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LA7271-HCTA – Concept of Absolute Poverty Line in Slovakia

**Calculation and use of an absolute
poverty line**

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Abbreviations

| | |
|--------|---|
| CPI | Consumer Price Index |
| EU | European Union |
| FEI | Food Energy Intake |
| GDP | Gross Domestic Product |
| HBS | Household Budget Survey |
| MDGs | Millennium Development Goals |
| MIQ | Minimum Income Question |
| MOLSAF | Ministry of Labour, Social Affairs and Family |
| NAP | National Action Plan |
| NIPA | National Income and Product Accounts |
| OECD | Organization for Economic Cooperation and Development |
| OPM | Oxford Policy Management |
| SILC | Survey of Income and Living Conditions |
| SML | Subsistence Minimum Level |
| UN | United Nations |
| WB | World Bank |
| WHO | World Health Organization |

Executive Summary

Poverty lines can be used for different purposes. In particular, it is important to distinguish between two main functions of poverty lines: 1) poverty measurement and analysis, 2) standard of adequacy and guideline for levels of social assistance benefits. While the first function uses population representative surveys to study poverty (measure, describe and understand poverty), the second function is used within the administrative system to set a norm against which persons' welfare is assessed and eventually protected. Because the two functions have different objectives, the poverty line can also be set or calculated in different ways. For the first function the poverty line is generally *calculated* using a technical methodology. On the contrary, in the second case the poverty line is *set* following much stronger political and fiscal considerations.

The existing absolute poverty line in Slovakia is the Subsistence Minimum Level (SML), which satisfies important properties and functions of an absolute poverty line. In particular, the SML is considered as an administrative norm that distinguishes the poor from the non-poor. Since the 2004 reform of social assistance the Government no longer needs to cover the gap between people's incomes and the SML, but the latter is used as a first screening criterion for the targeting of social assistance. Moreover, the 'benefit in material need' (and associated allowances) is lower than the SML. Therefore, the reform separated the identification of the poor from the policies adopted to reduce poverty, recognising that social assistance is only one of such policies. However, the current SML is of limited usefulness for poverty monitoring and poverty analysis. The reason for this is due to the way in which the SML was updated over time, which caused it to lose value in real terms. At the same time the SML could not be used previously for poverty analysis also because the Slovak Republic lacked the required data for such analysis.

Three main factors now encourage and justify the 'review' of the SML: 1) the deterioration of the SML in real value, 2) the fact that the Slovak economy has undergone quite dramatic changes since the SML was computed, and 3) the availability of new and more comprehensive data.

Although there are ways in which the current survey activities could be greatly improved, two new and more reliable sources of information are now available: the 2004 Household Budget Survey and the Survey of Income and Living Conditions. Unfortunately, the analysis conducted for this report could only make use of the HBS, but this is probably the best source of data for setting the poverty line, adopting a methodology that follows the same philosophy that was used when the SML was first computed.

The methodology adopted for the calculation of the absolute poverty line is the 'cost of basic needs' method, which is a methodology recognised and used worldwide to compute poverty lines based on consumption data. Moreover, since this poverty line represents the value of a certain basket of items that satisfy some necessary requirements, it should be updated so that it maintains its real value over time. This is essential for the absolute poverty line to achieve its function of poverty monitoring and analysis.

The result of the absolute poverty line calculation is a proposed line of 7042 SKK per month of equivalised income (using the modified OECD equivalence scale). Although such a poverty line is substantially higher than the SML in 2004, it is of a similar amount of poverty lines computed with alternative methods (the Food Energy Intake poverty line).

Therefore, the proposed poverty line meets three key requirements of an absolute poverty line: 1) it reflects the need to meet basic necessities, considering the standards of the Slovak Republic; 2) it is set using recognised and transparent methods (following the procedure adopted, it is possible

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to re-compute exactly the same poverty line, as well as to test the hypotheses made during its calculation¹); 3) it is of a reasonable value compared to alternative measures.

Using the determined poverty line, the percentage of poor people in 2004 was 15.9%. However, using the relative poverty line (60% of median equivalised income) the poverty rate is lower: 10%. The latter is about half the poverty rate computed for 2002 using the 2003 Microcensus. Both sources measure similar median incomes, but income inequality is much higher according to the Microcensus than the HBS. Although there are reasons to believe that the Microcensus estimates might be less accurate, such differences reflect a rather different income distribution in the two sources of information, which are not due to genuine changes, but to the poor quality of data of one or both of the sources. This casts some doubts on the reliability of the data and undermines both the calculation of the poverty line as well as the measures of poverty.

A possibility to solve such conflicting estimates could come from the analysis of the SILC data, which also collected information on incomes in 2004. In particular it will be crucial to determine the main characteristics of the income distribution estimated through the SILC data (mean/median income and inequality estimates).

Can the newly computed poverty line replace the SML, being an administrative norm to identify the poor and a standard of adequacy, and also become a tool for poverty monitoring and analysis?

I believe that in Slovakia there are the conditions for an absolute poverty line to cover both functions, but I recognise that there could be still some risks involved in asking at the same measure to play these two roles, especially because the newly computed poverty line is substantially higher than the current SML and also a bit higher than other income support measures (basic income tax allowance and minimum wage). Therefore, for the absolute poverty line to be used effectively for the two functions, the SML should be further disconnected to some tools of social policy (for instance the SML cannot set the basic income tax allowance). Moreover, given that there are some doubts on the quality of the data sources used, at this stage it would be wiser to use the newly computed poverty line only for poverty monitoring and analysis purposes. Later it will be possible to verify whether the welfare distribution captured by the HBS was representative of the population and therefore make the eventual decision for the new poverty line to replace the SML.

Finally, the main recommendations of this study for the use of the absolute poverty line and more generally for poverty monitoring and analysis in the Slovak Republic are the following:

- 1) Adopt, within the MOLSAF, the 'cost of basic need' poverty line of 7042 SKK per month to measure and analyse poverty;
- 2) Engage in a dialogue with experts in the country about the level of the proposed absolute poverty line and its uses;
- 3) Update the absolute poverty line every year by inflation, using the CPI. This will ensure transparency in the process and maintain the real value of the poverty line over time.
- 4) Strengthen and improve the current household surveys. If data are not of the required quality poverty measurement and analysis is not useful. It will be essential to collaborate

¹ All the computer programs I wrote for the calculation of the poverty line and poverty analysis were provided to the MOLSAF and are available from the author (programs are written in STATA).

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with the Statistical Office in order to a) improve the sampling design in the HBS; b) address the problem of non-response c) improve the questionnaire of both HBS and SILC;

- 5) Analyse the 2004 SILC data to determine the main characteristics of the income distribution in Slovakia and validate estimates obtained using HBS data;
- 6) In case HBS estimates are confirmed by the SILC data, recognise the cost of basic needs poverty line of 7042 as the official poverty line for poverty monitoring, and eventually consider whether such line could replace also the existing SML, assessing potential risks and possibly making some changes also in the way the SML is linked to some measures of income support (for example the basic income tax allowance).
- 7) For comparison purposes with the cost of basic needs poverty line, estimate the subjective poverty line using the Minimum Income Question in the SILC data;
- 8) Extend the poverty profile looking at more non-income related indicators of poverty and, using the “perceived social necessities” approach, substantiate the monetary definition of poverty with the lack of perceived necessities (the necessary information for such data is available in the SILC data).

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Background

This work is part of the Human Capital Technical Assistance project (HCTA) financed by the International Bank for Reconstruction and Development and implemented by the Ministry of Labour, Social Affairs and Family (MOLSAF) and the Ministry of Education of the Slovak Republic. More specifically, within the HCTA, I was contracted to provide technical assistance to the MOLSAF in the definition and measurement of absolute poverty. There were two phases in this component of technical assistance. The first phase aimed at identifying approaches suitable in the context of Slovakia to define and calculate an absolute poverty line, while the second phase implemented such approaches and provided the relevant poverty measures using the Household Budget Survey data.

This report summarises and, in some parts, extends the content of three previous reports: "Approaches to measure and update an absolute poverty line", "An assessment of currently available statistical data for welfare analysis", and "Poverty and inequality estimates". In particular, the poverty line, and consequently poverty estimates, have been revised and are different from the preliminary estimates provided in the report "Poverty and inequality estimates".

The report begins by determining what a poverty line is and what the possible uses of an absolute poverty line are, to then understand what is needed for Slovakia. The second section considers the available datasets and how they can be used to set an absolute poverty line as well as to measure and analyse poverty and inequality. The third section explains in detail how the poverty line was calculated using the 'cost of basic needs method', and compares the estimated poverty line to the existing Subsistence Minimum Level and alternative poverty lines. One final section generates a poverty profile using the 2004 Household Budget Survey, and the report concludes with some recommendations for the use of the computed poverty line and further steps for poverty measurement and analysis.

1. Definition and role of an absolute poverty line

Before entering in the debate of the calculation and estimation of an absolute poverty line, it is essential to discuss what an absolute poverty line is and what it is for. Indeed, there are many different approaches to the concept of poverty and the use that governments make of levels of poverty lines and 'minimum incomes' is also very diverse. Therefore, clarity on what the Government wants to achieve with the setting of a poverty line is important for agreeing the methodology adopted to estimate it. At the beginning the discussion is general, but I then turn to the situation of Slovakia, considering the poverty line 'precedents' and the current socio-economic situation. This allows me to make a proposal on the definition of absolute poverty that can be used in Slovakia as well as propose the specific role it should play.

1.1 What is poverty?

"The poor are those persons, families and groups of persons whose resources (material, cultural and social) are so limited as to exclude them from the minimum acceptable way of life in the member state to which they belong" (European Council decision, Dublin, 1984)

"Poverty' can be said to exist in a given society when one or more persons do not attain a level of material well-being deemed to constitute a reasonable minimum by the standards of that society." (Ravallion, 1992)

"Poverty' is a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information." (UN, 1995)

Although they refer to different dimensions of living standards, namely a material well-being, basic human needs, and a more comprehensive 'way of life', the European council decision, the quote from an economist at the World Bank, and the United Nations statement refer to a level that separates the poor from the non-poor: people either achieve the required living standards or not (a certain level of material well-being and/or a certain level of social participation). This level is often called the 'poverty line', and as such is instrumental in the definition and measurement of poverty². The first two quotes recognise the relative nature of poverty, so that the definition of what constitutes a minimum way of life depends on the circumstances of each country, and its existing standards. However, as the United Nations statement makes clear, it is also intuitive that the concept of poverty should be linked to some basic living conditions that constitute a common basis wherever we live and that should be achieved for people not to be considered poor. Such basic conditions are often linked to basic human rights: a minimum level of nutrition, clothing, and housing, as well as the right to education and access to health care³.

An interesting cross-country study of existing poverty lines in different countries reconciles the relative and absolute approaches to poverty. In fact it showed that the level of the poverty line is

² A different concept of poverty that does not require the setting of a poverty line is proposed by Townsend (1979). According to Townsend's approach poverty can be measured as a deprivation index based on whether people possess or not a restricted list of items considered being social necessities.

³ "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care", Universal Declaration of Human Rights, United Nations, 1948.

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the same, or very similar, for countries up to a certain level of development⁴. When we consider very poor countries, poverty lines have zero elasticity to the level of development, but then poverty lines increase proportionally to the mean income of the country (elasticity is equal to 1 for rich countries) (Ravallion, 1998). An interpretation of such finding suggests that the poverty line is fixed to a certain 'core minimum level' for all countries, but then to such 'core minimum' other 'necessities' are added in proportion to the level of development of each country.

However, it is more complex to translate the meaning of this finding when we move from a cross-country analysis to the analysis of the same country over time: should the poverty line change with the country's economic development or remain constant in real terms? This is the essential distinction between absolute and relative poverty lines. While the real value of an absolute poverty line is constant over time, a relative poverty line changes with some characteristic of the overall distribution (for instance the median or the mean). In this way it is explicitly recognised that the poverty line is relative and changes with the socio-economic development of the population under analysis.

In general we can say that relative poverty is a particular measure of inequality, since it abstracts from the value of the poverty line and measures poverty as something that departs from the common situation. Therefore, if we were to change the level of the poverty line according to the median income level prevailing in the country, we could find that poverty declines in a period of recession or that increases after a spurt of growth, which would clearly be counterintuitive since an improvement of economic conditions generally translates also in higher incomes and therefore better living conditions. Moreover, the concept of poverty in a country would be unlikely to change from year to year⁵. On the contrary, absolute poverty is measured maintaining the poverty line at a constant level in real terms, so that it is better suited to assess the progress of living conditions over time. Therefore, while it is important to recognise that there is an inherent relative dimension in the definition of poverty, even within rich countries an absolute poverty line can be an important tool of analysis. Moreover, we can argue that absolute and relative poverty lines measure different poverty dimensions, and often can be used in complementary ways to assess the impact of socio-economic policies. It all depends on where in the distribution of welfare the absolute and relative poverty lines lie and how economic growth and more general socio-economic changes affect this distribution. In fact, one can imagine situations in which, comparing poverty levels in two different periods of time, absolute poverty decreases, while relative poverty remains constant or even increases; and situations in which relative poverty could decrease, but absolute poverty could remain constant or even increase.

Furthermore, an important difference between relative and absolute poverty lines often involves also the way in which the two are set. Whereas the relative poverty line is purely a statistical measure, the absolute poverty line tends to be more anchored to some objective measure of basic needs, and this distinction is relevant because, as we will see in the next section, it affects the possible uses of the poverty line.

⁴ All such poverty lines were measured in terms of consumption expenditure per person and expressed at purchasing power parity, whereas the level of development of the country was represented by the per capita consumption expenditure from the National Accounts, also calculated at purchasing power parity.

⁵ For instance, in the United States Gallup polls have often asked respondents what they think would be an adequate poverty line. In the 1960s, when the official poverty line was also computed by Orshansky, the mean responses of the Gallup survey provided answers very close to the official poverty line, but have then increased in real value, although such increase was not as fast as the real disposable income (see Deaton 1999).

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It is also important to say that, as the definitions of poverty given above make clear, poverty is a multi-dimensional concept and there are approaches to measuring poverty that go beyond merely income-based poverty lines to consider the more general access to social participation (the capabilities approach). Nevertheless, income-based poverty measures do capture a central component of poverty, and this is implicitly recognised by the fact that income poverty measures are the core indicators used to monitor progress on the first Millennium Development Goal. Moreover, also within the European Union, core indicators of poverty and social exclusion are based on income, and income minimum measures are also in use in Slovakia. Therefore, in this assessment I mainly concentrate on income-based poverty and the definition and use of an income-based poverty line.

1.2 The different scopes of poverty lines

Poverty lines can be used for different purposes. In particular, it is important to distinguish between two core functions of the poverty line: 1) poverty measurement and analysis, 2) standard of adequacy and guideline for levels of social assistance benefits. When poverty lines are used to measure and analyse poverty the government's intention is to monitor the country progress in the fight against poverty, and more specifically to assess the impact of government policies on poverty reduction. The second core function relates to the link of the poverty line to government social policy: the poverty line can be used to identify the poor and consequently support their incomes in various ways. While for the first function poverty analysis is done on the basis of household surveys that represent the population of the country, the second function considers individual cases that are managed through administrative channels.

More specifically, within the two core functions, we can identify five different uses of the poverty line. The first three are related to the first function, while the fourth and fifth are linked to the second core function of the poverty line:

- 1) To measure poverty: the setting of the poverty line is instrumental for poverty measurement, so that the poverty line can be used to generate many different poverty measures (count people in poverty, or the proportion of the population in poverty, as well as various measures of the 'depth' of poverty);
- 2) To describe poverty: once people are identified as poor, it is useful to describe their living standards, and to make poverty comparisons among different population groups and over time;
- 3) To understand the possible reasons of poverty: measurement and description of poverty can be taken a step forward to investigate the possible causes of poverty;
- 4) As the norm for the level at which people are not deemed to be poor: the poverty line can be recognised officially by the Government as a minimum standard of living and therefore officially used to identify people below such level as people that fail to achieve the minimum standard;
- 5) As a guideline to set social assistance benefits: the poverty line can be used as a guideline for the whole system of social policy, being a standard that the Government wants to ensure for all members of the society.

The first core function (uses 1, 2 and 3) uses a 'scientific calculation'. The second function (uses 4 and 5) has much stronger political and fiscal considerations (Minimum Income Standards and

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social assistance benefits)⁶. A government commitment to help those who fall below the poverty line must consider what is affordable for the state to pay and the political support that the government receives for redistributive policies.

The different nature of the two functions of the poverty line is sometimes conflicting because they may imply different approaches to setting the poverty line. In particular, adjusting poverty lines over time or for different population groups to meet political and social welfare objectives of providing income support to those below the poverty line might compromise the proper comparisons of poverty levels.

The analysis of minimum income standards used in different OECD countries conducted by Veit-Wilson (1998) outlines how such functions were addressed in these countries.

There are cases in which these different functions are satisfied by the same poverty line in a coherent way. For example in the United States, the official poverty line is used as the basis for the Federal Poverty Guidelines and for some income eligibility tests (in turns the Federal Poverty Guidelines are used to determine eligibility to Food Stamps and other programmes), and it is also the main source of official poverty estimates. In Belgium the subjective poverty line determined by the Centre for Social Policy (University of Antwerp) was used to measure/analyse poverty and was accepted by the government as a criterion of adequacy, though it was not considered as a target.

In other countries the combination of the different functions of a poverty line was less coherent, and the second function was predominant. For instance, in Germany, concepts of minimum income levels determined social assistance benefits, which were also linked to the basic income tax allowance thresholds and for many legal purposes, and they were used also to define and count the poor. However, such minimum income levels were not updated to maintain their purchasing power and could not properly monitor levels of poverty over time. Similarly, in France the statutory minimum wage was used as a guideline for income benefits (expressed as a percentage of it) as well as for wage and tax threshold settings and in 1976 it was used to count the poor. However, once again, the statutory minimum wage was not suitable for assessing poverty changes over time, because its value was not updated to maintain its purchasing power.

It is important to be aware of these two types of potentially conflicting core functions of poverty lines. For the first function, technical/scientific poverty lines have been mainly used, while for the second function, poverty lines have often been set through political processes and updated over time considering political needs rather than a systematic approach that prioritises the correct measurement of change.

