longer term expenditure pattern of the poor includes a comparatively high budget share devoted to tobacco, 2.6 percent on average compared to 1.9 percent among the non-poor.

Figure 1: Expenditure Patterns of the Poor and the Non-poor, 2006
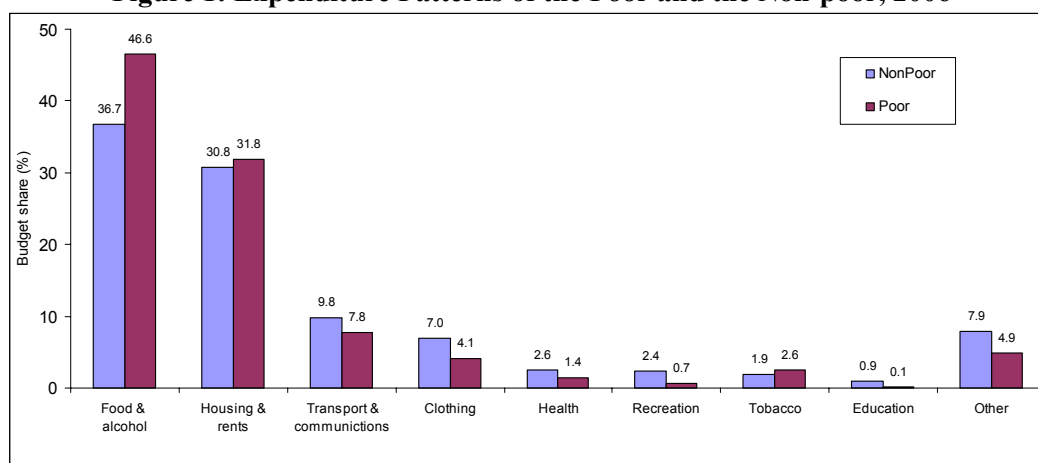
Source: Team estimates using the 2006 HBS.

16. **Work is the most important source of income for the overall population, but the poor get a smaller fraction of their incomes from wages; in addition, a substantially larger share of the poor depend on social benefits and remittances.** The share of wages is 41.2 percent among the poor and 58.6 percent among the non-poor (Figure 2). Income from self-employment (subsistence farming and running a small business), contribute more to the total income of the poor (9.8 percent) than the non-poor (3.4 percent). Taken together, incomes from paid employment and self-employment represent 51 percent of total income among the poor compared to 62 percent among the non-poor. The poor get the significant share of their incomes from social benefits (unemployment, sickness, maternity leave, welfare benefits, child allowances, and scholarships account for 12.9 percent of their total income) and remittances (16.3 percent). Relative importance of pensions for total income is similar among the poor and the non-poor, although the non-poor get slightly higher proportion, 22 percent, compared with 18.2 percent among the poor.

**Figure 2: Income Sources for the Poor and the Non-poor, 2006**
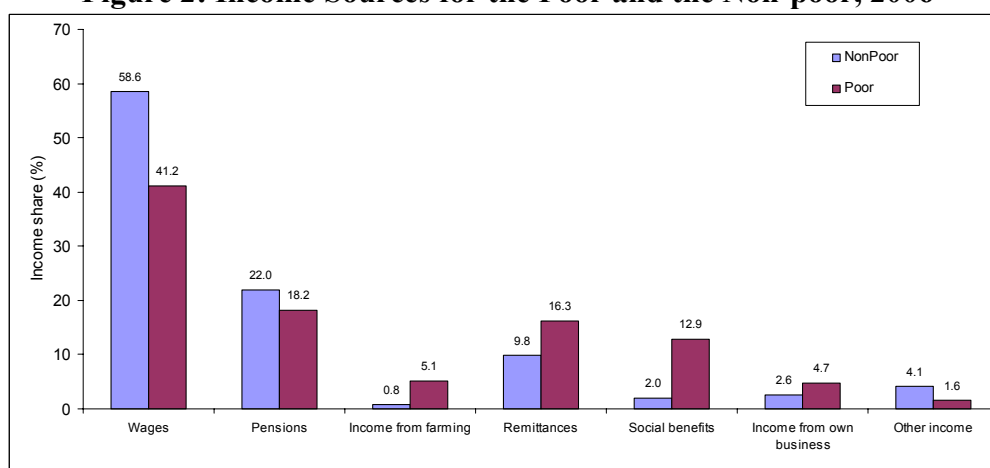
Note: Social benefits include unemployment, sickness, maternity leave and welfare benefits, child allowances, and scholarships. Total income does not include imputed rents. Source: Team estimates using the 2006 HBS.

