At Work…, and Poor? A Look at the Czech Working Poor Population in the Living Conditions Survey (EU-SILC)

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Abstract

The main aim of the article is to analyse the working poor employees and their household's social situation in the national income and living conditions survey (EU-SILC).

The analysis starts with the definition of the two main groups of employees according to the number of months spent in the full-time employment – those working whole year and those employed for 6 to 11 months.

Poverty in earned income concept is used to evaluate poverty at individual level, confronting employee's income with single person household poverty line benchmark.

The study then moves to the household level poverty measure based on household's disposable equivalised income. When shifting from the individual income to the household's one the economies of scale represented by an implicit or explicit equivalence scale used in the construction of the household poverty measure play a crucial role. Therefore, attention is paid to the comparison of poverty level based on equivalised disposable income using equivalence scales and per-capita income.

At the end, material deprivation of different subgroups of employees according to their poverty status is examined.

Keywords	JEL code
Working poor, poverty in earned income, at-risk-of-poverty rate, material deprivation	*I32*

INTRODUCTION[3]

Problems of poverty are often associated with joblessness. Having a job should be a guarantee that one is not poor. However, that is not always true. There are people who are poor despite the fact that they work. This article explores the working poor population in the Czech Republic.

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The definition of the working poor population consists of two terms that need to be explained – worker and poverty. Because the wider scope of our research is to analyse the influence of wages and of the institute of minimum wage on the social and economic situation in the Czech Republic, the focus of this article is only on employees, deliberately excluding self-employed people. Two groups of employees were defined according to the number of months spent in the main employment – those working full year and those employed for 6 to 11 months. However, in this article the attention is paid mainly to the first group. The whole group is then further broken down into 4 subgroups, depending on whether they are poor on individual and/or household level.

Social situation of individuals as well as whole households could be evaluated not only by using poverty indicators. The article deals also with the indicator of material deprivation, which is one of standard European indicators used to evaluate social exclusion.

1 METHODOLOGY

1.1 Source of data

The European Union – Statistics on Income and Living Conditions (EU-SILC) household survey was used for the analysis of in-work poverty in the Czech Republic. This survey is a reference source for statistics on income and poverty at the EU-level. Both cross-sectional and longitudinal data are collected in all European Union member states and in Croatia, Iceland, Norway, Switzerland and Turkey.[4] The survey has been conducted in the Czech Republic since 2005. The data used for this article come from the EU-SILC 2011.

1.2 Definitions

Working poor population is the population, which is classified as working and at risk of poverty. The term "working poor" could be divided into two parts that are necessary to be defined. First, the definition of a worker for the sake of identifying of the working poor population must be defined. There are three common definitions of a worker in the working poor population analyses. The first type of the definition, used by the U. S. Bureau of Labor Statistics, defines a worker as a person who spent at least 27 weeks on the labour market which means either working or seeking a job (Gardner, Herz, 1992; Mosisa, 2003; Bruder et al., 2011; Ponthieux, 2007). The French national statistical office (INSEE) defines a worker in a similar way as a person who participated at the labour market at least for 6 months and at least one month worked. The third one is used in the European Union and is the strictest of the three definitions, because it defines a worker as an individual who worked at least 6 months and currently is working (Bruder et al., 2011; Ponthieux, 2007). Critiques of this approach say that – because of the strictness of the definition – the sample of the workers is too homogenous and, from the labour market analysis perspective, it therefore does not reflect the overall situation on the labour market. The level of poverty then tends to be influenced mainly by other factors, predominantly by the household composition and the economic activity of the other members of the household (EU, 2010; Ponthieux, 2007).

Our analysis uses the economic activity calendar question of EU-SILC, where economic activity status of respondents is collected on a monthly basis for the 12 months of the preceding calendar year. Two groups of employees were defined according to the number of months spent in the full-time employment. The first group is composed of people who are 16 years old and over and worked 12 months in a full-time employment. People who are 16 years old and over and worked in full-time employment for at least 6 months, but less than 12 months in the reference period, compose the second group. This 6 month criterion is consistent with the definitions of Eurostat, French national statistical office

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[4] <http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_social_policy_equality/omc_social_inclusion_and_social_protection/methodology>.

or American Bureau of Labor Statistics. However, the difference between the above mentioned definitions and the definition used in this paper is that only employees were taken into account in the case of our analysis. Self-employed people were excluded because they are irrelevant when evaluating the minimum wage influence on economic and social situation of the Czech households. In other analyses, their inclusion was also often found problematic because of their recorded incomes, which could sometimes be zero or negative, with the corresponding methodological questions how to treat these incomes (Gracía-Espejo and Ibáñez, 2005).

The second part of the term "working poor" refers to the definition of poverty. Household is a natural economic unit and thus also a typical unit when collecting income data. The at-risk-of-poverty rate based on household disposable equivalised income is usually used to measure income poverty in the European context (EU, 2010).

At-risk-of-poverty threshold, At-risk-of-poverty rate
The at-risk-of-poverty rate, which is the standard European measurement of relative poverty, was used to measure poverty at household level. The at-risk-of-poverty rate is the share of people with an equivalised disposable income (after social transfers)[5] below the at-risk-of-poverty threshold, which is set at 60% of the national median equivalised disposable income after social transfers.[6] In 2011 the annual at-risk-of-poverty threshold was 113 040 CZK, corresponding to the monthly amount of 9 420 CZK.