It is also important to consider the use of relative and absolute poverty lines with respect to these core functions of a poverty line. While relative poverty lines can only be used for some aspects of the first core function (especially to assess socio-economic policies that address inequality, rather than just poverty), an absolute poverty line is better suited for both functions. In particular relative poverty lines can be used to make comparisons between different population groups, but are less useful to make comparisons over time.

1.3 Slovakia's tradition: the minimum subsistence level

In Slovakia there are different notions of minimum income levels, which have their origin in a pre-independence period and were mainly related to minimum pension levels, but the recognised

⁶ Veit Wilson (1998)

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'official absolute poverty line' is the Minimum Subsistence Level (MSL)⁷. Indeed the MSL is used as a standard of adequacy, as a guideline for income support measures and to some extent for poverty measurement (see for instance Filipova and Valna, 1999). The MSL was first introduced in 1991, its amount was often updated and its calculation radically revised in 1998 and since then updated on an annual basis.

When it was first developed the determination of the MSL was a response to the dramatic economic changes that occurred after 1989. The aim was to determine a minimum amount that should be guaranteed by the state to all people in the period of transition to a market economy. The minimum income was set in order to guarantee a dignified life, without compromising the incentive to work (taking into account already existing concepts of minimum wage and minimum pensions) and an amount that the State would have been able to pay.

The MSL was determined for different household compositions and distinguishing required amounts for food/personal needs and household operations. Table 1.1 reports the amounts of the MSL from November 1991 to July 1998, and as it appears from the table, the MSL was not updated every year. In fact, it was only updated when the consumer price index for low income families reached at least 10% and, with the exception of the increase between 1992 and 1994, the maximum increase was also just 10%. The result of such method of updating the MSL was a decrease of its purchasing power. For example, updating the 1992 MSL amount for one adult using the overall CPI, its value in 1997 should have been 2929 rather than 2410, more than 20% higher.

A process of revision of the MSL started in 1995 and calculated new amounts in 1996, but it was only in 1998 that the reviewed figures were adopted. The work of revision was conducted by a panel of experts, established under the MOLSAF with the specific task to amend the law on the subsistence minimum. The new calculation of the MSL used a combination of normative (money required to purchase recommended food nutrients) and behavioural assessments (using the household budget survey to identify the main consumption patterns and ascertain consumption levels for necessities among the lowest population decile, see Filipova and Valna, 1999).

After the revision, the MSL was considerably increased (see table 1.2) and it is significant to note that the revised 1998 value of the MSL for one adult (3000 SKK per month) is closer to its 1992 value updated by inflation (the 1992 value for one adult at 1998 prices would be equivalent to 3126). Furthermore, the amounts that were previously determined for different household compositions (number of members and children's age) were simplified and somehow aligned with the old OECD scale⁸. Since 1998 it was also determined that the MSL would be updated every year on the first of July. However, its value was not updated in a transparent and straightforward manner. In fact, although for minor details, the rules to update the MSL have changed three times since the 1998 revision. The basic rule to update the MSL was to use the lower of two indexes: the consumer price index for low income families and the proportional nominal increase in net income per person. The index of net income per person is calculated using data from the household budget survey and its value is correlated with the wage index⁹. The period of reference used in the

⁷ The term poverty has only started to be used recently in Slovakia, but what before used to be called 'people with limited consumption possibilities' can be considered the equivalent of 'the poor'.

⁸ The equivalence scale adopted was 1 for the head of the household, 0.7 for any added adult and 0.45 for children and dependent members (old OECD scales were respectively 1, 0.7 and 0.5, while the new ones are 1, 0.5 and 0.3).

⁹ The difference between the wage index and the net income per person is likely to be due mainly by different increases in non labour earnings (pensions, capital, etc.), and changes in number of earners (unemployment).

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computation of these indexes, rather than being the calendar year, was April to April or the first quarter of the year against the same period in the previous year.

Table 1.1 Minimum subsistence levels, 1992 and 1996 (SKK per month)

| | 1992 (11/91-11/93) | 1994 (11/93-7/95) | 1996 (7/95-11/97) | 1998 (11/97-7/98) |
|---|-----------------------|----------------------|----------------------|----------------------|
| <i>Individual Food and Other Personal Needs</i> | | | | |
| Child under 6 years of age | 900 | 1010 | 1130 | 1250 |
| Child 6-10 years of age | 1000 | 1130 | 1260 | 1400 |
| Child 10-15 years of age | 1200 | 1350 | 1470 | 1630 |
| Child over 15 years of age | 1300 | 1460 | 1590 | 1760 |
| Adults | 1200 | 1350 | 1470 | 1630 |
| <i>Household Operations</i> | | | | |
| 1 individual | 500 | 630 | 710 | 780 |
| 2 individuals | 650 | 810 | 910 | 1000 |
| 3-4 individuals | 800 | 1000 | 1120 | 1230 |
| 5 or more individuals | 950 | 1190 | 1240 | 1360 |
| <i>Examples</i> | | | | |
| One adult | 1700 | 1980 | 2180 | 2410 |
| One adult + 1 child (0-5) | 2750 | 3170 | 3510 | 3880 |
| 2 adults + 1 child (0-5) | 4100 | 4710 | 5190 | 5740 |
| 2 adults + 2 children (6-10) | 5200 | 5960 | 6580 | 7290 |

Source: MOLSAF

Although it is not entirely clear the reason behind this rule in updating the MSL, again its effect was to produce a deterioration of the purchasing power of the MSL. Table 1.2 reports the value of the MSL from 1998 to 2004, and it also reports the average implicit index used to update the MSL, which can be compared with the CPI, the CPI for low income households and the wage index. These indexes are not exactly the indexes used to update the MSL, because they are based on calendar year inflation and the wage index differs from the index of net per capita income. Nevertheless, they show that in three years 1999, 2000 and 2003, it is likely that the index of net per capita income was used to update the MSL, rather than the CPI, since the increase was lower than the use of the CPI would imply. As a result, the current mechanism can be seen to cause the MSL to decrease in real value. Indeed, the table also reports the value of the MSL in the case of one single adult, and shows that in 2004 using the CPI for low income households its value should have been 4992 rather than 4580, about 9% higher.

One possible explanation for somehow including the increase in the net income per person for updating the MSL was probably the fear that the MSL could increase in relative value against returns from wage employment, and the minimum wage. But the fact that the MSL did not keep its real value is a clear example of a possible conflict between the core functions of the poverty line. In fact, from a point of view of measuring and analysing poverty in absolute terms, it is essential that its real value should remain constant over time, at least for a certain number of years. The current method of updating the MSL can affect poverty measurement and analysis. For instance, in the event of negative economic growth and a fall in real incomes, it is normal to expect an increase of people under the poverty line, but this may be avoided or smoothed by the current rules in which the MSL is updated.

Table 1.2 Minimum subsistence levels, 1998-2004 (SKK per month)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|--|------|------|------|------|------|------|------|
| One adult | 3000 | 3230 | 3490 | 3790 | 3930 | 4210 | 4580 |
| Second adult | 2100 | 2260 | 2440 | 2650 | 2750 | 2940 | 3200 |
| Dependent/child | 1350 | 1460 | 1580 | 1720 | 1780 | 1910 | 2080 |
| Implicit updating index | | 7.8 | 8.1 | 8.7 | 3.7 | 7.1 | 8.8 |
| CPI | | 10.6 | 12.0 | 7.1 | 3.3 | 8.5 | 7.5 |
| Wage index | | 7.2 | 6.5 | 8.2 | 9.3 | 6.3 | 10.2 |
| CPI - low income | | 11.4 | 13.3 | 8.3 | 2.9 | 9.4 | 8.2 |
| <i>1998 SML for one adult updated by inflation</i> | | | | | | | |
| CPI | 3000 | 3317 | 3715 | 3979 | 4111 | 4463 | 4799 |
| CPI - low income | 3000 | 3341 | 3785 | 4097 | 4217 | 4614 | 4992 |

Source: MOLSAF, Statistical office and calculation of the author.

1.4 An absolute poverty line for Slovakia

Being already used and accepted in the country, the MSL represents a good candidate for an absolute poverty line. Indeed, within what I called the second core function of a poverty line, the MSL already encompasses some fundamental roles. In particular, the MSL is at the core of many aspects of social policy in Slovakia: it determines the basic tax allowance (which is set as 1.6 times the MSL, or on annual basis 19.2 times the monthly value of the SML), and it is influential in determining directly or indirectly social assistance in ways that are fixed by specific laws¹⁰.

It is important to stress that, while, when it was first conceived, the MSL was directly linked to the Government effort in social assistance, which had to cover the gap between MSL and households' income, the recent reform establishes only an indirect relationship between the MSL and the amounts of social assistance. In particular, the MSL is only used as a first criterion of eligibility to receive 'assistance in material need'.

However, for what concerns poverty measurement and analysis the SML presents serious limitations due to the way the SML is updated over time. Concurrently, within the EU, the officially recognised poverty measures are measures of relative poverty (the basic poverty line is 60% of the median income) and Slovakia has already started to compute such poverty estimates (see the National Action Plan on Social Inclusion, 2004-2006). Nevertheless, in the context of the Slovak Republic the adoption of both a relative and an absolute poverty line is relevant and useful. In fact, it is widely recognised that Slovakia is a country with profound regional inequalities, the eastern regions being much poorer than the western ones and measures of relative poverty could indicate whether in the bottom part of the distribution there is a process of convergence or divergence over time.

¹⁰ The MSL determines the benefit for a child when leaving an institutional care, some benefits for compensation of disadvantage caused by handicap, benefits for a child in foster care, special assistance in material need that may be given as a single benefit by the municipality, etc.

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Moreover, among some especially vulnerable groups, there are pockets of poverty characterised by the failure to attain some basic physical necessities, such as an adequate nutrition or proper access to water supply and sanitation¹¹, and, as recognised in the National Action Plan on Social Inclusion (2004) Slovakia is characterised by particularly high levels of long-term unemployment (this indicator was equal to 12.2% in 2002, about four and three times higher than the average levels observed among the EU15 and the EU25). Such problems suggest that there could be a section of the population that is particularly excluded and live in absolute income poverty. Therefore, to monitor the evolution of such dimension of poverty over time as well as the effectiveness of social assistance, an absolute poverty line is definitely needed also for the objective of poverty measurement and analysis.

The basic question is whether the SML could be revised to serve also this first core function. This ultimately depends on the possible risks outlined earlier when the same instrument is used for the two different functions. Given that social assistance in material need is now only indirectly linked to the SML, it is possible for the SML to cover coherently both functions. However, much depends on the actual value of the absolute poverty line determined using a 'scientific approach' compared to the current level of the SML.

More generally, I can see three main reasons to review the SML:

- 1) The weakness of the SML for poverty measurement and analysis: As mentioned earlier, because the SML did not maintain its real value over time, it is unsuitable to monitor the changes of poverty over time, and consequently to properly analyse the impact of socio-economic policies on poverty. Given that the SML is no longer directly linked to social assistance, it is feasible to review the way in which the SML is updated over time and to define a poverty line that can be used to measure trends.
- 2) The current validity of the SML in representing an adequate minimum income has been questioned. Beyond the problem of its deteriorating real value, it is also important to recognise that the MSL was first calculated more than 10 years ago. Since 1995 Slovakia has undergone some structural changes that imply that, even after correctly adjusting for inflation, the value of the MSL might no longer buy the normative basket that was initially identified by the panel of experts. In particular relative prices of housing and utilities are much higher than they used to be¹².
- 3) Existence of more representative datasets: More representative datasets to estimate the poverty line are now available and the next section will review such sources of data.

In conclusion there are clear reasons to review the calculation of an absolute poverty line and define in a more coherent way how such poverty line should be updated over time. The newly calculated absolute poverty line could be used for poverty measurement and represent a separate instrument from the SML or substitute the SML. In the second case the calculation of the poverty line could be seen as 'rebase operation' as well as extending the use of such absolute poverty line for poverty measurement and analysis. I will return on this after the computation of the new poverty line.

¹¹ See for instance evidence provided in the joint report by the WB, Foundation SPACE, INEKO and The Open Society Institute (2002): Poverty and Welfare of the Roma in the Slovak Republic (page 17) for what concerns nutrition and statistics in the Atlas of Roma communities for access to water supply and sanitation.

¹² Prices of housing and utilities in 2003 were three times higher than in 1993, while in the same period prices of food and non-alcoholic beverages increased by 1.8 times.

2. Sources of data for poverty measurement and analysis

It is widely recognised that household surveys provide crucial information for poverty monitoring, and country-representative probability samples are the only tool that can provide direct information on the distribution of living standards in the country¹³. Being a multi-dimensional phenomenon, poverty can be analysed from different perspectives, and household surveys often collect information that can be used to study deprivation in various aspects of living standards. Nevertheless, as mentioned earlier, the focus of this report is on income-based poverty.

Income-poverty can be measured using either income or consumption as an indicator of welfare. Both consumption and income have pros and cons as welfare indicators since the first tends to measure welfare achievement, while the second is more likely to determine the 'possibility' of a certain achievement¹⁴. Moreover, there are theoretical arguments that point to the fact that consumption tends to be more stable over time than income¹⁵ and, therefore it is in a better position to capture actual welfare conditions that go beyond temporary ups and downs.

Beyond such theoretical considerations, there are more practical aspects that should be taken into account in order to decide which aggregate is better suited to measure living standards. Difficulties in measuring one or the other aggregate depend on the economic characteristics of the country. In fact, complexities in the measurement of income generally arise when income sources are irregular and when people work in self-employment. For this reason in developed economies, where the share of agriculture in the GDP is relatively low, and the wage sector is dominant, it is easier to measure income. On the contrary, consumption requires much longer and complicated forms of data collection affecting not only survey costs, but also survey compliance¹⁶.

In the context of Slovakia it is definitely more practical to measure income rather than consumption expenditure since the share of people self-employed and those receiving income from highly seasonal activities, such as agriculture, are relatively small (according to the labour force survey people employed in agriculture only represent about 5% of the employed population: about 110 thousand people in 2004).

¹³ Indirect information on poverty can also be obtained looking at other variables highly correlated with income poverty (for instance unemployment and persistent unemployment, the numbers of recipients of social benefits, lack of education or basic services, etc). Moreover, changes in such indicators and the macroeconomic performance could help inform expectations on changes in income poverty. However, such information cannot substitute for the actual estimates of poverty and inequality, which can only be measured through appropriate household surveys.

¹⁴ With regard to this difference we can think of situations in which consumption would do better than income as well as situations in which the opposite is true. For instance, we could consider a household receiving a very low income in a transitory period, but maintains its consumption level by borrowing or using up some savings. Considering living standards of this household looking at income in the transitory period would be misleading of the actual living standard of this household. On the other hand, we can think of one household with very high income levels, but opts for a frugal lifestyle. Their income is saved and in case of need would allow them to face unexpected costs and in any case does influence their social status. By looking at their consumption we would understate their actual welfare.

¹⁵ This is definitely true when the reference period is relatively short as is the case when we measure poverty on an annual basis.

¹⁶ It is also important to mention that in some contexts simplicity of interviews could come at a cost, since the reliability of consumption data is generally thought to be higher because people are more willing to report their expenditure than their incomes.

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On the other hand, even though wage employment represents a much larger share than self-employment, information about income from self-employment still needs special treatment, so that welfare levels of the self-employed are not underestimated compared to that of other socio-economic groups. Moreover, surveys need to investigate accurately income that comes from irregular sources. In all cases where income is difficult to compute, the possibility of measuring consumption in addition could offer the way to cross check the validity of income data.

In the Slovak Republic there are three main household surveys that can be potentially used for poverty analysis: the Household Budget Survey, the Microcensus and the most recent Survey of Income and Living Condition (EU-SILC). All of them collect information that can be used to measure poverty using income as the welfare indicator, and the HBS also contains information on expenditure. In what follows, I summarise the main positive and negative aspects of such surveys for the purpose of the estimation of an absolute poverty line as well as for welfare analysis.

2.1 The Household Budget Survey

Although the HBS is not a new survey, in 2004 the survey design has changed quite radically so that it represents a more useful and representative dataset than it used to be, and for this reason, it offers the possibility of some new analysis for the estimation of the poverty line as well as for poverty analysis.

What makes the 2004 HBS a much more representative survey than previous HBS surveys are changes in the way the sample of households are selected as well as the overall size of the sample, which increased from about 1650 to 4600 households, so that the new sample can generate estimates for the eight administrative regions¹⁷.

Although the new sample design cannot yet be called a random sample, the selection of the sample is now more representative of Slovakia since it covers more comprehensively people in its territory and does not exclude, as the previous design was doing, certain categories of households, namely households headed by unemployed people. However, the new sample design is still a quota sample, where a first criterion for the quota is the eight administrative regions and a second is the size of localities where people live. Within each quota, localities are not randomly selected, but chosen by the regional administration according to some criteria (suitability for field work, and their representative character – production, employment, age and nationality structure). In the second stage households within localities are chosen with systematic sampling.

In summary, the current design represents a substantial improvement compared to the previous design, but it still has some serious limitations: it is not possible to use statistical inference to assess the precision of estimates, and there might be a selection bias when localities are chosen.

The 2004 HBS also had a relatively high non-response rate: 33% before substitution and 31% after substitution. Among non-respondent households about 80% were refusal to participate in the survey¹⁸. If survey non-compliance is correlated to the phenomenon that we want to investigate (income), non-response clearly generates a bias and makes the sample less representative.

¹⁷ In a previous report "An assessment of currently available statistical data for welfare analysis" I analysed in some detail the HBS on various aspects of sample selection and data quality (including sample design, non-response, comparison with other sources – Census and administrative data -, data quality and questionnaire design). Here I only report a summary of the main findings of that assessment.

¹⁸ These estimates were provided by the statistical office of the Slovak Republic on correspondence dated 30th of November, 2005.

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Although I currently do not have way to assess the extent of the bias, evidence from other countries clearly shows that non-response is generally selective, especially if it is due to refusal to participate in the survey. Indirectly, this is confirmed also in Slovakia, by the fact that non-response is very different across the eight administrative regions, very high in Bratislava, Nitra and Zilina, and very low and almost insignificant in Kosice and Presov.