17. **The diet of the poor points to possible cases of severe deprivation.** The average caloric intake in Montenegro is 2971 kilocalories/nutritional equivalent adult/day. For the poor, the caloric intake amounts to 2158 kcal on average which is below the nutritional norm of 2288 kcal. This suggests that poor individuals face a nutritional deficit. The average intake of the non-poor is 3069 kcal/nutritional equivalent adult/day. As for the composition of the food energy intake, the poor get almost 45 percent of calories from bread and cereals, much higher share than the non-poor, (who get 36 percent, Figure

3). Bread and cereals provide substantial energy intake at relatively low costs, which explains their higher share among the poor. The poor get relatively less energy from fruits and vegetables than the non-poor. That might be a reasonable choice from cost-of-energy standpoint, but it is unfavorable for healthy life in longer term. Meat as well as sugar and sweets are more important energy sources for the non-poor than for the poor.

Figure 3: Composition of the Food Energy Intake of the Poor and the Non-poor, 2006
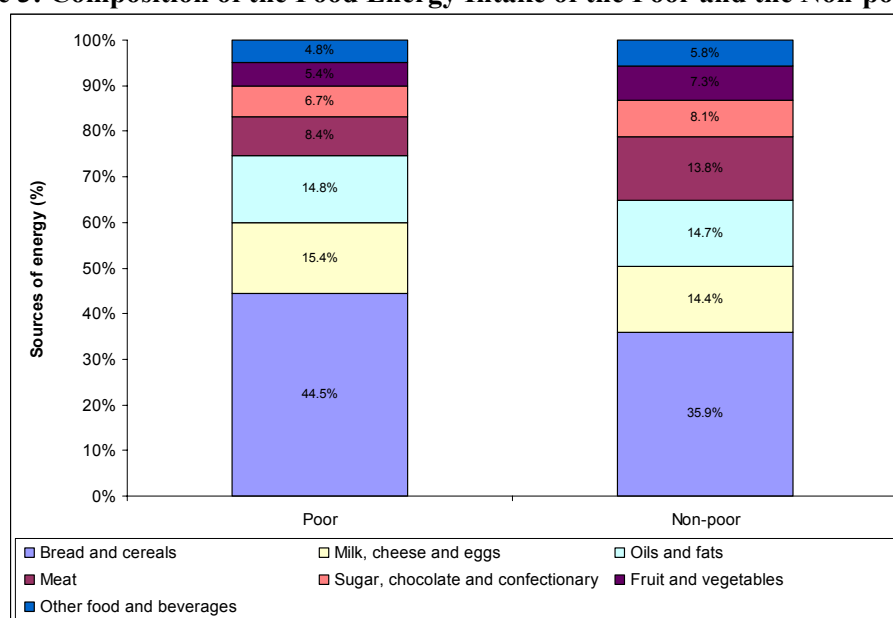
Source: Team estimates using the 2006 HBS.

18. **The poor are deprived in housing standard and access to publicly provided services.** Table 5 shows indicators which illustrate that point. About 36 percent of the poor live in dwellings with less than 10 m^2 per person, compared to about 9 percent for the non-poor. About 18 percent of the poor live in dwellings without indoor bathroom or connection to sewage, and around 43 percent of the poor lives without washing machine in their household. The physical distance to the main community services is larger for the poor than for the non-poor. Distance of more than 10km to the hospital is found for 44 percent of the poor and 27 percent of the non-poor. Larger distance to the school for the poor, especially the non-mandatory secondary school might limit their educational advancement.

Table 5: Poverty indicators, 2006

	Fraction of the		
	Poor	**Non-poor**	**Total**
Less than 10 m^2 per person in dwelling	36.0%	9.4%	12.4%
More than two people per room	57.2%	24.8%	28.5%
No telephone (fixed)	53.3%	20.1%	23.8%
No indoor bathroom	18.6%	6.3%	7.7%
No connection to sewage	18.4%	5.3%	6.8%
No running water	7.3%	2.8%	3.3%
No refrigerator	3.8%	0.2%	0.7%
No washing machine	42.5%	11.4%	14.9%
More than 5 km to PHC physicians	20.2%	11.6%	12.6%
More than 10 km to hospital	44.2%	27.1%	29.0%
More than 5 km to primary school	9.3%	5.8%	6.2%
More than 10 km to the secondary school	22.9%	15.2%	16.1%

Source: Team estimates using the 2006 HBS.

3.3. Poverty profile in 2006

19. Poverty is not evenly distributed across regions and population groups. While some population groups are hardly impacted by it, others face a considerably high-than-average risk of poverty.