A comparison of some key estimates between the HBS and Census show that the 2004 HBS produces estimates that are much closer to those of the Census than the previous HBS (namely 1998-2003), but the sample seems still to exclude some of the tails of the welfare distribution: the very rich as well as the very poor. Various inequality measures are consistent in showing that the 2004 HBS provides estimates that are more reliable than those provided by previous HBS surveys. For instance the Gini index in all surveys conducted between 1998 and 2003 was only about 0.18 for consumption and 0.16 for income, but in 2004 it was respectively 0.28 and 0.26. This is clearly the effect of the more representative survey conducted in 2004 rather than an actual increase in inequality (a previous report on "Poverty and Inequality Estimates" makes a thorough assessment of consumption and income data derived from the HBS, and the analysis of such data for 2004 is reported in Annex A).

Finally, the current questionnaire design has some limitation in the way the key aggregates of consumption and income are collected. In particular there is the need to improve the collection of data on consumption rather than just on expenditure.

In summary, the 'new HBS' made some substantial progress in 2004, and its data are now more representative of the conditions of the country. Although there are areas that would need further improvement (sampling design, treatment of non-response, field procedures and questionnaire design), HBS data are the only source of data on consumption and they are fundamental in the estimation of an absolute poverty line. In particular, as we will see in the next section, objective approaches to the estimation of the poverty line rely heavily on such datasets.

2.2 The Microcensus

The Microcensus was until now the main source of data for poverty measurement. For instance Filipova and Valna (1999) made use of both the 1996 and 1992 data, while in the more recent NAP for Social Inclusion data from the 2003 Microcensus was used.

However, the main problem with the Microcensus is that it collects information on income with a long recall period, which can easily generate errors in the reported data: the survey conducted in April 2003 collected data on incomes in 2002. Generally, reliance on long recall periods has the effect of under and overestimating income levels due to memory failures, and in turn this usually leads to overestimate income inequality. Furthermore, the results of the 2003 Microcensus cannot be easily compared with those of previous datasets because of changes in the structure of the questionnaire.

The currently available official estimates of poverty in the country are obtained from the 2003 Microcensus using measures of relative poverty, namely the poverty line was equal to 60% of the median income. However, my understanding is that the data were subject to extensive micro simulation and imputation and consequently its estimates are often criticised.

Nevertheless, it is worth noting that the level of inequality measured using the 2003 Microcensus (incomes of 2002) was substantially higher than the one measured using the 2004 HBS, respectively the Gini index was 0.31 in the Microcensus (as quoted in NAP 2004-2006) and 0.24 in

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HBS¹⁹. However, it is not clear to what extent this is due to an overestimation in one case and/or underestimation in the other.

Finally, an interval of five years or more between Microcensuses is too high for the measurement of poverty trends, and therefore information from the Microcensus is definitely insufficient for the purpose of poverty monitoring and analysis.

2.3 The Survey of Income and Living Conditions (EU-SILC)

The EU-SILC took place for the first time only in May 2005, and its data are not yet available at this stage, but this survey is potentially the appropriate source for poverty measurement and poverty analysis, it will be conducted once a year, and it is likely to replace the Microcensus as the main source for poverty analysis.

The SILC questionnaire contains detailed income information that make possible to compute the population income distribution, provided the quality of data is of acceptable standards. However, the questionnaire is not without its limitations. In particular it has the same problem of the Microcensus, since it uses a too long recall period: people interviewed in May/June 2005 are asked to report about income in the calendar year of 2004. Furthermore, the fact that value of own-produced consumption is asked in just one question is highly questionable, and the same holds for income from self-employment also asked in just one question²⁰. Anyway, there is hope that after the first year, proper data evaluation would encourage some questionnaire improvements.

Furthermore, the questionnaire contains information that can be used to assess also non-income poverty dimensions, subjective dimensions of poverty, as well as the construction of deprivation indexes and aspects of social exclusion.

In particular the questionnaire contains information on the so called Minimum Income Question (MIQ): each household is asked to estimate the minimum income required to meet their basic needs. As explained in an earlier report ("Approaches to measure and update an absolute poverty line"), such question can be used to estimate a "subjective poverty line", and such poverty line could be usefully compared to that determined using other approaches, namely objective methodologies that make use of consumption data.

Information collected from the EU-SILC would also allow the creation of deprivation indexes, such as those pioneered by Townsend in 1979, and in any case to see what type of social exclusion people below the poverty line are suffering (this could be done using questions on socially perceived necessities, section B8).

¹⁹ Both estimates of the Gini coefficient are computed using equivalised income (using the modified OECD equivalence scales).

²⁰ Questions should help people to recall what is in their mind. While people generally know what is the wage received in their current accounts, the value of the amount of production consumed in the last year can only be estimated very approximately.

3. The calculation of an absolute poverty line

There are different ways in which absolute poverty lines are set. In most cases their decision is influenced by political considerations, and although in some countries their setting was rather arbitrary, I believe that for the poverty line to cover its main core functions it is important to use a transparent and recognised methodology so that its value will be defensible. I call such approaches 'scientific' in the sense that they are based on clearly specified hypotheses, that can be tested and thus refused or changed, and because the calculation of the poverty line can be reproduced following the same approach. Within such approaches there are two main ways of computing the poverty line, namely objective and subjective approaches. Objective approaches try to determine the poverty line considering some objective criteria that guarantee the achievement of some basic requirements, and the various approaches differ for the degree of normative judgements used in determine such necessities. Subjective approaches instead abandon the attempt of identifying some objective minimum living standards and consider people's perception of a minimum income (minimum spending or socially perceived necessities) necessary to conduct a decent life.

The most normative approaches within the objective approaches are also called 'budget standards' and consist of normative judgements that consider what are the list of commodities that people ought to consume in order not to be considered poor. Such budget standards are often drawn with the help of a panel of experts in different fields (nutritionists, economists, sociologists, etc.) and can be partly informed also by the analysis of behavioural data, such as observed consumption patterns in household surveys. Once the basket of items is identified it is priced to derive a monetary amount of the poverty line²¹.

Other objective approaches depend more on behavioural data (consumption expenditure data from household survey data) and, although they start considering a certain normative judgement of minimum living standards (such judgements are made in relation to minimum standards of nutrition, namely a minimum caloric intake or a certain appropriate diet), they then make use of empirical data to determine the poverty line. Among such behavioural approaches are the food energy intake method and the cost of basic needs method (these are discussed in more detail later).

Subjective approaches make use of the opinions of a sampled population to determine a poverty line, and as explained earlier these are based on the MIQ²². Tonwsend's approach of a deprivation index and in particular the development of such approach into the 'socially perceived necessities', also uses a subjective approach to the measurement of poverty, but does so without determining a monetary poverty line.

Whatever is the methodology adopted, it is important to emphasize that there are always aspects of arbitrariness in the setting of the poverty line, and it is generally recognised that such

²¹ Such approach was originally implemented by Rowntree in the city of York, England, in which Rowntree estimated the level of the poverty line as the one covering the minimal food requirements together with those necessary for the purchase of cloth and rent. Modern application of such budget standards are found in Australia where low cost budgets were estimated by the Social Policy Research Centre, and the budgets of the Family Budget Unit in the UK.

²² Similarly to the MIQ, surveys can also ask what is called a minimum spending question: "In your opinion how much would you have to spend each year in order to provide the basic necessities for your family?". Experiments in different OECD countries show that the phrasing of the question is quite critical and the minimum spending question tends to estimate lower poverty lines (for instance see Garner and Short (2002)).

arbitrariness is the result of the very concept of a line that divides the poor from the non-poor. In reality, best practice is to identify a poverty line, but also analyse poverty using a range of possible poverty lines. Although only a single poverty line will be selected as the official and public poverty line, for the purpose of poverty analysis it is important to test the sensitivity of the main policy-relevant conclusions to the level chosen for the poverty line.

3.1 The cost of basic needs

In my first report I proposed to re-compute the poverty line using an objective approach that relies as much as possible on empirical data (household survey data) that represent and properly capture consumption patterns of the population of Slovakia. In particular, I proposed to use a 'scientific approach' in the sense that empirical data (HBS data) are used to calculate the poverty line and all hypotheses made in its calculation are clearly spelled out, so that can be tested, and the same results can be replicated²³. Moreover, I proposed to use a method that is widely recognised and used to set absolute poverty lines: the cost of basic needs method (see Ravallion 1994). The 'cost of basic needs' methodology should identify a poverty line that is linked to a notion of necessity consistent with the standards of Slovakia, but I will also test in various ways the reliability of such poverty line and carry out some sensitivity analysis. The MSL was also set using an objective approach, though it relied much more on normative judgements, some of them unknown, which makes the original calculation not replicable.

In what follows I describe in detail how I used the methodology of the "cost of basic needs" to compute the poverty line, using the 2004 HBS data. This approach identifies the consumption bundle believed to be adequate for basic consumption needs based on nutritional requirements. In particular, according to this methodology, the poverty line is calculated in two stages: first I estimate the food component and then the non-food component is calculated based on the cost of meeting food requirements.

The food component of the poverty line is based on the need to meet certain minimum nutritional requirements. The Research Institute for Nutrition (Slovakia) provides some recommendations on what should be the calorie intake of people at different age, sex and depending on the type of people's activity. Such recommendations for low levels of activity are those adopted for the report, and such 'minimum' calories' intakes per day are reported in table 3.1²⁴.

Considering such requirements in the HBS sample (applying such calorie intakes to each person according to their age and sex) the average per capita calorie requirement should be 2317 calories (kcal) per day²⁵ (the same amount is obtained if we compute such requirement using Census data on age and sex of the population). However, calories intake per se is not the criteria with which people's welfare is assessed, instead such nutritional references are used to set the minimum expenditure that would allow people to reach such nutritional intake. In other words what is relevant is the cost of buying such calories. It would also be possible to follow further the

²³ All the computer programs I wrote for the calculation of the poverty line and poverty analysis will be provided to the MOLSAF and are available from the author (programs are written in STATA).

²⁴ Such recommendations were found in the following web site and I am thankful to Silvia Rybarova for leading me to this link (<http://www.sazp.sk/slovak/periodika/sprava/tur/8/OVD.html>). It is also relevant to say that these recommendations are also similar to those provided by the WHO for other countries.

²⁵ Each person sampled in the survey is given the recommended calorie intake of table 3.1. For instance, to people aged 1 to 3 years old a calorie intake of 1315 is assigned, while to male aged between 19-34 2750, and women aged 35-54 2150, etc. Then the simple weighted (using sampling weights) per capita mean is computed obtaining the value of 2317.

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recommendations of the Research Institute for Nutrition and consider the recommended food bundle that people should consume in order to guarantee such calorie intake, but such normative approach is often too different from actual consumption habits. Indeed, an infinite variety of food baskets, differing in price, could be consistent with attaining a certain level of calories, but choosing which items to include in the basket would be extremely arbitrary. Therefore, I decided to use the HBS data and include all the items consumed in the food basket by a specified population group. Their relative weights are also based on actual consumption patterns observed in the data.

Table 3.1 Recommended daily calorie intake (kcal) by age and sex

| Age | male | female |
|------------------------|------|--------|
| 0 | 750 | 750 |
| 1-3 | 1315 | 1315 |
| 4-6 | 1800 | 1800 |
| 7-10 | 2150 | 2150 |
| 11-14 | 2510 | 2390 |
| 15-18 | 2990 | 2295 |
| 19-34 | 2750 | 2270 |
| 35-54 (35-59 for male) | 2630 | 2150 |
| >=55 (>=60 for male) | 2200 | 2100 |

Source: The Research Institute for Nutrition (Slovakia), the requirement for the last age group (≥ 55) was added by the author, based on WHO equivalence scales, because such category was missing from the recommendations of the Research Institute for Nutrition. Furthermore, for babies less than one year the value provided is the average of the recommendation for 0-6 months and 7-12 months.

I considered the population group of interest to be the lower part of the distribution (first and second decile, where deciles were computed so that each decile contains 10% of the population ranked in terms of per adult equivalent income, using the modified OECD equivalence scales). In fact focusing on the population located in the low end of the welfare distribution, we are more likely to reflect the preferences of the poor as well as the prices that they face²⁶.

HBS data contains information on both quantity and value of 63 different food items, and therefore also on implicit prices (given by value divided by quantity)²⁷. Quantities consumed were used to

²⁶ Information on prices is also often used to compute different costs of the same basket in different regions of the country. However, this in the case of Slovakia is likely to be inappropriate for two reasons: 1) since the absolute poverty line could be used as an income support measure, arguing that poverty lines should be differentiated in the various regions of the country could be questionable, especially if such differences are not relevant; 2) considering the level of development of the country differences of prices are likely to be relatively small. Moreover, the current level of information is not sufficient to make such analysis (the current grouping in 63 different items is likely to capture differences of products rather than prices), but the Statistical Office does have data at a more disaggregated level and the analysis could therefore be possible. Therefore, future research could use such data to actually assess the eventual importance of differences of prices in eastern and western areas of the country and big urban centres and the rest of the country.

²⁷ Particular care was taken in checking the data for possible outliers that could affect such calculation. As a result of these checks only 1% of all transactions were corrected. Moreover, an earlier calculation of the food poverty line gave very different results because of some problems with five of the 63 items. These were poultry; smoked, salted and dried meat; processed meat; other types of meat; and fish. Close comparison with previous estimates of quantity consumed for such items and estimates of the Statistical Office of the Slovak Republic revealed that the dataset provided to me contained some errors, resulting in substantially lower implicit prices and implausible consumption for two of these items (poultry and processed meat). Since the corrected data could not be made available, I corrected the original quantities in the dataset

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compute the per capita average food basket (total quantities consumed by the population of interest have been divided by the respective population) and the cost of such basket was obtained multiplying quantities by median implicit prices observed in the population of interest (as recommended by Bidani et al. 1994). Afterwards caloric conversion factors were used to transform the identified food bundle into daily calorie-intake²⁸. Cost and calorie intake were then adjusted to meet the per capita requirement implicit in the recommendations of table 3.1. The average daily per capita caloric intake of the population of interest in 2004 was of 2084 calories and the monthly value of the food bundle providing such calories was 1571 SKK per person. Hence the value of the monthly food poverty line is 1746 SKK (= 1571 x 2,317 / 2084). Table 3.2 shows the composition of the basket that gives the desired per capita daily calorie intake as well as their respective costs that make up the food poverty line²⁹.

Table 3.2 Composition of food poverty line (value and calorie composition of the minimum per capita food basket)

| | Caloric intake | | Value | |
|-----------------------------------|------------------|--------------|---------------|--------------|
| | Calories per day | Share (%) | SKK per month | Share (%) |
| Cereals and cereal-based products | 891.5 | 38.5 | 300.3 | 17.2 |
| Meat, eggs and fish | 301.5 | 13.0 | 570.4 | 32.7 |
| Milk and milk products | 180.7 | 7.8 | 230.1 | 13.2 |
| Oils and fats | 450.5 | 19.4 | 106.9 | 6.1 |
| Fruits | 67.9 | 2.9 | 93.4 | 5.3 |
| Vegetables | 102.2 | 4.4 | 147.2 | 8.4 |
| Sugar and sugar products | 252.1 | 10.9 | 118.2 | 6.8 |
| Seasonings | 31.2 | 1.3 | 59.4 | 3.4 |
| Coffee, tea and beverages | 39.0 | 1.7 | 120.6 | 6.9 |
| Total | 2316.6 | 100.0 | 1746.5 | 100.0 |

Source: Calculations of the author based on HBS data.

The cost of meeting nutritional needs alone cannot constitute the poverty line since it would ignore other fundamental basic needs: being healthy and able to participate in society requires spending on shelter, clothing, health care, recreation, etc. This is why it is essential to consider a non-food component of the poverty line. However, identifying which other items should be included in the minimum consumption basket and their amount is generally a controversial issue. One way to avoid a direct judgement on the non-food items is to link the non-food component with the normative judgment involved in the food poverty line. Usual practice is to scale up the food poverty line by dividing the food poverty line by the proportion of total consumption devoted to food expenditure by those households that spend for food consumption an amount approximately

dividing declared expenditure by the price implicit in the Statistical Office estimates. Such corrections provided a close match to the mean per capita consumption estimated by the Statistical Office. Because of this problem previous estimates evaluated the food poverty line at a lower amount overestimating the calorie intake obtained from meat and meat products.

²⁸ Alcoholic drinks and tobacco as well as meals in restaurants were excluded from this calculation, but food expenditure in canteens in the working place was later included as food expenditure that can provide the required calorie intake.

²⁹ A more detailed table with all the 63 food items is provided in the statistical annex in table D3.

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equivalent to the food poverty line³⁰. The argument is that, if these households do not spend more on food consumption, it is because also the non food expenditure must be an essential part of their consumption. The advantage of this method is that the non-food component can be based on the actual consumption behaviour of a reference group and not by a pre-determined non-food bundle.

I used a non-parametric method proposed by Ravallion (1998) to compute the food share of those spending for food an amount approximately equal to the food poverty line. The method requires computing the mean food share among households whose per capita food expenditure lies within a small interval around the poverty line. The method is the following: it calculates the average food share among households whose per capita food expenditure is between plus and minus one percent of the food poverty line, plus and minus two percent, three percent, up to ten percent, and then it takes the average of the ten mean food shares.

However, as admitted by Bidani et al (1994), even by concentrating on households that spend the recommended amount for food, we can find households that spend large amounts for non-food items, and complications can arise also because of random differences in tastes and measurement errors. Therefore in determining those households from which we want to derive the non-food share, it is sometimes important to exclude households that are clearly relatively well-off (are in the higher deciles).

Using Ravallion's suggested method and considering all households in the sample with food consumption within the defined interval around the food poverty line, the resulting food share would be 29.2%, equivalent to a 'multiplier' of the poverty line of 3.42. As can be seen from table 3.3, such multiplier is much more common among households in the higher deciles, and this is confirmed by the fact that, although the interval around the food poverty line is symmetric, the median food expenditure of the selected households was above the food poverty line. I therefore applied Ravallion's method putting a restriction on the deciles included in the analysis and making sure that in the larger interval considered (plus and minus 10% of the food poverty line) the median observation was actually equal or very close to the food poverty line in order to ensure symmetry in the chosen sub-sample. Such symmetry was guaranteed when considering the first four consumption deciles. Ravallion's method was therefore applied using only households with food expenditure approximately equal to the poverty line and who are in the first four deciles³¹. Using such cases the resulting food share was 38.6%, which is equivalent to a multiplier of 2.59 which is very close to the average ratio between total expenditure and food expenditure in the lower part of the distribution. Applying this multiplier to the food poverty line I obtained a poverty line equal to 4523 SKK per capita per month. This provides a poverty line reflecting both food and non-food needs.

³⁰ Another more extreme approach is to consider the food share of households, whose total expenditure is equal to the food poverty line, arguing that in such case people substitute basic food needs in order to satisfy some non-food needs. However, such methodology is more justifiable in countries where the food consumption share still takes a substantial part of the overall budget (say more than 50%), but it would be less relevant in the case of Slovakia where the average consumption food share is only 30%, and it is likely to reflect some outliers rather than reliable information. In the method used by Orshansky in the US in 1963 and 1964 she considered the proportion of income (after taxes) spent on food by families of different composition (three or more persons and two people) (see Fisher 1997).

³¹ I have also checked that the households used for this analysis are of a diverse demographic composition.

Table 3.3 Inverse of food share and per capita food expenditure by consumption deciles (per member equivalent consumption using the modified OECD scales)

| Decile | Inverse of food share | | Per capita food expenditure | |
|---------|-----------------------|--------|-----------------------------|--------|
| | mean | median | mean | median |
| Poorest | 2.61 | 2.39 | 1253 | 1183 |
| 2nd | 2.74 | 2.55 | 1593 | 1505 |
| 3rd | 2.73 | 2.60 | 1910 | 1814 |
| 4th | 2.86 | 2.71 | 2042 | 1960 |
| 5th | 2.95 | 2.75 | 2170 | 2068 |
| 6th | 3.13 | 2.82 | 2272 | 2143 |
| 7th | 3.05 | 2.84 | 2512 | 2394 |
| 8th | 3.28 | 2.98 | 2678 | 2524 |
| 9th | 3.59 | 3.32 | 2955 | 2835 |
| Richest | 5.63 | 4.41 | 3408 | 3125 |
| Total | 3.27 | 2.84 | 2294 | 2108 |

Source: Calculations of the author based on HBS data.

3.2 Per member equivalent poverty line

The calculation of the poverty line has been conducted in per capita terms, but it is widely recognised that per capita poverty lines are more appropriate for households of average size and composition, whereas they tend to underestimate the poverty line for small households and to overestimate the needs of large households. For instance, the average calorie intake is lower than the actual requirements of a single adult, but overestimates those of households with many children since individual calorie requirements vary with age and sex. In addition there are economies of size that make consumption ‘cheaper’ for large households, and some ‘quasi public goods’, whose costs tend to be very similar independently from the number of members in the household (such goods are generally durable items and housing related services). Although it is widely recognised that it is necessary to make some adjustment for economies of size and equivalence scales, there is less consensus on how they should be made.

As already mentioned the equivalence scales implicit in the current SML are almost equivalent to the old OECD equivalence scale, but recently in Slovakia also the modified OECD equivalence scales have been used for poverty measurement and analysis (NAP on social inclusion 2004-2006). The approach adopted here is to use the modified OECD equivalence scale as the benchmark approach, but it is important to test the sensitivity of some policy relevant conclusions to different hypotheses of adjustments (such analysis is reported in annex B). The modified OECD equivalence scales count as 1 the household head, 0.5 any other adult in the household and 0.3 for each child (less than 14 years)³². Such equivalence scales are used for international comparative purposes among OECD countries and are also adopted for national estimates by countries that do not have alternative accepted equivalence scales. Although consumption patterns of Slovakia show that ‘quasi public goods’ take a relatively small share of the overall consumption compared to other OECD countries (for instance housing costs are relatively smaller

³² It makes stronger adjustments compared to the old OECD scale, where other adults count 0.7 and children 0.5.

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in Slovakia than in other OECD countries) they have increased steadily in the last few years, and it is likely that consumption patterns will align more and more to other Western European countries.

Once we adopt a specific set of parameters that define the equivalence scales, it is possible to express household size as a number of 'equivalent members'. For instance a household of four members made of husband, wife and two children, is made of 2.1 equivalent members using the modified OECD equivalence scales ($1+0.5+2*0.3$). Similarly, the per capita poverty line can be transformed to represent the needs of a single member. Such correction is simply obtained inflating the per capita poverty line by a factor equal to the ratio of average household size and average equivalent member household size (the average household size is 2.88, while the equivalised household size using the modified OECD scale is 1.85, so that the multiplying factor is about 1.5). Applying this correction the poverty line for a single adult is calculated at 7042 SKK per month. This is the poverty line used in the remainder of the report. Table 3.4 shows such poverty lines for different household compositions.

Table 3.4 Proposed poverty line, 2004

| | Poverty line | Member equivalent size |
|-----------------------------|--------------|---------------------------|
| One adult | 7042 | 1 |
| Other adult | 3521 | 0.5 |
| Child (<14) | 2113 | 0.3 |
| <i>Examples</i> | | |
| Two adult household | 10563 | 1.5 |
| Two adults and one child | 12676 | 1.8 |
| Four adult household | 17605 | 2.5 |
| Two adults and two children | 14788 | 2.1 |

Source: Calculations of the author based on HBS data.

3.3 Comparisons with alternative poverty lines

It is important to assess how the proposed absolute poverty line compares to the current MSL, and alternative poverty lines, as well as the more general structure of benefits and tax thresholds.

Subsistence Minimum: In 2004 the value of the SML was equal to 4580 SKK per month in the case of a one member household (the original calculation of the subsistence minimum updated by inflation would be 4799 SKK per month). This value is substantially lower than the cost of basic needs poverty line, but we need to be aware that the proposed absolute poverty line uses different equivalence of scales. Indeed the difference between proposed line and SML for other adults and children is much smaller, being respectively 3521 vs 3200, and 2113 vs. 2080.

60% of the median equivalised income: This is the official relative poverty line, already used by the Government in the existing poverty estimates, and it is the poverty line adopted by Eurostat for international comparisons. The calculation of such poverty line using the 2003 Microcensus, 2002 data, gave a poverty line of 5511 SKK per equivalent member per month (modified OECD equivalence scales), which in 2004 prices translates in approximately 6431 SKK per month. The

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same poverty line using the 2004 HBS data is equal to 6141 SKK per month³³. This value is again lower than the cost of basic needs poverty line. In my first report, before any analysis of the data, considering Slovakia's economic conditions, I was expecting to find an absolute poverty line lower than the relative poverty line. Moreover, in a scenario in which the absolute poverty line is lower than the relative poverty, the two measures would definitely complement each other in a better way. However, given that absolute and relative poverty lines change over time in a different manner, in a scenario of sustained economic growth, the absolute poverty line is expected to fall behind the relative poverty line. For example in the US in 1960, official estimates of absolute poverty were higher or at the same level of relative poverty measures, but since the mid 1960s absolute poverty has become lower than relative poverty measures. Moreover, proper measures of the relative poverty line depend on the correct estimate of median income, this might have been somewhat underestimated due to the high survey non-compliance both in the HBS and the 2003 Microcensus. Similarly, if the HBS did not properly cover the lower tail of the distribution the resulting absolute poverty line using the cost of basic needs methodology might be somewhat overestimated.

Alternative poverty lines: When possible it is also valuable to compare the proposed poverty line with others set using different methods. In particular, in my report "Approaches to measure and update an absolute poverty line" I argued that it would be useful to measure the subjective poverty line using data that will become available with the EU-SILC. Another alternative poverty line can be computed using the "Food Energy Intake" (FEI) method and the 2004 HBS data. The application of such method produces poverty lines in the same range of the poverty line computed using the cost of basic needs methodology. In particular, the per capita poverty line is of 4810 SKK per months and it is computed assuming that households consume exactly the recommended calorie intake of table 3.1. Such methodology also allows the direct calculation of the 'equivalised poverty line' adjusting household consumption expenditure for the equivalised household size (obtained using the modified OECD equivalence scales). The poverty line 'per equivalent member' is 7169 SKK per month. In this regard it is useful to note that the ratio between the 'per member equivalent poverty line' and the 'per capita poverty line' is very similar to the ratio adopted in the cost of basic needs methodology. Details on the calculation of the FEI poverty line are reported in Annex C.

Other indicators of minimum income: It is also important to see how the calculated poverty line would fit in the current system of benefits and income support measures: the assistance in material need, minimum wage, and the standard tax allowance.

The benefit in material need is granted to households whose joint income is below the SML provided that the same household is unable to earn more income, but the value of the benefit, together with eventual allowances, is generally substantially lower than the SML. The actual amount of the benefit is then determined as the difference between the household's income and the overall amount of the benefit in material need and the relevant allowances. However, 25% of income that comes from dependent activity and pensions (as well as other irregular sources of income) is excluded from such calculation. Therefore, the 2004 reform detached the SML from amounts of social assistance, but the SML is still used as a first screening criterion. It can be argued that the Government is interested to monitor people in absolute poverty, know what are their characteristics and the common causes of poverty, but then how to reduce poverty is a

³³ Per capita median disposable income was 5806 SKK per month (such estimate is reported in the Statistical Office website http://www.statistics.sk/webdata/slov/mikrocen/def_v/zak_v.pdf), while according to HBS data the median per capita income was of 6594 SKK per month, which suggests that estimates of median income in Microcensus and the HBS are similar after taking into account inflation and the effect of economic growth, though the Microcensus estimate is somewhat higher than the HBS one.

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different decision and social assistance is only one of the tools that the Government can use to help the poor. Of course, if the new poverty line were to replace the current SML, more households could be eligible to the benefit, but the actual disbursement and the decision about the recipients can remain a political decision. Nevertheless, once again it is the lower poverty line identified using the cost of basic needs method that would be more suitable in relation to the benefit in material need.

Finally, when comparing the calculated poverty lines with the minimum wage (6500 SKK in 2004), and the basic allowance for income tax (6736 on a monthly basis) the proposed poverty line would be above such levels.

3.4 Updating the poverty line over time

Rather than calculating the absolute poverty line every year or every time a suitable dataset is available, the thresholds of the absolute poverty line should be simply updated by inflation.

As discussed earlier the rules with which the current MSL is updated over time are not always straightforward. The way in which the MSL should be updated depends on what the MSL represents and to some extent how it was computed. The objective of the MSL is to represent the value of a certain basket of items that satisfy some necessary requirements, according to the existing standards in Slovakia. For this reason it is important that the MSL maintains the same real value over time. The MSL is not a minimum wage and therefore it should not be linked to a wage index (or the median income). The link of 'minimum incomes measures' to the wage index is not a peculiarity of Slovakia, for instance the Statutory Minimum Income in France (after 1970) was updated both for changes in prices, increases of manual workers' pay and to government's discretion. However, such rules of updating minimum income relates to a different objective of such measures and their links to political decisions on social assistance (the statutory minimum income in France was directly linked to social benefits and thus its level had political and fiscal consequences).

Moreover, the current mechanism adopted to update the MSL contradicts the function of an absolute poverty line as a tool to monitor and analyse poverty. Ideally an absolute poverty line should be updated in a way that its amount over the years maintains the same purchasing power. If there are not dramatic changes in the structure of prices, such goal is simply achieved by updating the poverty line using the consumer price index³⁴.

Therefore, the main and important recommendation in this area is simply to update the poverty line using the CPI that is published by the Statistical Office. This simplifies the mechanism and will result in a more transparent process.

Disregarding information on the increase of net per capita income will also reduce the delay in which the poverty line can be adjusted. In fact the CPI is updated every month and promptly by the Statistical Office, so that the advice is to update the poverty line in July considering the level of inflation of the previous year (for instance looking at the web site of the statistical office - www.statistics.sk/webdata/english/tab/cop/cop06c.htm - in early July it was possible to compute that inflation in the previous year was 2.5% - the CPI index in June 2005 was 130.5 and in June

³⁴ An alternative choice could be to use the CPI for low income households or a different price index (while the CPI uses the Laspeyeres price index, the Fisher index could be more appropriate since the latter takes into account both changes in prices and consumption patterns), but for reasons of transparency the choice of the CPI seems more appropriate.

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2004 it was 127.3, so that using this number the poverty line in 2005 should be updated to 7219 ($=7042 \cdot 130.5 / 127.3$).

A revision of the absolute poverty line should only be considered in the case of poverty rates becoming very low or in dramatic economic changes. The same poverty line could be easily retained at least for ten years, although it is also possible that the same line could be maintained for a longer period.

4. Poverty measures

This section is divided in three parts. The first part describes the poverty measures used in this report and gives the basic estimates for 2004, the second part concentrates on measures of inequality and the third part produces a short poverty profile.

4.1 Poverty measures

The poverty line is instrumental in poverty measurement, and it is used to determine who the poor are as well as the various poverty measures. People's poverty status is judged on whether they have the means that would have allowed them to consume the minimum consumption basket. Therefore, poor are people who, regardless of how they spend their money, have an income below the poverty line.

A set of poverty measures often used in the literature are those proposed by Foster, Greer and Thorbecke (1984). This family of measures is summarized by the following formula:

$$P_{\alpha} = (1/n) \sum_{i=1}^q \left(\frac{z - y_i}{z} \right)^{\alpha}$$

where α is a non-negative number, z is the poverty line, y is income, i represents individuals, n is the total number of individuals in the population, and q is the number of individuals with income below the poverty line.

The most common poverty measures are three, where α takes the value of zero, one and two. When $\alpha=0$ we simply have the headcount index, which gives the share of the poor in the total population, it measures the percentage of population whose income is below the poverty line. This is the most widely used poverty measure, mainly because it is very simple to understand and easy to interpret. However, it has some limitations. It does not take into account how close or far the income levels of the poor are with respect to the poverty line nor the distribution among the poor. The poverty gap ($\alpha=1$) is the average income shortfall of the population relative to the poverty line. Since the greater the shortfall, the higher the gap, this measure overcomes the first limitation of the headcount. Finally, the severity of poverty ($\alpha=2$) is sensitive to the distribution of income among the poor, transfers among the poor will leave unaffected the headcount or the poverty gap, but will change this measure. It gives a relatively higher weight to the largest poverty gaps.

Only joint consideration of these three indices can give an adequate description of poverty and satisfy two famous axioms of poverty measurement (Sen 1976):

1. even if the number of the poor is the same, but there is a welfare reduction in one poor household, a measure of poverty should detect an increase of poverty (this increase would be captured by the poverty gap index);
2. even if the average welfare of the poor is the same, if there is a transfer from one poor household to another poor household, relatively better off, a measure of poverty should detect an increase of poverty (this would be captured by an increase of the severity of poverty).

Furthermore, these poverty measures satisfy two convenient properties of aggregation and decomposability. In fact it is possible to generate the overall poverty indexes by summing up

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individual measures of poverty, and it is possible to decompose these indexes for various subgroups of the population and obtain the overall index by taking the population weighted sum of poverty indexes of the subgroups under analysis. For instance, it is possible to compute the poverty gap in different areas of the country, the eight administrative regions, and the sum of the eight poverty gaps, weighted by the respective share of population of each region, will be equal to the poverty gap for the whole Slovakia.

Although the formula presented above gives shares, poverty indexes are generally presented as percentages and the same is done here.

Table 4.1 reports these three poverty measures in 2004 considering the reference poverty lines: the lower poverty line (which is our preferred poverty line) the upper poverty line, the relative poverty line (60% of median income calculated using the 2004 HBS data), and the current Subsistence Minimum Level. It is important to note that the proportion below the lower poverty line is twice as much the proportion falling below the SML.

Table 4.1 Poverty measures, 2004

| | P0 | P1 | P2 |
|--------------------|------|-----|-----|
| Lower poverty line | 15.9 | 3.6 | 1.3 |
| Relative poverty | 10.0 | 2.2 | 0.8 |
| SML | 7.0 | 1.6 | 0.6 |

Values for the SML use the old OECD equivalence scale.
Source: Calculations of the author based on HBS data.

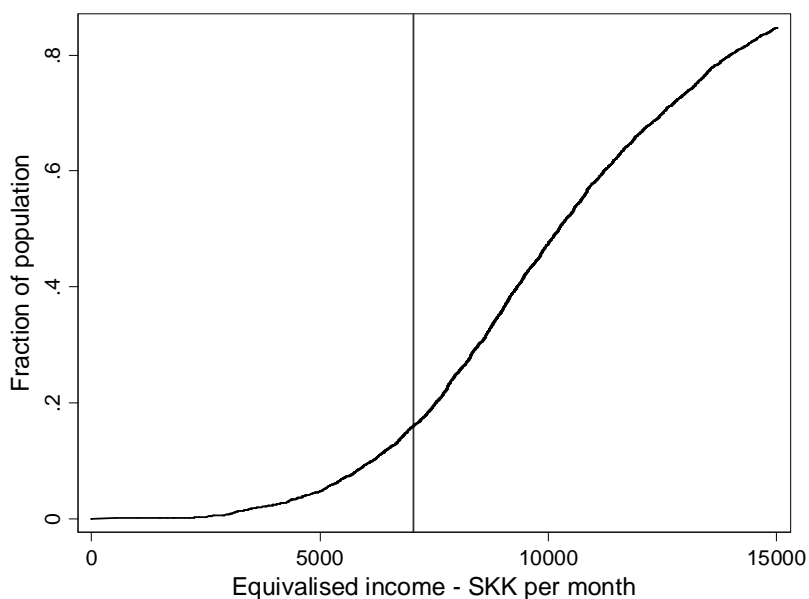
To see to what extent poverty measures are sensitive to the level of poverty line, I produced the cumulative distribution function of monthly equivalised income (see figure 4.1). For a given consumption level on the horizontal axis, the curve indicates the percent of the population with an equal or lesser level of income on the vertical axis. If one thinks of the chosen income level as the poverty line, the curve will show the associated poverty headcount, and hence it can be seen as a "poverty incidence curve". It is simple then to assess how much the headcount will change when the poverty line is shifted upward or downwards. In the figure I also reported a vertical line at the value of the proposed poverty line. The steeper is the curve where the poverty line intersects the cumulative distribution function and the more sensitive are poverty measures to the level of the poverty line.