20. **Large households are more likely to be poor.** Poverty rates for households with five and more members are above the national average (Table 6). For example, among individuals living in households with seven or more members, the poverty rate is 35.6 percent. Poverty risk, calculated as the ratio of the poverty rate of that subgroup to the overall poverty rate, is 3 times higher for members of the largest households (7 and more members) than for an average person. Although only 8 percent of the population lives in households with seven and more members, almost 26 percent of the poor belong to such households. More than 70 percent of the poor live in households with five and more members. Life in relatively large households may be part of tradition, but it likely also reflects poor material conditions, where cohabitation offers protection from even more severe cases of deprivation. Poverty risk below the national average is found for smaller households where three-person households have the lowest relative poverty risk, around one fourth of the national average.
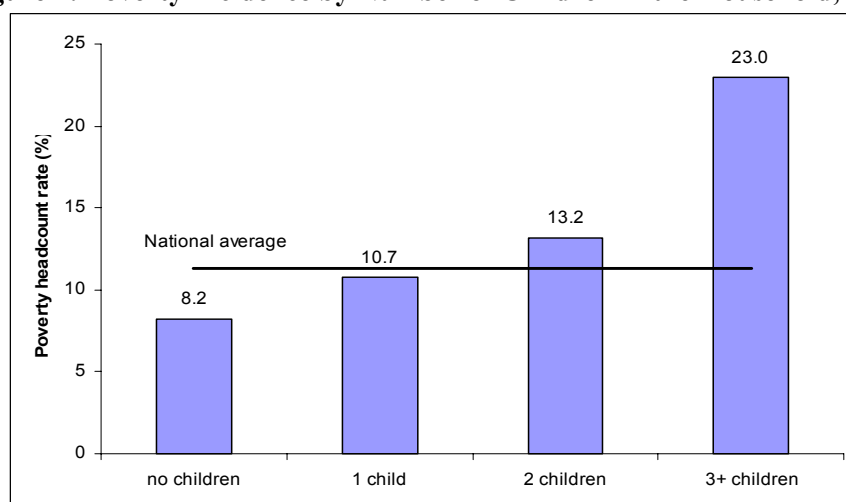
Table 6: Poverty Risk by the Household Size, 2006

	Headcount poverty rate	Relative poverty risk	Fraction of the poor	Fraction of the population
One person	9.8%	0.87	3.6%	4.2%
Two persons	7.4%	0.66	7.5%	11.4%
Three persons	3.0%	0.26	3.7%	14.3%
Four persons	5.8%	0.51	13.0%	25.5%
Five persons	12.0%	1.06	23.8%	22.4%
Six persons	17.9%	1.59	22.1%	13.9%
Seven and more	35.6%	3.15	26.3%	8.3%

Note: Relative poverty risk is calculated as the poverty rate of the subgroup divided by the overall poverty rate.
Source: Team estimates using the 2006 HBS.

21. **Families with 3 and more children are more likely to be poor.** Households without children have the lowest relative poverty risk, while households with one or two children face the average poverty risk. However, among households with 3 or more children the poverty risk rises to twice the national average (Figure 4).

Figure 4: Poverty Incidence by Number of Children in the Household, 2006

Source: Team estimates using the 2006 HBS.

22. **Age of the household head is not significantly correlated with poverty.** Table 7 shows the poverty risk by age. We can see that households with younger heads are somewhat less likely to be

poor than households headed by a middle-age person, but these observed differences are relatively small. Around 8 percent of individuals belonging to households headed by a young person (15-34 years of age) are poor. They constitute only 4 percent of the poor. The largest fraction of the poor, around 35 percent, comes from households headed by a person of 45-54 years of age. At first sight, gender of the household head seems connected with the poverty risk in that female-headed households are less likely to be poor (Table 7). However, we have to take into account other factors that differentiate male- and female-headed households before concluding that gender per se is an explanation of the poverty risk. For example, male-headed households are typically larger and we saw that larger households are more likely to be poor. Around one-half of male-headed households have 5 and more members, compared to one-quarter of female-headed households. That might explain the observed difference in poverty risk between female- and male-headed households.

23. This example highlights the importance of looking at joint influence of all the relevant poverty correlates. Regression analysis may reveal genuine dependence of poverty status (alternatively, the level of equivalent consumption) on relevant household characteristics. Our results are presented in Table A1 in the Appendix and they suggest that gender of household head has no significant influence on the equivalent consumption of the household. The age of the household head is also not found significant in explaining the variations in the household consumption.