Finally, it is important to compare such poverty estimates with previous official estimates. Such comparison can be made using estimates of relative poverty that comes from the 2003 Microcensus. Official estimates from this dataset report a poverty headcount of 21% which is double the amount of relative poverty found using the HBS data (poverty line was set as 60% of median equivalised income, see NAP on Social Inclusion 2004-2006 (2004)) (the same estimate is also reported in Dennis et al. (2004) and the equivalence scale adopted are the modified OECD equivalence scale). Rather than suggesting that poverty has declined so dramatically in just two years, the differences in the estimates appear to be due to data reliability. Indeed, it is important to say that using the same dataset and the same methodology original poverty estimates from the 2003 Microcensus were rather different. In the UNDP Millennium Development Goals report the risk of poverty rate was shown at only 5%, and the ratio of income distribution (S80/S20) was only

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2.7 (UNDP 2004)³⁵. My understanding is that these large differences in poverty rates were mainly explained by the need to impute some of the income figures and to make the sample representative for the whole country, but such results cast doubts on the reliability of the data. Doubts are reinforced by the fact that the poverty profile generated using Microcensus data show some inconsistency, for instance there is very little correlation between education achievement and poverty rates.

Figure 4.1 Income cumulative distribution function and poverty line, 2004



Nevertheless, even though there are reasons to believe that estimates from the Microcensus might not be representative of Slovakia, the large differences between HBS and Microcensus data should be resolved. Indeed, it is important to say that also the comparison of HBS with Census data suggest that the tails of the distribution might be under-represented, and it is unknown what is the effect on income distribution due to the relatively large non-response rate (also in the Microcensus the non-response rate was quite high and reported of about 27% in WB (2005)). Therefore, at the moment is unclear whether Microcensus poverty estimates are overestimated or HBS estimates are underestimated or both hypotheses are true. An opportunity to test the validity of HBS data could come from the analysis of the EU-SILC data, which also allow the estimation of the income distribution of 2004.

4.2 Inequality

The measure of inequality adopted is the Gini coefficient, which measures inequality in a scale from 0 to 1, being 0 a situation of perfect equality and 1 a situation of absolute inequality in which only one person consumes everything while the rest of the population does not consume anything.

³⁵ Estimates reported in WB (2005) show a risk of poverty rate (using the poverty line of 60% of median income) of 19.5% adjusting household incomes using the old OECD equivalence scales, 18.4 using the modified OECD equivalence scales and 21.7 using per capita income.

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An easy way to understand the Gini measure of inequality is through the Lorenz curve, which links the cumulative fraction of population (from the poorest to the richest) and the cumulative fraction of disposable income. The Gini coefficient is the ratio of the area between the Lorenz curve and the line of perfect equality over the area of the triangle below the line of perfect equality, as shown in figure 4.2. Figure 4.2 was generated using the 2004 data. In table 4.2, I report the Gini index using both per capita income and equivalised income (income is equivalised using the modified OECD equivalence scale), and the ratio between the income of the top quintile and the bottom quintile (quintiles are computed using equivalised income).

Figure 4.2 Lorenz curve using per capita income, 2004

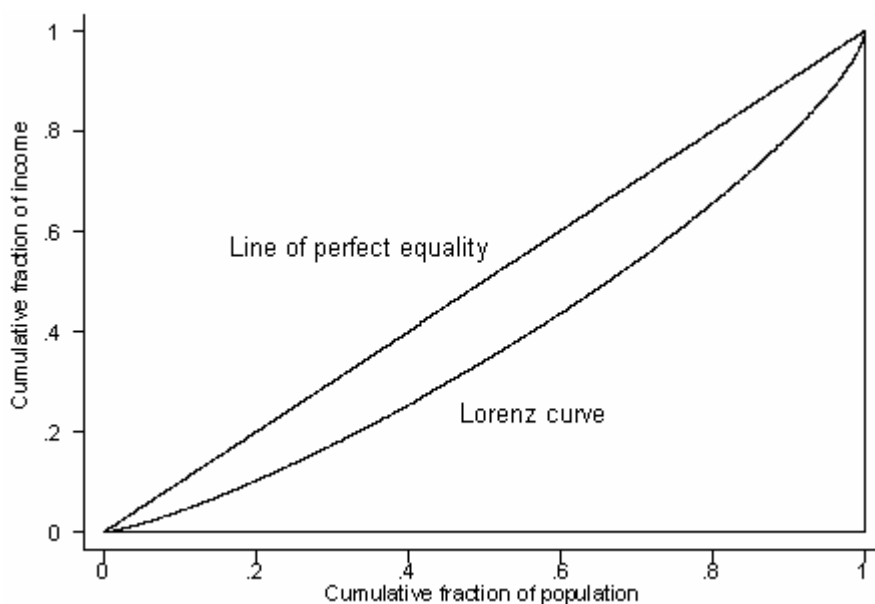


Table 4.2 Inequality measures, 2004

| | 2004 |
|------------------------------------|------|
| Gini index (income per capita) | 0.26 |
| Gini index (equivalised income) | 0.24 |
| Income of top over bottom quintile | 3.31 |

Source: Calculations of the author based on HBS data.

4.3 Poverty profile

The real insight that come from poverty analysis is not so much on generating general poverty measures, but on producing what is often called a 'poverty profile'. This has the ultimate objective to understand the main characteristics of people living below the poverty line: where they live, demographics, characteristics of the household head, housing and assets. The analysis reported here constitutes a basic profile that in turn could suggest further areas of research and investigation.

All analysis is conducted adjusting household income by household size using the modified OECD equivalence scale and providing estimates both using the proposed absolute poverty line and the

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relative poverty line (60% of median income), and the three indexes of poverty: head-count (P0), poverty gap (P1) and severity of poverty (P2).

Table 4.3 reports poverty for different geographical regions of the country: the eight main regions, three areas of different density of population, and three different administrative groups: regional cities, other cities and municipalities.

Table 4.3 Poverty in different geographical areas, 2004

| | Absolute poverty line | | | Relative poverty line | | | Obs. |
|---------------------------------------|-----------------------|-----|-----|-----------------------|-----|-----|------|
| | P0 | P1 | P2 | P0 | P1 | P2 | |
| Overall | 15.9 | 3.6 | 1.3 | 10.0 | 2.2 | 0.8 | 4602 |
| Regional cities | 8.7 | 1.6 | 0.6 | 4.7 | 0.9 | 0.3 | 1022 |
| Other towns | 17.5 | 4.4 | 1.7 | 11.9 | 2.8 | 1.1 | 1847 |
| Municipalities | 18.4 | 4.0 | 1.4 | 11.2 | 2.5 | 0.9 | 1733 |
| High density (500 per squared km) | 8.7 | 1.6 | 0.5 | 4.6 | 0.9 | 0.3 | 1127 |
| Mean density (100-500 per squared km) | 17.7 | 4.2 | 1.5 | 11.6 | 2.7 | 1.0 | 2120 |
| Low density (<100 per squared km) | 18.9 | 4.3 | 1.6 | 11.7 | 2.7 | 1.0 | 1355 |
| Bratislava | 8.1 | 1.5 | 0.5 | 5.0 | 0.8 | 0.3 | 499 |
| Trnava | 15.0 | 2.6 | 0.7 | 8.4 | 1.2 | 0.3 | 587 |
| Trencin | 14.1 | 3.0 | 1.0 | 9.2 | 1.7 | 0.5 | 584 |
| Nitra | 19.9 | 4.9 | 2.0 | 11.5 | 3.3 | 1.4 | 588 |
| Zilina | 13.6 | 2.8 | 1.1 | 7.0 | 1.8 | 0.7 | 584 |
| Banska Bystrica | 22.8 | 6.7 | 2.8 | 17.3 | 4.7 | 1.9 | 587 |
| Presov | 17.1 | 3.1 | 1.0 | 9.6 | 1.7 | 0.5 | 588 |
| Kosice | 15.0 | 3.6 | 1.3 | 10.6 | 2.3 | 0.8 | 585 |

Source: Calculations of the author based on HBS data.

It is immediately apparent that in big urban centres (regional cities and high-density populated areas) poverty is substantially lower than in other parts of the country, and this is true both for the absolute and relative poverty line. The Bratislava region is the richest, whereas Banska Bystrica, Nitra and Presov the poorest, though some of the intermediate ranking is different from what other sources would suggest.

I also divided households in various typologies and computed the poverty rates for such groups. In some cases the number of observations is relatively small, so estimates should be read with caution. The results are in table 4.4. Considering first the absolute poverty line, we can see that the highest poverty incidence is found among single people above 60, and then single parents with children. Two-person households, and single young people display lower poverty. However, the ranking of poverty among these groups change when we look at the relative poverty line. Single parents with children are the poorest, followed by single people aged above 30 and households with three or more children.

Table 4.4 Poverty by household type, 2004

| | Absolute poverty line | | | Relative poverty line | | | Obs. |
|--|-----------------------|-----|-----|-----------------------|-----|-----|------|
| | P0 | P1 | P2 | P0 | P1 | P2 | |
| Overall | 15.9 | 3.6 | 1.3 | 10.0 | 2.2 | 0.8 | 4602 |
| One person (<30 years old) | 8.7 | 3.3 | 2.5 | 6.6 | 2.7 | 2.3 | 53 |
| One person (30-59) | 21.7 | 6.6 | 3.3 | 15.9 | 4.9 | 2.6 | 260 |
| One person (60+) | 36.4 | 4.3 | 0.8 | 13.4 | 1.4 | 0.2 | 463 |
| Two adults (no dependents, at least one 60+) | 8.0 | 1.3 | 0.4 | 3.9 | 0.7 | 0.2 | 706 |
| Two adults (no dependents, both under 60) | 9.6 | 2.2 | 0.8 | 6.3 | 1.4 | 0.5 | 480 |
| Other hhs without dependents | 11.8 | 2.8 | 1.0 | 8.3 | 1.8 | 0.7 | 518 |
| Single parent with dependent children | 31.2 | 8.9 | 3.5 | 23.5 | 6.0 | 2.3 | 212 |
| Two adult and one child | 12.4 | 3.3 | 1.3 | 9.0 | 2.2 | 0.8 | 507 |
| Two adults and two children | 13.6 | 2.8 | 0.9 | 8.2 | 1.6 | 0.5 | 670 |
| Two adults and 3+ children | 21.9 | 4.9 | 1.8 | 14.2 | 3.2 | 1.1 | 170 |
| Other hhs with children | 20.0 | 4.7 | 1.8 | 12.4 | 3.1 | 1.1 | 563 |

Source: Calculations of the author based on HBS data.

Table 4.5 shows poverty rates by household size. It is important to note that both using the absolute and relative poverty line we do not find an exactly linear relationship. Poverty is higher among one-member households than two member households, but it then increases with the number of household members.

Table 4.5 Poverty and household size, 2004

| | Absolute poverty line | | | Relative poverty line | | | Obs. |
|---------------------|-----------------------|-----|-----|-----------------------|-----|-----|------|
| | P0 | P1 | P2 | P0 | P1 | P2 | |
| Overall | 15.9 | 3.6 | 1.3 | 10.0 | 2.2 | 0.8 | 4602 |
| One member | 29.5 | 5.0 | 1.8 | 13.7 | 2.6 | 1.1 | 776 |
| Two members | 10.1 | 2.2 | 0.8 | 6.3 | 1.3 | 0.5 | 1304 |
| Three members | 13.8 | 3.5 | 1.3 | 9.8 | 2.2 | 0.8 | 951 |
| Four members | 13.8 | 2.9 | 1.0 | 8.3 | 1.7 | 0.6 | 991 |
| Five members | 19.3 | 4.1 | 1.4 | 12.1 | 2.5 | 0.8 | 385 |
| Six or more members | 26.2 | 7.3 | 3.1 | 17.6 | 5.3 | 2.1 | 195 |

Source: Calculations of the author based on HBS data.

Poverty can also be analysed through the main characteristics of the household head. In fact, since the household head tends to be the main earner in the household, his or her characteristics capture important features that are representative for the whole household. The characteristics considered are: age, sex, education, marital status, and economic activity (see table 4.6). Again in some cases observations are relatively few and estimates obtained with less than 100 observations should be read with caution (this holds also on following tables).

Rankings of poverty among the different subgroups are the same using the absolute and relative poverty line. Poverty is relatively higher at middle ages (40-49) and higher among female headed households. Very strong is the correlation between poverty and the education of the household head: absolute poverty is about 34% among those who only completed primary education, 15% if

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they completed secondary education, and only 4% if the head has higher education. Differences of poverty rates are very substantial also when considering the economic activity. In particular poverty is 58% among the unemployed and 40% among other not economically active (housewives, not capable to work, etc.). Finally, when considering the marital status, it is worth noting that poverty appears to be higher among the divorced, and for the absolute poverty line also among widows/widowers.

Table 4.6 Poverty and characteristics of the household head, 2004

| | Absolute poverty line | | | Relative poverty line | | | Obs. |
|--------------------------|-----------------------|------|-----|-----------------------|------|-----|------|
| | P0 | P1 | P2 | P0 | P1 | P2 | |
| Overall | 15.9 | 3.6 | 1.3 | 10.0 | 2.2 | 0.8 | 4602 |
| <i>Age</i> | | | | | | | |
| < 30 | 13.9 | 3.6 | 1.5 | 9.5 | 2.4 | 1.0 | 301 |
| 30-39 | 15.3 | 4.1 | 1.7 | 10.4 | 2.9 | 1.1 | 841 |
| 40-49 | 20.2 | 4.6 | 1.7 | 12.8 | 2.9 | 1.0 | 1055 |
| 50-59 | 13.2 | 3.1 | 1.2 | 9.2 | 2.0 | 0.7 | 1062 |
| 60-69 | 10.3 | 1.4 | 0.3 | 4.7 | 0.5 | 0.1 | 765 |
| 70+ | 19.3 | 2.8 | 0.7 | 8.4 | 1.2 | 0.3 | 578 |
| <i>Sex</i> | | | | | | | |
| Male | 13.7 | 3.1 | 1.1 | 8.7 | 1.9 | 0.7 | 3141 |
| Female | 23.1 | 5.3 | 2.0 | 14.2 | 3.3 | 1.2 | 1461 |
| <i>Education</i> | | | | | | | |
| Primary | 34.3 | 9.3 | 3.8 | 24.0 | 6.4 | 2.6 | 636 |
| Secondary | 15.3 | 3.2 | 1.1 | 9.2 | 2.0 | 0.7 | 3361 |
| Higher | 4.2 | 0.9 | 0.3 | 2.6 | 0.5 | 0.2 | 605 |
| <i>Marital status</i> | | | | | | | |
| Single | 19.7 | 4.6 | 1.9 | 12.7 | 3.0 | 1.3 | 366 |
| Married | 13.6 | 3.1 | 1.2 | 8.7 | 2.0 | 0.7 | 3055 |
| De facto partnership | 16.9 | 3.7 | 1.2 | 13.5 | 2.2 | 0.7 | 78 |
| Widow, widower | 22.0 | 3.5 | 0.9 | 10.3 | 1.7 | 0.4 | 666 |
| Divorced | 31.6 | 8.0 | 3.1 | 20.9 | 5.3 | 2.0 | 437 |
| <i>Economic activity</i> | | | | | | | |
| employee | 10.3 | 1.7 | 0.5 | 5.7 | 0.8 | 0.2 | 2334 |
| self-employed | 11.5 | 2.3 | 0.9 | 6.0 | 1.4 | 0.6 | 375 |
| unemployed | 58.5 | 20.9 | 9.8 | 47.9 | 16.1 | 7.0 | 256 |
| retired | 15.0 | 2.1 | 0.5 | 7.0 | 0.8 | 0.2 | 1403 |
| other inactive | 40.2 | 11.9 | 4.8 | 31.4 | 8.3 | 3.1 | 231 |

Source: Calculations of the author based on HBS data.

Housing conditions are in themselves indicators of living standards, so it is important to investigate main housing characteristics and look at the differences between poor and non-poor. Such information is reported in table 4.7, where we have information on access to sewerage connection, water, gas, electricity, the number of living rooms, presence of toilet, bath and garage. Differences between the poor and the non-poor are very similar when considering absolute and relative poverty line. For instance, while 88% of non-poor households have gas connection, among the poor such percentage decreases to 79%, and while 29% of non-poor households have a garage, this percentage is 16% among poor households.

Table 4.7 Housing characteristics and poverty status, 2004

| | Absolute poverty line | | Relative poverty line | | Overall |
|---------------------|-----------------------|------|-----------------------|------|---------|
| | Non-poor | Poor | Non-poor | Poor | |
| Sewerage | 73.5 | 64.3 | 72.8 | 64.3 | 72.0 |
| Water | 97.2 | 94.8 | 97.2 | 92.8 | 96.8 |
| Gas | 88.0 | 78.7 | 87.6 | 75.3 | 86.4 |
| Electricity | 100.0 | 99.7 | 100.0 | 99.5 | 99.9 |
| No. of living rooms | 3.1 | 2.7 | 3.0 | 2.6 | 3.0 |
| Garage | 28.9 | 15.9 | 28.2 | 13.2 | 26.8 |
| Toilet | 98.0 | 89.4 | 97.4 | 88.3 | 96.6 |
| Bath | 99.5 | 94.3 | 99.2 | 93.2 | 98.6 |

Source: Calculations of the author based on HBS data.

Again on housing characteristics, table 4.8 reports poverty rates in households living in different types of dwellings. Poverty is lower among households who own the house where they live, and it is higher among households who rent.

Table 4.8 Type of dwelling and poverty, 2004

| | Absolute poverty line | | | Relative poverty line | | | Obs. |
|-------------------------------|-----------------------|-------|------|-----------------------|------|------|------|
| | P0 | P1 | P2 | P0 | P1 | P2 | |
| Overall | 15.93 | 3.59 | 1.32 | 9.97 | 2.25 | 0.82 | 4602 |
| Individual family house | 16.39 | 3.40 | 1.19 | 9.61 | 2.05 | 0.72 | 1878 |
| Apartment (house 2-4) | 20.81 | 5.62 | 2.24 | 15.00 | 3.85 | 1.46 | 439 |
| Apartment in block | 14.52 | 3.32 | 1.23 | 9.24 | 2.07 | 0.77 | 2218 |
| Other | 13.97 | 4.71 | 1.97 | 10.59 | 3.53 | 1.29 | 67 |
| Own without mortgage | 14.53 | 3.04 | 1.07 | 8.70 | 1.81 | 0.65 | 3735 |
| Own with mortgage | 15.16 | 3.54 | 1.28 | 10.01 | 2.22 | 0.78 | 255 |
| Cooperative flat | 22.02 | 4.94 | 1.69 | 13.99 | 3.05 | 0.97 | 320 |
| Renting | 32.62 | 11.22 | 5.07 | 26.11 | 8.52 | 3.55 | 175 |
| Free or reduced rent | 9.22 | 2.90 | 1.41 | 7.00 | 2.25 | 1.04 | 49 |
| State/council/enterprise flat | 24.25 | 6.93 | 2.96 | 16.27 | 4.85 | 2.04 | 68 |

Source: Calculations of the author based on HBS data.

Another aspect of living standards is captured by the ownership of durable items. Table 4.9 reports ownership of durables among poor and non-poor households identified both using the lower and upper poverty line. Although the differences between the poor and the non-poor are not always very high, the poor are clearly disadvantaged.

Table 4.9 Ownership of durable items and poverty status, 2004

| | Absolute poverty line | | Relative poverty line | | Overall |
|------------------|-----------------------|------|-----------------------|------|---------|
| | Non-poor | Poor | Non-poor | Poor | |
| Fridge | 99.0 | 97.2 | 99.0 | 96.5 | 98.7 |
| Dishwasher | 2.8 | 0.8 | 2.7 | 0.5 | 2.5 |
| Washing machine | 87.6 | 62.0 | 86.1 | 58.3 | 83.4 |
| Microwave | 73.3 | 52.5 | 72.2 | 48.1 | 69.9 |
| Telephone | 63.1 | 44.3 | 62.3 | 38.8 | 60.0 |
| Mobile | 74.2 | 54.1 | 72.6 | 54.7 | 70.9 |
| Hifi | 34.6 | 18.9 | 33.3 | 19.8 | 32.0 |
| Colour TV | 98.3 | 93.7 | 98.0 | 92.7 | 97.5 |
| Satellite dish | 15.0 | 11.6 | 14.9 | 10.1 | 14.5 |
| Cable TV | 39.7 | 29.0 | 38.9 | 29.5 | 38.0 |
| VCR | 46.9 | 26.9 | 45.5 | 25.9 | 43.6 |
| PC | 23.5 | 10.9 | 22.7 | 9.3 | 21.4 |
| PC with internet | 7.3 | 1.7 | 6.9 | 1.6 | 6.4 |
| Bike | 65.0 | 54.4 | 64.2 | 54.5 | 63.3 |
| Car | 47.7 | 24.4 | 46.1 | 23.0 | 43.9 |

Source: Calculations of the author based on HBS data.

Finally, table 4.10 looks at the impact of transfers on poverty. The first column reports the actual poverty head-counts, while the poverty incidence in the second column is computed after deducting incomes that come from social assistance (both social support and social assistance). We can see that in this case the poverty head-count increases to 22% (lower poverty line). The increase in poverty is dramatic if we exclude from income all transfers (pension, insurance benefits and social assistance) and the percentage of the poor increases to 46%.

Table 4.10 Poverty head-count before and after transfers, 2004

| | With transfers | Without social assistance | Without transfers |
|--------------------|----------------|---------------------------|-------------------|
| Lower poverty line | 15.9 | 22.1 | 46.3 |
| Upper poverty line | 10.0 | 13.4 | 29.0 |

Source: Calculations of the author based on HBS data.

5. Conclusions and final recommendations

This report discussed the concept of poverty and of an absolute poverty line and, considering the precedents of the Subsistence Minimum, argued that the SML already satisfies important properties and functions of an absolute poverty line. However, the current SML is of limited usefulness for poverty monitoring and poverty analysis. The reason for this is due to the way in which the SML was updated over time, which caused it to lose value in real terms. At the same time the SML could not be used previously for poverty analysis also because the Slovak Republic lacked the required data for such analysis.

Three main factors now encourage and justify the 'review' of the SML: 1) the deterioration of the SML in real value, 2) the fact that the Slovak economy has undergone quite dramatic changes since the SML was computed, and 3) the availability of new and more comprehensive data.

Although there are ways in which the current survey activities could be greatly improved, two new and more reliable sources of information are now available: the 2004 Household Budget Survey and the Survey of Income and Living Conditions. Unfortunately, the analysis presented in this report could only make use of the HBS, but this is probably the best source of data for setting the poverty line, adopting a methodology that follows the same philosophy that was used when the SML was first computed.

Using the 'cost of basic needs' method, the result of the absolute poverty line calculation is a proposed line of 7042 SKK per month of equivalised income (using the modified OECD equivalence scale). Although such a poverty line is substantially higher than the current SML, it is of an amount that well compares with alternative poverty lines (the Food Energy Intake poverty line).

Therefore, the proposed poverty line meets three key requirements of an absolute poverty line: 1) it reflects the need to meet basic necessities, considering the standards of the Slovak Republic; 2) it is set using recognised and transparent methods (following the procedure adopted, it is possible to re-compute exactly the same poverty line, as well as to test the hypotheses made during its calculation); 3) it is of a reasonable value compared to alternative measures.

Using the determined poverty line, the percentage of poor people in 2004 was 15.9%. However, using the relative poverty line (60% of median equivalised income) the poverty rate is lower: 10%. The latter is about half the poverty rate computed for 2002 using the 2003 Microcensus. Although there are reasons to believe that the Microcensus estimates might be less accurate, such differences reflect a rather different income distribution in the two sources of information, which are not due to genuine changes, but to the poor quality of data of one or both of the sources.

A possibility to solve such conflicting estimates could come from the analysis of the SILC data, which also collected information on incomes in 2004. In particular it will be crucial to determine the main characteristics of the income distribution estimated through the SILC data (mean/median income and inequality estimates).

Two possibilities are now open: 1) the new proposed poverty line (the lower lines computed using the cost of basic needs method) could replace the SML and become also an absolute poverty line used to monitor and analyse poverty; 2) the newly computed poverty line could be used as a separate tool from the SML exclusively for poverty monitoring and analysis.

I argued that in Slovakia there are the premises to use an absolute poverty line both as a standard of adequacy and for poverty measurement and analysis, but I recognise that there could be still

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some risks involved in asking at the same measure to play these two roles, especially because the newly computed poverty line is substantially higher than the current SML and also higher than other income support measures (basic income tax allowance and minimum wage). Moreover, given that there are some doubts on the quality of the data sources used, at this stage it would be wiser to use the newly computed poverty line only for poverty monitoring and analysis purposes.

In fact, I also strongly argued that the absolute poverty line in order to fulfil its role for poverty measurement and analysis must be updated every year by inflation, using the CPI. This will ensure that the real value of the poverty line is maintained over time and will make the process transparent.

Therefore, the main recommendations of this study for the use of the absolute poverty line and more generally for poverty monitoring and analysis in the Slovak Republic are the following:

- 1) Adopt within the MOLSAF the 'cost of basic need' poverty line of 7042 SKK per month to measure and analyse poverty;
- 2) Engage in a dialogue with experts in the country about the level of the proposed absolute poverty line and its uses;
- 3) Update the absolute poverty line every year by inflation, using the CPI. This will ensure transparency in the process and maintain the real value of the poverty line over time.
- 4) Strengthen and improve the current household surveys. If data are not of the required quality poverty measurement and analysis is not useful. It will be essential to collaborate with the Statistical Office in order to a) improve the sampling design in the HBS; b) address the problem of non-response c) improve the questionnaire of both HBS and SILC;
- 5) Analyse the 2004 SILC data to determine the main characteristics of the income distribution in Slovakia and validate estimates obtained using HBS data;
- 6) In case HBS estimates are confirmed by the SILC data, recognise the cost of basic needs poverty line of 5836 as the official poverty line for poverty monitoring, and eventually consider whether such line could replace also the existing SML, assessing potential risks and possibly making some changes also in the way the SML is linked to some measures of income support (for example the basic income tax allowance).
- 7) For comparison purposes with the cost of basic needs poverty line, estimate the subjective poverty line using the Minimum Income Question in the SILC data;
- 8) Extend the poverty profile looking at more non-income related indicators of poverty and, using the "perceived social necessities" approach, substantiate the monetary definition of poverty with the lack of perceived necessities (the necessary information for such data is available in the SILC data).

Annex A: Consumption and income aggregates for 2004

'Income poverty measures' are based on consumption or income aggregates, and both are used with the intention of capturing welfare conditions in monetary terms. However, when we consider them in the usual reference period of one year, there are important differences between the two aggregates. While on the course of the lifetime the average level of income (including any inheritance) must equal the average level of consumption (including any bequest), in a short reference period the two can differ because of savings and dis-savings. Some authors argue that while consumption measures achievement, income captures the possibility of a certain achievement. Based on the theory of the life cycle and various empirical evidence, there is generally more variability in income rather than in consumption, since consumption tends to be more stable than income. For instance, it is perfectly possible to have zero or negative income, but we will always have some consumption.

However, besides theoretical considerations, the aggregate that is used for poverty and inequality estimations tends to depend more on practical considerations than on the theoretical ones, and therefore the starting point is to consider the quality of the two aggregates. Tests on the quality of the aggregate come from the calculation of the various sub-components, their consistency with other sources and in their trends overtime. Moreover, when both consumption and income are computed they can be usefully analysed to understand whether they report a consistent picture.

A.1 The consumption aggregate

There is a general agreement that in order to be useful for poverty analysis, the consumption aggregate should be as comprehensive as possible (Lanjouw et al. 1997). The consumption aggregate should include food consumption (both purchased and in kind – either own-produced or received as gift), housing (including utilities, rent and imputed rents for dwelling's owners), expenditure for health and education, consumption flow from durable items and consumption expenditure on various other non-food items: alcohol and tobacco, clothing, cleaning products, transport, communication, recreation, and personal items.

However, there are consumption components that need to be properly analysed and therefore require some explanation.

Housing

From a consumption perspective, it is not relevant whether the household owns the house where they live, they are renting it or it is owned through a mortgage (the household makes monthly repayments). If we consider a certain household living in the same house in these three different circumstances, while their monthly expenditure is radically different, their consumption level deriving from living in a certain accommodation would be exactly the same. The clear difficulty though is that whenever the household is not paying a full rent the only way to understand the monetary value of their 'consumption' is through an imputation that tries to derive the amount that the household should pay if they were renting the dwelling where they live. Such estimation is generally achieved using regression analysis (rent values are regressed against housing characteristics) and using its results to estimate the value of rents. Unfortunately, with our data the attempt to run such regression was not successful, the regression had a too low explanatory power and such expenditure could not be included (it was not possible to include imputed rents and for the purpose of making proper welfare comparisons between different households I also excluded expenditure for actual rents). The reason for the low explanatory power of such regression is mainly the low number of observations in which we really observe market rents. Most reported

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rents appear to be below market rate (cooperative and state owned housing), and the regression does not find significant relationships between housing characteristics and the rent paid by the household. This seems more a problem with the housing market rather than a problem with data.

Subsidised goods and services

Rather than being interested in actual expenditure we want to capture living standards and there are often expenditure items for which the household might not pay the whole price of the item. This usually happens when the government provides specific subsidies. This is generally a problem only when subsidies are received by certain groups of the population and not by others, and it often interests the provision of some public goods. However, excluding the case of housing mentioned earlier, in Slovakia there are not important cases. Education as well as health is provided for all without charge or with reduced charges, but this does not tend to favour some population sections more than others³⁶.

Durables

Contrary to the calculation of household consumption for the national accounts, when the consumption aggregate is constructed for poverty analysis it would be preferable not to include the expenditure for durable items, but the consumption flow that people derive from them. For instance, people do not buy a car every year, and if the purchase of a car occurs in the survey period and is included in the consumption aggregate it could inappropriately mislead the comparison between households' welfare. For instance, imagine two households with very similar welfare who both own a car, but while one bought it in the survey year, the other bought it the year before. In this example it is clear that welfare analysis and national account estimates have different interests: inter-household comparisons vs. average value of expenditure. Unfortunately the survey does not collect the necessary information required to estimate the consumption flow that people derive from durable items (this would require collecting information on the original cost of the item, its age and current value of the item). Instead the solution adopted was to partly include and partly exclude from the consumption aggregate such expenditure (I excluded big expenditure such as the purchase of a car, but included the purchase of relatively smaller durable items, such as a washing machine). Even though a more radical choice would be to exclude completely durable items, I included some of them to make the aggregate more comparable with income values, at least on an average level and for the purpose of the computation of the poverty line.

A.2 The income aggregate

The concept of income that is considered most appropriate for poverty analysis is disposable income, in which voluntary remittances paid out, and compulsory taxes and social security contributions are deducted from gross income. Nevertheless, as for the consumption aggregate, it is important to study the income aggregate by looking at its various components. In particular, it is worth differentiating between wage-income, income from self-employment, income derived from owner occupied dwellings, property, transfers and other income.

I distinguished wage income into cash and in-kind payments. Income from owner occupied dwelling is aimed at capturing the implicit return on the investment in housing, however, as for the consumption aggregate this cannot be included because we lack reliable information. Income from

³⁶ There are of course some exceptions, for instance for the price of medicines for the elderly, but they tend to involve relatively small amounts, and we do not have ways to account for this type of subsidy.

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property comprises income from renting a dwelling to other households, dividends from bonds and shares and bank interests. Income from transfers contains pensions, social insurance, social support and social assistance³⁷, and remittances (including gifts in kind). Other income includes scholarships, insurance compensations, alimony, etc. Within compulsory payments I distinguished between taxes on income and wealth, social security contributions (compulsory health insurance, pension contributions, etc.), and other taxes.

Table A.1 shows the consumption and income composition, reporting shares of various subgroups as well as household and per capita values, and also shows shares of aggregate sub-groups by quintiles. Looking at consumption patterns by quintile it is possible to see that, as the Engel's law would lead us to think, the share of expenditure spent on food declines as we move from lower to higher quintiles. A similar declining trend is found for utilities, while the opposite is true for clothing and footwear, transport, recreation and durable items. Sources of income for different quintiles are also radically different. While lower quintiles derive their main income sources from transfers, and in particular pensions, higher quintiles receive their main income sources from wage and self-employment. It is also interesting to note that it is the poorest quintile that gives a proportionally higher proportion of their income for remittances, and similarly that the share of income derived from social assistance decreases in higher quintiles.

A first assessment on the quality of the derived aggregates can be achieved by comparing composition, and levels of the two aggregates with estimates from the National Income and Product Accounts (NIPA). It must be emphasized that in other countries it is common to find a discrepancy in the level of such estimates between national accounts and household surveys³⁸, and reasons for differences in the two measures not only are due to the different methodology, but also in the definition and composition of the two aggregates³⁹. Moreover, both survey and NIPA estimates can contain mistakes and it would be wrong to consider NIPA estimates as the correct ones, but it is nevertheless of interest to compare the two sources of information.

Survey estimates of both income and consumption are lower than NIPA estimates, though consumption results a bit more underestimated than income (representing about 60% of NIPA estimates). Nevertheless the propensity to consume (consumption divided by disposable income) in the survey appears to be consistent with the national accounts estimates: the propensity to consume according to the survey is 89.1% and 94.2% according to NIPA estimates. For consumption data it is also possible to report a comparison between survey and NIPA estimates of consumption, where I recomputed the consumption aggregate to make it as comparable as possible with the NIPA definition (in the survey definition of consumption we did not include items that instead are included in the NIPA definition: these are actual and imputed rent for dwelling owners, purchase of vehicles, life insurance, gambling and prostitution services). From table A.2 we can see that the survey is in agreement with NIPA estimates on more regular types of expenditure (food and clothing), while differences are high in furnishing, transport and recreation expenses.

³⁷ Pension includes old-age pension, disability pension and other pensions, and it is distinguished by other social insurance payments, namely sickness and unemployment benefits. The distinction between social support and social assistance is made in the "Report on Social Situation of Population in 2004", thus I maintained it here as well. However, both transfers are financed from the state budget. While social support consists of categorical benefits (children allowance, birth grant and parent allowance), social assistance is granted with the particular aim of reducing poverty.

³⁸ This is the finding of Ravallion (2001): "Measuring Aggregate Welfare in Developing Countries: How Well Do National Accounts and Surveys Agree?", Policy Research Working Paper no. 2665.

³⁹ It is important to clarify that the comparison can only be made on average levels rather than on the distribution of the aggregate.