Table 7: Poverty Risk by Age and Gender of the Household Head, 2006

	Headcount poverty rate	Relative poverty risk	Fraction of the poor	Fraction of the population
15-34 years	8.5%	0.75	4.5%	6.0%
35-44 years	11.7%	1.04	15.9%	15.4%
45-54 years	12.7%	1.13	34.4%	30.5%
55-64 years	11.0%	0.98	23.5%	24.1%
65+ years	10.2%	0.90	21.7%	24.0%
Female	11.8%	1.04	87.0%	83.5%
Male	8.9%	0.79	13.0%	16.5%

Note: Relative poverty risk is calculated as the poverty rate of the subgroup divided by the overall poverty rate.

24. **Education of the household head strongly influences poverty status;** the risk of poverty decreases with the educational attainment of the household head. Individuals living in households headed by a person with primary or lower education face the highest poverty risk, around 77 percent above the overall national average (Table 8). Poverty rate among such individuals is 20 percent. As a result, nearly one-half of the poor in Montenegro live in households headed by a person with primary school education or lower. Higher educational levels of the household head decrease the poverty risk for their households. The poverty risk for those households headed by graduates of vocational secondary education is still above the average, but for those households headed by gymnasium or technical secondary graduates, the poverty risk is about 30 percent below the average. Higher education of the head reduces the poverty risk strongly, to 15 percent of the national average. Less than 3 percent of the poor live in households headed by college graduates.

Table 8: Poverty Risk by Education of the Household Head, 2006

	Headcount poverty rate	Relative poverty risk	Fraction of the poor	Fraction of the population
Primary or less	20.0%	1.768	48.7%	27.6%
Vocational secondary	12.5%	1.110	28.0%	25.2%
Technical secondary	7.6%	0.673	19.7%	29.3%
Gymnasium	7.7%	0.684	1.1%	1.6%
Higher education	1.7%	0.151	2.5%	16.3%

Note: Relative poverty risk is calculated as the poverty rate of the subgroup divided by the overall poverty rate.
Source: Team estimates using the 2006 HBS.

25. **Activity status of the household head determines the poverty risk of household members;** the risk is the lowest for those headed by employees and the highest for those headed by unemployed or inactive persons. Table 9 shows that among households headed by unemployed and inactive persons (except pensioners), the poverty rates are 26 percent and 29 percent respectively. In contrast, households whose head are wage employees have the lowest poverty incidence, 7 percent. Self-employment of the head (e.g. engagement in subsistence agriculture or running a small business) is associated with poverty risk 60 percent above the national average. Irregular incomes and underemployment often characterize activities of the self-employed and we see that this type of employment for persons with responsibility of heading the households mostly does not provide successful protection against the poverty. The incidence of poverty among households headed by a retired person is below the average (10 percent) in spite of the fact that individual pensions are relatively low compared to wages. Two factors can help to explain this: (i) pensioners are more likely than employees or individuals with other activity status to be the heads of smaller households (up to 3 persons) which usually have lower poverty risk; (ii) pensioners also head larger multigenerational households where their incomes do not necessarily contribute the most to the household budget—instead, younger household members often contribute a larger share of the overall household budget.

Table 9: Poverty Risk by Activity Status of the Household Head, 2006

	Headcount poverty rate	Relative poverty risk	Fraction of the poor	Fraction of the population
Employee	7.2%	0.640	27.9%	43.5%
Self-employed	17.9%	1.585	13.7%	8.6%
Unemployed	26.4%	2.337	20.4%	8.7%
Retired	10.5%	0.928	35.2%	38.0%
Other inactive	28.6%	2.529	2.8%	1.1%

Note: Relative poverty risk is calculated as the poverty rate of the subgroup divided by the overall poverty rate.
Source: Team estimates using the 2006 HBS.

26. **Rural population faces substantially higher risk of poverty than urban population.** The headcount poverty rate for rural population is almost 17 percent, compared to 9 percent for residents of Podgorica city and 6 percent for residents of other urban areas (Table 10). Poverty in rural areas is also more deep and severe than poverty in urban areas. The poverty gap index for rural areas is 3 percent, more than double the average urban area gap of 1.3 percent (not shown in the Table 10, but available in Monstat working tables). Around 60 percent of all poor individuals in Montenegro live in rural areas and it appears that these areas deserve special policy concern.