Table A2 NIPA and HBS consumption in 2004 (monthly per capita values)

| | NIPA | | HBS | | % of HBS / NIPA |
|--|-------------------|--------------|-------------------|--------------|-----------------------|
| | SKK per capita | Share | SKK per capita | Share | |
| Food and non-alcoholic beverages | 2262 | 21.8 | 1913 | 28.4 | 85 |
| Alcoholic beverages and tobacco | 620 | 6.0 | 219 | 3.3 | 35 |
| Clothing and footwear | 387 | 3.7 | 381 | 5.7 | 99 |
| Clothing | 262 | 2.5 | 256 | 3.8 | 98 |
| Footwear | 125 | 1.2 | 125 | 1.9 | 100 |
| Housing, water, electricity, gas and other fuels | 2055 | 19.8 | 1606 | 23.9 | 78 |
| Actual rentals for housing | 168 | 1.6 | 57 | 0.9 | 34 |
| Maintenance and repair of the dwelling | 305 | 2.9 | 274 | 4.1 | 90 |
| Water supply and miscell. Serv. relating to the dwelling | 250 | 2.4 | 158 | 2.4 | 63 |
| Electricity, gas and other fuels | 1333 | 12.8 | 1117 | 16.6 | 84 |
| Furnishings, equip. and routine maint. of the house | 564 | 5.4 | 300 | 4.5 | 53 |
| Furniture, furnishings, carpets and other floor coverings | 150 | 1.4 | 78 | 1.2 | 52 |
| Household textiles | 51 | 0.5 | 15 | 0.2 | 29 |
| Household appliances | 121 | 1.2 | 61 | 0.9 | 50 |
| Glassware, tableware and household utensils | 51 | 0.5 | 22 | 0.3 | 43 |
| Tools and equipment for house and garden | 41 | 0.4 | 21 | 0.3 | 50 |
| Goods and services for routine household maintenance | 151 | 1.5 | 104 | 1.6 | 69 |
| Health | 316 | 3.0 | 183 | 2.7 | 58 |
| Medical products, appliances and equipment | 198 | 1.9 | 137 | 2.0 | 69 |
| Out-patient services | 114 | 1.1 | 42 | 0.6 | 37 |
| Hospital services | 4 | 0.0 | 5 | 0.1 | 120 |
| Transport | 1056 | 10.2 | 495 | 7.4 | 47 |
| Purchase of vehicles | 320 | 3.1 | 60 | 0.9 | 19 |
| Operation of personal transport equipment | 504 | 4.9 | 285 | 4.2 | 56 |
| Transport services | 232 | 2.2 | 150 | 2.2 | 64 |
| Communications | 447 | 4.3 | 287 | 4.3 | 64 |
| Recreation and culture | 966 | 9.3 | 442 | 6.6 | 46 |
| Audio-visual, photographic and inf. processing equipment | 150 | 1.4 | 74 | 1.1 | 50 |
| Other major durables for recreation and culture | 3 | 0.0 | 1 | 0.0 | 31 |
| Other recreat. items and equipment, gardens and pets | 109 | 1.1 | 82 | 1.2 | 75 |
| Recreational and cultural services | 376 | 3.6 | 104 | 1.5 | 28 |
| Newspapers, books and stationery | 185 | 1.8 | 81 | 1.2 | 44 |
| Package holidays | 143 | 1.4 | 99 | 1.5 | 70 |
| Education | 127 | 1.2 | 45 | 0.7 | 36 |
| Restaurants and hotels | 829 | 8.0 | 286 | 4.2 | 34 |
| Catering services | 760 | 7.3 | 268 | 4.0 | 35 |
| Accommodation services | 69 | 0.7 | 18 | 0.3 | 26 |
| Miscellaneous goods and services | 755 | 7.3 | 572 | 8.5 | 76 |
| Personal care | 383 | 3.7 | 168 | 2.5 | 44 |
| Prostitution | 15 | 0.1 | 0 | 0.0 | 0 |
| Personal effects n. e. c. | 77 | 0.7 | 47 | 0.7 | 61 |
| Social protection | 21 | 0.2 | 2 | 0.0 | 8 |
| Insurance | 150 | 1.4 | 285 | 4.2 | 189 |
| Financial services n. e. c. | 69 | 0.7 | 21 | 0.3 | 30 |
| Other services n. e. c. | 40 | 0.4 | 49 | 0.7 | 123 |
| Total | 10384 | 100.0 | 6729 | 100.0 | 65 |

Source: Calculation of the author based on HBS and NIPA accounts (Stat. Office of the Slovak Republic)

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Beside problems of definition in the comparison between NIPA and survey estimates, from the analysis of the 2004 data there is also clear evidence of some under-reporting of consumption expenditure. This under-reporting is noted in some inconsistencies in the data provided, and as argued in an earlier report is also due to design issues, that could overstate the level of inequality and affect distributive analysis. Indeed there are a number of inconsistencies between availability and use of a certain facility and reported payments for such facilities. For instance, the proportion of households with access to piped water who actually pay for it is only 72% (much lower for independent houses than for flats, respectively 47 and 89%). Similar calculation for sewerage is 66% (76% for flats and 35% for independent houses), and although with smaller discrepancies, inconsistencies exist also for electricity and gas payments (respectively 96% and 94%). For central heating and coal and other fuels there is also substantial underestimation and not only in the case of independent houses, but also for flats (this is simply explained by the fact that if one household is interviewed in July is unlikely to report any expenditure for central heating). Although some of these discrepancies do not tend to affect mean estimates, they do heavily affect the possibility to use consumption data for inter-household comparison.

For what concerns income data, it is more difficult to judge about inconsistencies in the data⁴⁰, but at least on a theoretical ground, they are likely to provide more consistent data, at least when income sources are regular. Indeed, while consumption requires long interviews and extensive record keeping in diaries, with higher probability of errors and partial non-compliance, income is gathered with few questions, thus possibly providing more reliable data.

One peculiarity of the HBS data is that inequality in per capita consumption is higher than in income per capita. For instance the Gini index measured with consumption data is 0.28, whereas it is 0.26 with income data. This is the opposite of what is generally found in other countries and what the theory would lead us to believe. Indeed a higher variability in consumption rather than in income suggests that consumption variability could be the result of design problems as well as inaccuracies/underestimation (the fact that expenditure rather than consumption is actually measured in the survey tends to increase variability, for instance through inclusion of bulk purchases)⁴¹.

Such arguments suggest that it is probably more reliable to use income rather than consumption data for poverty analysis, though consumption data can be used at least to estimate the poverty line.

It is important to mention that the figures on income and consumption data appear to be slightly different from those computed by the Statistical Office. The reasons of these differences appear to be on the way in which the aggregates were defined, but also on the fact that the approach followed here was very conservative in the type of imputations and corrections of the data, while the Statistical Office might have used a different approach in further correcting some of the data.

⁴⁰ This difficulty is also due to the fact that I could only work with corrected data, so I am unaware of the extent of possible imputations made by the Statistical Office.

⁴¹ Inequality measures in the consumption aggregate are higher than in the income aggregate also when we exclude from the consumption aggregate the purchase of durable items.

Annex B: Alternative hypotheses of equivalence scale and economies of size

As discussed in section 3.2, it is important to test whether the poverty profile is very sensitive to the different possible adjustments of household income data to household size and composition, taking into account equivalence scales and economies of size. A possible generalization of the equivalised household size is given by the following formula:

$$AE = (\text{Household size})^\alpha$$

Both higher economies of size and larger differences in needs between people of different age (equivalence scale parameters) have the effect of reducing the parameter α . This approach has been used by Lanjouw et. al (1998), and it is applied here to test for the effect of different values of α on the ranking of the main demographic groups, where it is likely that different adjustments might have an impact. In fact, these tests want to assess whether different adjustments of household size affect the conclusions reached in generating the poverty profile of relevant population groups. These groups are those with high household size and with members that might have consumption needs lower than adults, namely children and elderly people.

The source of potential economies of size is mainly related to the share of consumption expenditure for public goods or quasi-public goods: housing (rent), durables, and utilities. Such shares in the consumption patterns prevailing in Slovakia are high, but relatively smaller than in other OECD countries. Moreover, since the main costs of education are subsidized, it is also likely that different needs of children versus adults may be important, since it is reasonable to believe that the requirement for children is lower than the one for adults for what concerns food, and other non-food expenditure. The adjustment adopted as the benchmark approach used the modified OECD equivalence scales which are similar to considering a parameter of about 0.5.

I therefore compare poverty headcounts among different household typologies using values of α between 0.5 and 1, and then using the old OECD equivalence scales, the modified OECD equivalence scales, the Eastern European and Central Asia parameter often used by the World Bank ($\alpha=0.75$) and the per capita approach ($\alpha=1$).

The groups of households considered in this analysis are:

- 1) Elderly households (households composed exclusively by elderly people: women aged 55 and older and men aged 60 and older);
- 2) Households with high child ratio (more than average number of children, children are those aged less than 16);
- 3) Female-headed households;
- 4) Households with high dependency ratio (higher than average dependency ratio, defined as the proportion of children plus elderly people divided by the household size);
- 5) Households with no children;
- 6) Households with 1 child;
- 7) Households with 2 children;

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8) Households with 3 children or more.

These groups of households are used to evaluate the changes in their relative levels of poverty when giving different values to α , but keeping the overall headcount ratio equal to 15.7%. Table B1 shows the results of such analysis considering values of α from 0.5 to 1 and table B2 alternative options of equivalence scales (OECD scales, ECA parameter and per capita adjustment).

We can see that as α decreases, the head count increases significantly for elderly households, female-headed households and to some extent for households with no children, on the contrary poverty decreases among households with three or more children and households with two children. However, within values of α between 0.6 and 0.8, the ranking of some key household typologies is unaffected. Poverty remains low among households where there are no children, and is highest among households with many children, as well as female headed households. This result suggests that poverty estimates within these groups are not particularly sensitive to the different values of α , at least within a reasonable range. The only exception is female-headed households, where as α decreases, they become relatively poorer than households with high child ratio. For easy visual inspection, these results are reported also in two graphs, Figure B1 and Figure B2.

Table B1 Headcount within different groups of households making different assumptions on the extent of economies of scale

| | Value of parameter α | | | | | | % of pop. |
|-------------------------------------|-----------------------------|------|------|------|------|------|-----------|
| | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | |
| poor | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | |
| Elderly households' | 18.4 | 12.3 | 9.0 | 6.6 | 3.8 | 2.4 | 13.1 |
| Female-headed households | 26.3 | 23.4 | 20.8 | 19.4 | 18.0 | 17.0 | 23.6 |
| High Dependency Ratio | 18.3 | 17.2 | 16.9 | 16.9 | 16.7 | 16.7 | 45.1 |
| High Child Ratio | 19.0 | 20.7 | 22.0 | 23.4 | 24.7 | 25.3 | 48.0 |
| No children | 12.7 | 11.1 | 10.0 | 8.7 | 7.5 | 6.9 | 52.1 |
| 1 child | 16.7 | 17.8 | 18.2 | 18.8 | 18.9 | 18.1 | 21.5 |
| 2 children | 18.8 | 21.0 | 22.7 | 23.5 | 25.2 | 24.9 | 20.7 |
| 3+ children | 27.8 | 30.1 | 33.2 | 40.1 | 44.3 | 53.3 | 5.7 |
| Av. household size for the poor | 2.6 | 3.0 | 3.3 | 3.6 | 3.9 | 4.1 | |
| Av. household size for the non poor | 2.9 | 2.9 | 2.8 | 2.8 | 2.8 | 2.7 | |
| % of children in poverty | 20.4 | 22.1 | 23.3 | 24.8 | 26.1 | 27.2 | |
| % of elderly people in poverty | 15.8 | 11.9 | 9.8 | 8.1 | 6.4 | 5.4 | |

Source: Calculation of the author based on 2004 HBS data

The interpretation of table B2, where I report the head count for the same household typologies using alternative adjustment is similar. In particular, is important to note that when considering the new OECD equivalence scale, female-headed households are relatively poorer than households with high child ratio. Again, for easy inspection, such data are also reported graphically in figures B3 and B4.

The same analysis could be repeated considering other population subgroups, based on other characteristics, for instance geographical areas, economic activity of household head, etc.

Figure B1 Headcount within different groups of households making different assumptions on the extent of economies of scale

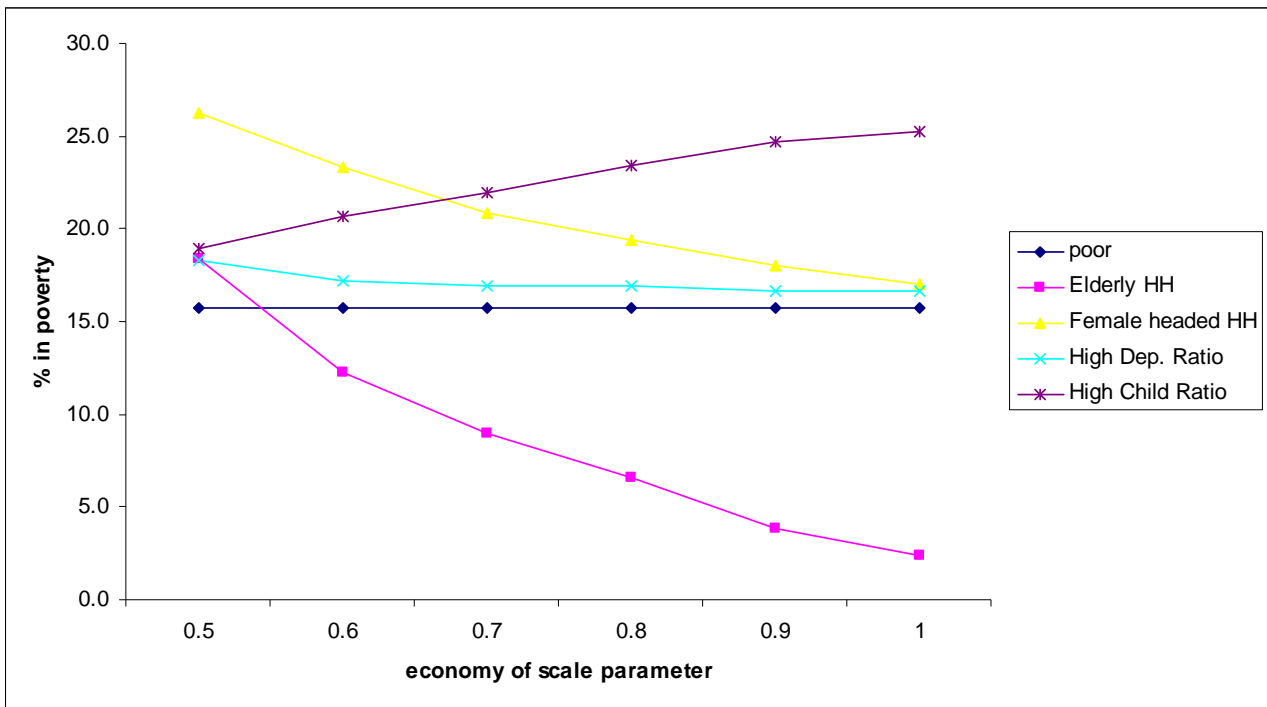
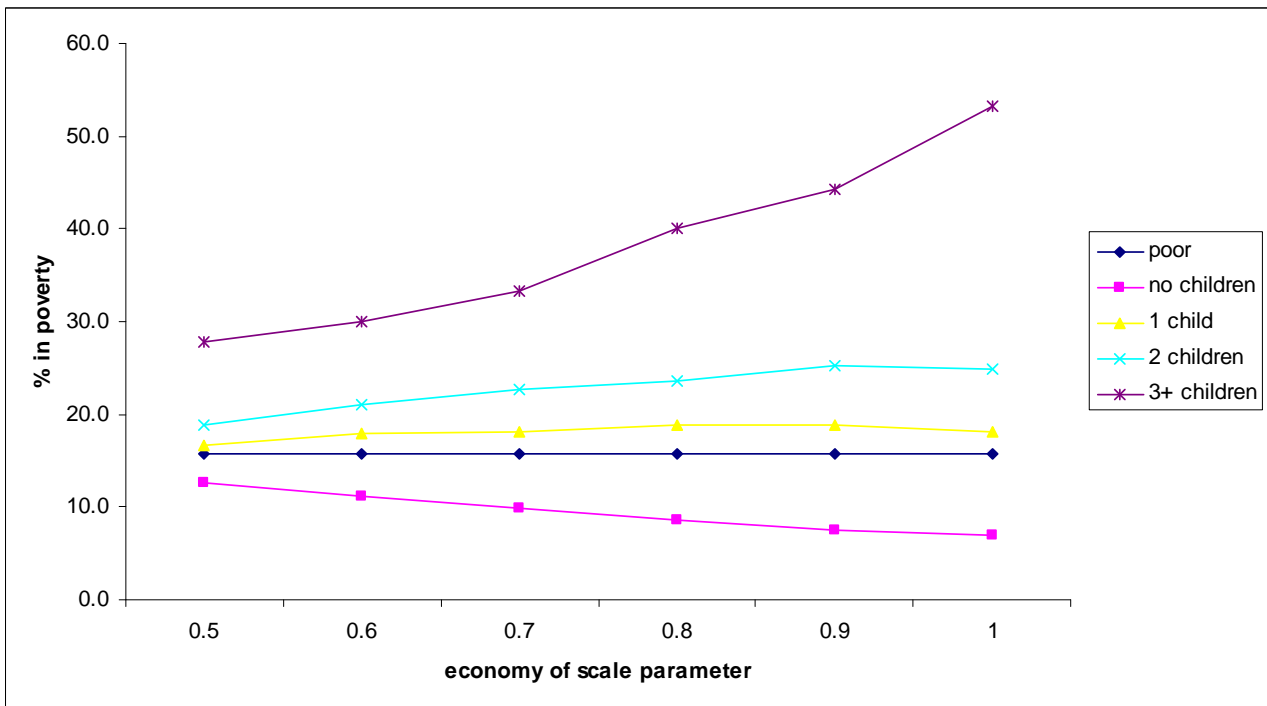


Figure B2 Headcount within different groups of households making different assumptions on the extent of economies of scale



Source: Calculation of the author based on 2004 HBS data

Table B2 Headcount within different groups of households making different assumptions on the extent of economies of scale

| | new OECD scale | old OECD scale | 0.75 ECA parameter | per capita | % of pop. |
|-------------------------------------|----------------|----------------|--------------------|------------|-----------|
| Headcount (Percentage of poor) | 15.7 | 15.7 | 15.7 | 15.7 | |
| Elderly households' | 12.3 | 7.1 | 7.6 | 2.4 | 13.1 |
| Female-headed households | 22.5 | 19.4 | 20.1 | 17.0 | 23.6 |
| High Dependency Ratio | 14.8 | 14.7 | 17.0 | 16.7 | 45.1 |
| High Child Ratio | 18.3 | 21.2 | 22.8 | 25.3 | 48.0 |
| No children | 13.3 | 10.7 | 9.1 | 6.9 | 52.1 |
| 1 child | 17.9 | 18.6 | 18.3 | 18.1 | 21.5 |
| 2 children | 16.3 | 20.3 | 23.3 | 24.9 | 20.7 |
| 3+ children | 26.8 | 34.0 | 37.6 | 53.3 | 5.7 |
| Av. household size for the poor | 3.0 | 3.5 | 3.4 | 4.1 | |
| Av. household size for the non poor | 2.9 | 2.8 | 2.8 | 2.7 | |
| % of children in poverty | 18.2 | 21.3 | 24.3 | 27.2 | |
| % of elderly people in poverty | 12.7 | 9.2 | 8.7 | 5.4 | |

Source: Calculation of the author based on 2004 HBS data

Figure B3 Headcount within different groups of households making different assumptions on the extent of economies of scale