Table 10: Poverty Risk by Location and Region, 2006

	Headcount poverty rate	Relative poverty risk	Fraction of the poor	Fraction of the population
Podgorica	9.4%	0.832	19.3%	23.1%
Other urban	6.2%	0.545	20.9%	38.3%
Rural	17.6%	1.554	59.9%	38.5%
North	17.8%	1.573	50.0%	31.8%
Central	8.5%	0.747	35.8%	47.9%
South	7.9%	0.698	14.2%	20.3%

Note: Relative poverty risk is calculated as the poverty rate of the subgroup divided by the overall poverty rate.
Source: Team estimates using the 2006 HBS.

27. **There is substantial difference in the extent of poverty between the North and the other parts of the country;** poverty risk in the North is more than two times higher than the poverty risk in the South and Central region. Around 18 percent of the population in the North is poor meaning that the poverty risk in this region is 1.5 times the national average (Table 10). Poverty risk in the North is

also about two times higher than the poverty risk in the South and Central regions. One-half of Montenegro's total poor live in the North, even though this region accounts for less than a third of the country's total population. Individuals living in the South and Central region have the incidence of poverty of around 8 percent. Caution is, however, required in the identification of factors that influence observed regional differences in poverty rates. Regional differences need not to be due to the region itself (i.e. natural resource endowments, presence of infrastructure, institutional framework) but may be caused by other factors or poverty correlates. For example, differences in educational levels or employment rates could explain a part of the regional disparities in poverty rates.[7]

4. SUMMARY AND CONCLUSIONS

28. This note presented the key figures on poverty in Montenegro for the years 2005 and 2006. The poverty estimate shows the following:

- Around 11.3 percent of the Montenegro's population or around 71 thousand people lived in poverty in 2006.
- The poverty rate stagnated between 2005 and 2006, but the depth and the severity of poverty declined in the meantime. Vulnerability of the population, estimated by the proportion of population with equivalent consumption below the broad poverty line, slightly decreased in 2006.
- Consumption and income inequality is on decline.
- The poor in Montenegro have disadvantageous diet and expenditure pattern, and they are deprived in housing standard and access to publicly provided services.
- Large households are more likely to be poor.
- Education and labor market status of the household head influences strongly poverty status of the people in the household. The poverty risk is the lowest for those headed by a person with higher education and/or a person in paid employment.
- Rural population faces two times higher risk of poverty than urban population.
- Poverty incidence in the North is substantially higher than in other parts of the country.

29. These findings call for social policy to be focused on the poverty in rural areas, especially in northern part of the country, on those lived in the larger households, on unemployed or inactive individuals, and those with low levels of education.

30. Work is presently underway to prepare updated poverty estimates for Montenegro based on the 2007 HBS data, which will help shed more light on more recent poverty trends in the country.

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[7] Table A1 in the Appendix presents the determinants of the household consumption that are estimated from the multivariate regression model. The results can help us to discern the most significant poverty correlates. It appears that location (rural vs. urban areas) is significant in explaining differences in the consumption levels, while results for regions are less clear. By controlling for household size, dependency ratio and characteristics of the household head (education, activity status, age) we find that difference in the consumption level between the North and the South is only casually influenced by region itself, and that observed effect was not statistically significant. However, the Central region remains in an advantageous position compared to other two regions even after controlling for other factors.

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APPENDIX: Conditional Profile of Poverty

Table A1: Determinants of Consumption, 2006

	Coefficient	(Std. err.)
Dependent variable: log of consumption (€/eq.adult/month)		
Household characteristics		
Household size	-0.058	(0.008)**
Dependency Ratio (kids & elderly / household size)	-0.141	(0.054)**
Characteristics of the household head		
Female	0.043	(0.039)
Married	0.031	(0.038)
Age of household head (reference group: 15-34 y.o.)		
35-44	0.028	(0.058)
45-54	-0.045	(0.053)
55-64	-0.065	(0.057)
65+	0.002	(0.063)
Education (reference group: primary or less)		
Gymnasium	0.257	(0.067)**
Vocational secondary	0.091	(0.038)*
Technical secondary	0.188	(0.041)**
Higher education	0.390	(0.045)**
Activity (reference group: employee)		
Self-employed	-0.020	(0.046)
Unemployed	-0.267	(0.041)**
Retired	-0.011	(0.038)
Other inactive	-0.401	(0.133)**
Location *(reference group: rural)*		
Podgorica	0.103	(0.045)*
Other urban	0.120	(0.035)**
Region *(reference group: north)*		
Central	0.137	(0.038)**
South	0.069	(0.044)
Constant	5.523	(0.074)**
No. of observations	1300	
R-squared	0.266	

Notes: *significant at 5 percent; ** significant at 1 percent. Source: Team estimates using the 2006 HBS.