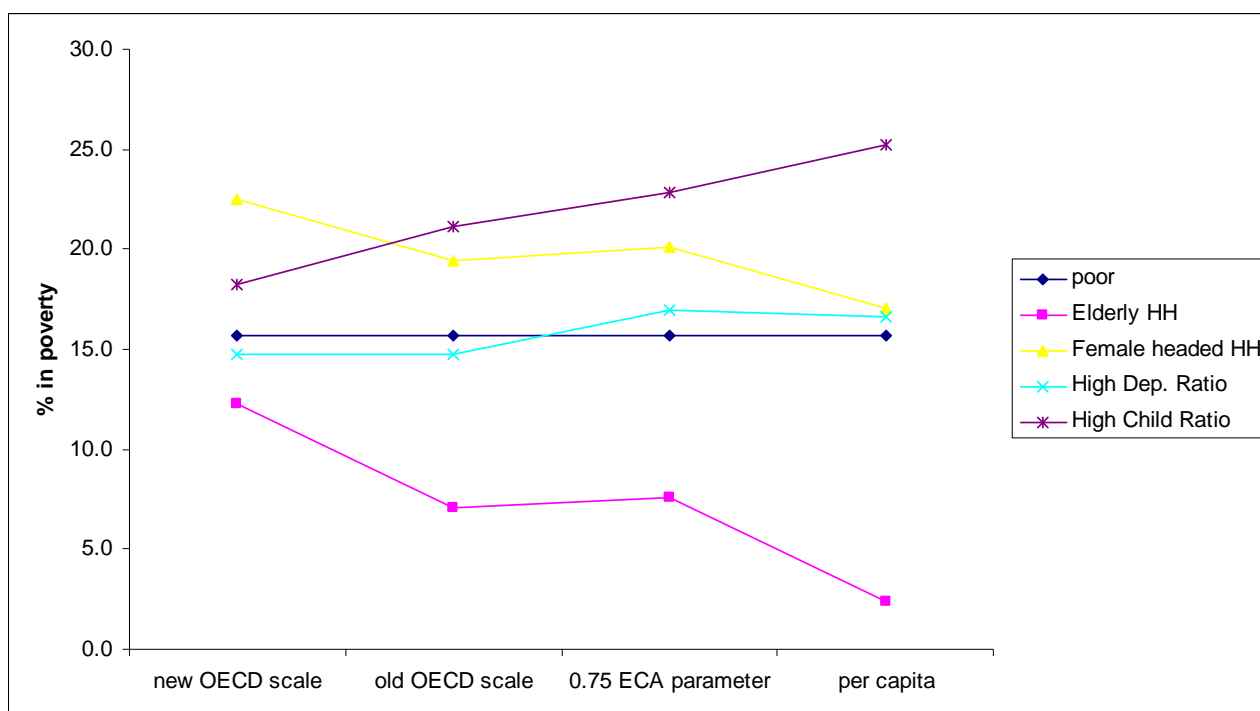
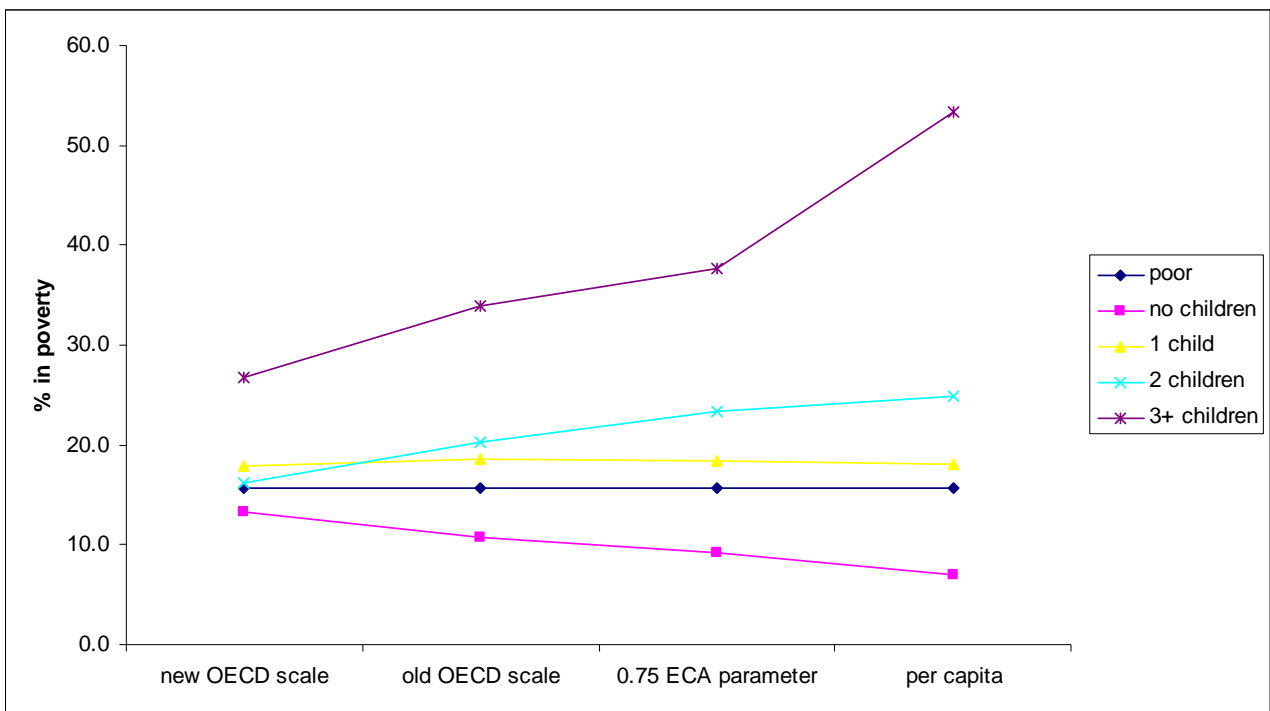


Figure B4 Headcount within different groups of households making different assumptions on the extent of economies of scale



Annex C: The Food Energy Intake method of setting an absolute poverty line

This method sets the poverty line looking at the consumption expenditure or income levels of households who consume exactly the recommended calorie intake. It starts by determining the caloric requirements using some normative judgment and then computes the overall expenditures associated to the chosen caloric requirement. This method has been used in many developing countries and used often as a shortcut to determine separate poverty lines in different parts of the same country without the need of detailed information on prices. However, as explained in Ravallion (1998), such approach can generate misleading results. Nevertheless, the methodology is technically sound when used to determine a poverty line for the whole country. Indeed the difference between this method and the “cost of basic needs” is more philosophical than practical since the two methodologies often produce similar results. What needs to be said is that the FEI approach puts more emphasis on the energy requirements and determines in a more undetermined way the components of the consumption expenditure that are part of the poverty line.

The implementation of this method requires the calculation of the daily calorie intake for each household in the sample and household consumption is subsequently transformed in per adult equivalent terms using the equivalence scales implicit in the levels of recommended calorie intake.

In the case of Slovakia I computed such equivalence scale with reference to the calorie intake of an adult man aged between 19 and 34 as in table 3.1. The determination of the poverty line is then obtained using either regression analysis or non-parametric methods similar to those implemented in the cost of basic needs approach. Moreover, rather than using data of the whole sample, it is important to exclude consumption patterns of the wealthier households, and this is usually achieved working with the lower part of the distribution. The working hypothesis here is to work with the first 3 income deciles (defined using equivalised income through the modified OECD equivalence scales). In fact it is important to exclude the consumption patterns of households that are clearly non-poor, who might have a diet with relatively low energy intake, but nevertheless have relatively high consumption expenditure, not only overall, but also for food.

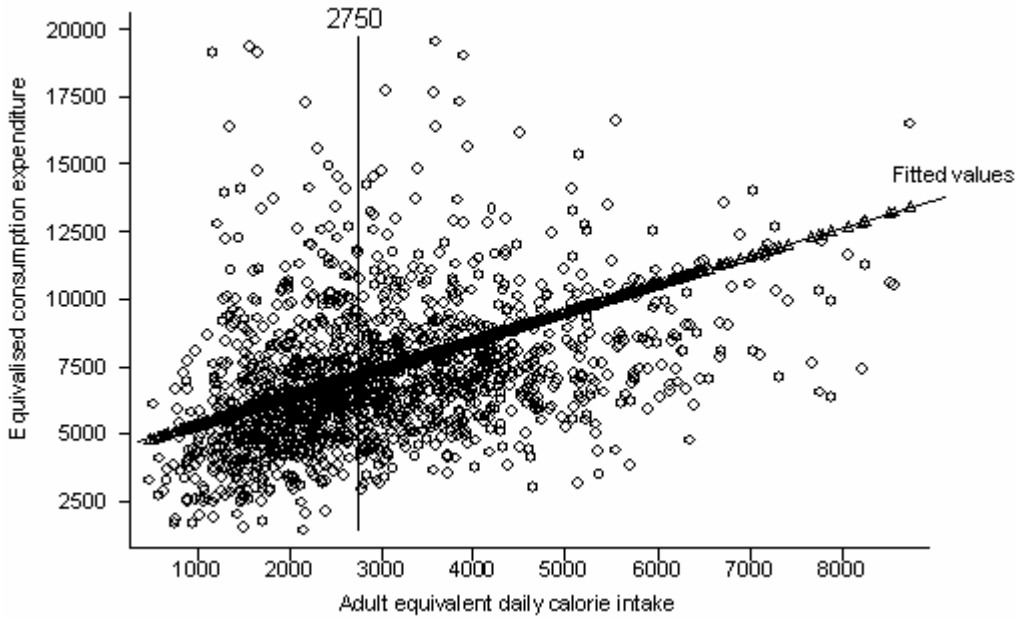
The regression used is as follows:

$$\text{Consumption} = \beta * \text{Calories} + \alpha$$

Where consumption is either consumption per capita or equivalised consumption (using the old OECD equivalence scales), and calories represents the daily intake of calories per adult equivalent. The poverty line is then obtained multiplying the recommended calorie intake (2750) by the parameter beta and adding the value of the parameter alfa.

Figure C.1 shows the results of such regression working with the first three income deciles and using equivalised consumption as dependent variable. In such case the poverty line is equal to 7169 SKK per month. A similar calculation with values of per capita consumption gives a poverty line of 4810 SKK per month. It is important to note that the ratio between the per equivalent member poverty line and the per capita one is almost identical to the one used for the cost of basic needs method, with the relevant difference that here the ratio is determined by a direct estimation of the per member equivalent poverty line.

Figure C1 The Food Energy Intake calculation of the poverty line



Source: Author's calculation of 2004 HBS data.

Annex D: Detailed tables

In this annex I report some extra tables with more details about the poverty line calculation and aspects of the poverty profile.

Table D1 Table A1. Poverty head-count by age and sex, 2004

| | Male | Female | Total | Male | Female | Total |
|-------|------|--------|-------|------|--------|-------|
| 0-15 | 19.9 | 19.5 | 19.7 | 12.9 | 13.7 | 13.3 |
| 16-24 | 19.3 | 19.4 | 19.4 | 12.8 | 12.7 | 12.8 |
| 25-49 | 14.5 | 15.8 | 15.2 | 9.0 | 10.6 | 9.9 |
| 50-64 | 9.8 | 11.7 | 10.9 | 7.0 | 6.9 | 6.9 |
| 65+ | 9.0 | 21.3 | 16.3 | 3.4 | 8.5 | 6.5 |
| Total | 15.0 | 16.7 | 15.9 | 9.5 | 10.4 | 10.0 |

Source: Calculations of the author based on HBS data.

Table D2 Table A2. Poverty head-count by economic activity (age \geq 16), 2004

| | Male | Female | Total | Male | Female | Total |
|------------------|------|--------|-------|------|--------|-------|
| working | 7.8 | 7.2 | 7.5 | 4.3 | 3.5 | 3.9 |
| unemployed | 45.7 | 41.7 | 43.5 | 34.6 | 33.4 | 34.0 |
| retired | 7.9 | 16.4 | 13.4 | 3.5 | 6.8 | 5.7 |
| not econ. active | 21.9 | 22.0 | 21.9 | 13.9 | 15.0 | 14.5 |
| Total | 13.7 | 16.2 | 15.1 | 8.6 | 9.7 | 9.2 |

Source: Calculations of the author based on HBS data.

Table D3 Monthly food basket per person

| Item | unit | Calories per unit | Monthly quantity per capita | Daily calories provided | Price per unit (SKK) | Monthly value of quantity consumed (SKK) |
|---------------------------------------|------|-------------------|-----------------------------|-------------------------|----------------------|--|
| rice | kg | 3198 | 0.76 | 79.62 | 24.9 | 18.9 |
| bread | kg | 2245 | 6.14 | 452.97 | 32.5 | 199.6 |
| pastries | kg | 3306 | 0.60 | 65.34 | 37.0 | 22.2 |
| cookies | kg | 3306 | 0.45 | 49.06 | 60.0 | 27.1 |
| sandwiches, filled baguettes etc. | kg | 3136 | 0.02 | 1.81 | 90.0 | 1.6 |
| other products from grain | kg | 3200 | 2.31 | 242.71 | 13.4 | 30.9 |
| beef | kg | 1450 | 0.28 | 13.25 | 117.9 | 32.8 |
| pork | kg | 1140 | 1.28 | 47.91 | 121.1 | 154.8 |
| mutton, lamb, goat meat | kg | 1330 | 0.02 | 0.90 | 110.0 | 2.3 |
| poultry | kg | 1375 | 1.60 | 72.22 | 78.0 | 124.6 |
| smoked, salted and dried meat | kg | 2408 | 1.16 | 91.63 | 117.0 | 135.4 |
| processed meat | kg | 2799 | 0.26 | 24.05 | 106.0 | 27.7 |
| other types of meat | kg | 1087 | 0.06 | 2.31 | 107.0 | 6.9 |
| fish fresh, cooled, frozen | kg | 890 | 0.15 | 4.32 | 129.0 | 19.0 |
| other sea products | kg | 1358 | 0.00 | 0.04 | 151.5 | 0.2 |
| smoked and dried fish | kg | 1500 | 0.01 | 0.43 | 149.2 | 1.3 |
| semi-products from fish | kg | 1358 | 0.15 | 6.50 | 129.8 | 18.9 |
| whole milk | lt | 671 | 2.21 | 48.75 | 19.3 | 42.7 |
| low-fat milk | lt | 500 | 2.96 | 48.73 | 19.0 | 56.3 |
| processed milk | gr | 3.013 | 18.21 | 1.80 | 0.15 | 2.7 |
| joghurts | gr | 0.79 | 483.42 | 12.56 | 0.07 | 33.4 |
| cheese and cottage cheese | kg | 2318 | 0.40 | 30.14 | 159.5 | 63.1 |
| other milk products | gr | 2.556 | 460.64 | 38.71 | 0.07 | 31.8 |
| eggs | no | 75 | 15.40 | 37.96 | 3.0 | 46.6 |
| butter | gr | 5.323 | 153.38 | 26.84 | 0.15 | 22.3 |
| margarine | gr | 6.05 | 476.87 | 94.85 | 0.06 | 30.5 |
| olive oil | lt | 8500 | 0.01 | 1.90 | 174.9 | 1.2 |
| other edible oil | lt | 8500 | 0.94 | 262.79 | 43.1 | 40.5 |
| other animal fat | kg | 8500 | 0.23 | 64.11 | 54.0 | 12.4 |
| citrus fruit | kg | 380 | 0.61 | 7.56 | 33.2 | 20.1 |
| bananas | kg | 890 | 0.47 | 13.78 | 32.0 | 15.1 |
| apples | kg | 520 | 1.53 | 26.09 | 18.5 | 28.2 |
| pears | kg | 580 | 0.02 | 0.36 | 30.0 | 0.6 |
| fruit with stone | kg | 460 | 0.17 | 2.61 | 28.0 | 4.8 |
| berry-type fruit | kg | 410 | 0.09 | 1.26 | 37.1 | 3.5 |
| other fruit | kg | 504 | 0.41 | 6.78 | 25.8 | 10.5 |
| dried fruits, nuts | gr | 2.72 | 101.67 | 9.09 | 0.10 | 9.7 |
| frozen fruits and fruit semi-products | kg | 547 | 0.02 | 0.34 | 49.0 | 0.9 |
| green-stuff and stem vegetables | kg | 130 | 0.02 | 0.09 | 40.0 | 0.9 |
| cabbage and flower vegetables | kg | 179 | 0.59 | 3.45 | 15.0 | 8.8 |

Table continues on following page

Table D3 Monthly food basket per person (continued)

| Item | unit | Calories per unit | Monthly quantity per capita | Daily calories provided | Price per unit (SKK) | Monthly value of quantity consumed (SKK) |
|---------------------------------------|------|-------------------|-----------------------------|-------------------------|----------------------|--|
| fruit vegetable (fresh) | kg | 275 | 1.05 | 9.54 | 34.3 | 36.2 |
| root vegetable and mushrooms | kg | 211 | 0.84 | 5.79 | 20.8 | 17.4 |
| vegetable dry and dried | kg | 296 | 0.15 | 1.47 | 38.0 | 5.7 |
| vegetable frozen and semi products | gr | 0.23 | 286.64 | 2.17 | 0.06 | 16.3 |
| potatoes | kg | 570 | 4.14 | 77.49 | 12.0 | 49.6 |
| other tuber and potatoes products | gr | 0.87 | 76.89 | 2.20 | 0.16 | 12.3 |
| sugar | kg | 3956 | 1.54 | 200.10 | 31.9 | 49.1 |
| fruit jams, marmelades, pastes, honey | gr | 3.5 | 129.07 | 14.85 | 0.10 | 12.4 |
| chocolate, chocolate candies | gr | 4 | 147.22 | 19.36 | 0.21 | 30.2 |
| non-chocolate candies | gr | 4 | 61.72 | 8.12 | 0.21 | 12.7 |
| ice cream and ice | gr | 1.718 | 68.38 | 3.86 | 0.10 | 6.8 |
| other sugar products | gr | 4 | 44.54 | 5.86 | 0.16 | 6.9 |
| gravies, flavourings | gr | 1 | 474.29 | 15.59 | 0.05 | 22.3 |
| salt, spices and cooking herbs | gr | 0 | 321.55 | 0.00 | 0.05 | 16.2 |
| cooking powder, dessert preparation | gr | 3 | 100.37 | 9.90 | 0.13 | 12.8 |
| other food products | gr | 3 | 57.82 | 5.70 | 0.14 | 8.1 |
| coffe | gr | 1.2 | 146.95 | 5.80 | 0.22 | 32.3 |
| tea | gr | 1.2 | 26.53 | 1.05 | 0.52 | 13.7 |
| cocoa | gr | 2.29 | 53.31 | 4.01 | 0.17 | 9.3 |
| mineral waters, gas beverages | lt | 0 | 2.60 | 0.00 | 8.9 | 23.1 |
| sparkling soft drinks | lt | 200 | 2.34 | 15.36 | 9.6 | 22.5 |
| fruit juices and syrups | lt | 488 | 0.79 | 12.61 | 23.7 | 18.6 |
| vegetable juices | lt | 200 | 0.03 | 0.20 | 32.7 | 1.0 |

Source: Calculations of the author based on HBS data.

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