Equivalised disposable income
The equivalised disposable income is the total income of a household after tax and other deductions divided by the number of household members converted into equivalent adults. The equivalised disposable income is calculated in three subsequent steps:
1. all monetary incomes received from any source by each member of a household as well as by the household as a whole are added up and then taxes and social contributions are deducted from this sum;
2. to reflect differences in a household's size and composition, the total (net) household income is divided by the number of equivalent adults, using a standard (equivalence) scale – the modified OECD scale, which gives a weight to all members of the household as follows: 1.0 to the first adult, 0.5 to the second and each subsequent person aged 14 years and over and 0.3 to each child aged under 14 years;
3. the resulting equivalised disposable income is attributed to each member of the household.[7]

Critiques of this approach say that it assumes (equal) sharing of income and living standards among all household members. Further problem is seen in the fact, that it combines individual and household level and that poverty is then influenced mainly by the household structure, which is not the same in all countries and therefore the level of in-work poverty is incomparable across countries (Bruder et al., 2011; Ponthieux, 2007).

Because a worker is defined on an individual level and poverty on the household one, the problems of comparability arise. Therefore, alternative definitions of poverty – based on individual level – were invented (Ponthieux, 2007). To measure poverty at individual level the poverty in earned income concept and poverty in the overall personal income were used.

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[5] Social transfers cover the social help given by central, state or local institutional units. They include e.g. old-age (retirement) and survivors' (widows' and widowers') pensions, unemployment benefits, family-related benefits, sickness and invalidity benefits, education-related benefits, housing allowances or social assistance (<http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Social_transfers>).

[6] <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:At-risk-of-poverty_rate>.

[7] <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Equivalised_disposable_income>.

Poverty in earned income

Poverty in earned income is defined at individual level as having annual earned income below the poverty threshold. It can be taken as a measure of the population who would be poor if they could rely only on their own earnings. An individual's earned income is defined as the sum of all the earnings from work, including unemployment benefits:

Earned income = wages + income from self-employment + unemployment benefits.

Poverty in earned income (PEI) is then identified by: earned income < poverty threshold (Ponthieux, 2007).

In this paper, the modification of the earned income concept was used for the first group of employees – those who worked full-time for the whole 12 months. The earned income was defined as the income from the main employment including sickness benefits as a direct substitution of wage. The income from other jobs (employment or/and self-employment) and different social benefits were subsequently added to the income from the main employment until overall personal income was reached. By this procedure, it was possible to study the effect of different kinds of supplementary income sources on reducing poverty of employees.

The population of employees is then broken down into 4 subgroups, depending on whether they are poor in their overall personal income and/or at risk of poverty in their respective households.

2 RESULTS

Altogether, more than 3.71 million people are classified as employee. More than 3.37 million (90.8%) of them are employees who worked full-time for 12 months, while 341 thousands (9.2%) are employees who worked full-time less than 12 months, but at least 6 months.

2.1 Individual level

To evaluate poverty at individual level, poverty in earned income was used for employees who worked full-time for 12 months. There are 5.2% of workers whose income from main employment is not high enough to be above poverty threshold for a household of a single person (113 040 CZK). There are 4.5% of workers whose overall personal income is not sufficient to keep them above the poverty threshold. That means that 0.7% of workers have additional income that helps them to be above the poverty threshold. Another employment income lowers poverty by 0.1 pp, old-age benefits by another 0.2 pp, survivors' benefits by further 0.1 pp and disability benefits by additional 0.3 pp (Table 1). The most helpful in lowering poverty are thus disability and old-age benefits. On the other hand, income from self-employment,

Table 1 Poverty level after consecutive inclusion of different additional incomes into overall personal income, Czech Republic, 2011

	% poor workers	The difference in percentage points
Poverty in earned income	**5.2**	
Poverty after inclusion of:		
Another employee's income	5.1	0.1
Income from self-employment	5.1	0.0
Unemployment benefits	5.1	0.0
Old-age benefits	4.9	0.2
Survivors' benefits	4.8	0.1
Disability benefits	4.5	0.3
Education related allowances	4.5	0.0
Private pensions	4.5	0.0

Source: Own calculations based on the EU-SILC 2011 data

unemployment benefits, education related allowances or private pensions do not have any sizeable impact on reducing poverty in earned income of employees with insufficient employee incomes below the national poverty line of a single person household.

The whole group of workers could be then divided into 4 subgroups as shown in the Figure 1. Subgroup A consists of people who are poor in their earned income as well as in their overall personal income, which means that they do have neither sufficient income from main employment nor additional income high enough to lift them above the national poverty threshold for a household of a single person (113 040 CZK annually). There are 4.5% of employees in this subgroup (an estimated population count of 151 thousand people). Subgroup C comprises employees who do not have sufficient income from main employment, however they have some additional income (income from other employment, self-employment, social benefits etc.) that lifts them above the poverty line for a single person household (an estimated 0.7% of employees). The rest of the employees (3 917 thousand people, 94.8%) are those who are poor neither in their earned income nor in their overall personal income. By definition, there are no people who would not be poor in their income from main employment but were poor in their overall personal income (Figure 1).

Figure 1 Division of employees into 4 subgroups by their poverty status according to their income from main employment and overall personal income, Czech Republic, 2011

		Poverty in earned income (from main employment) Estimated counts in 1000s / share of employees (%)	
		Poor	**Not poor**
Poverty in overall personal income	**Poor**	A – poor both in overall personal income and in earned income 151 4.5%	B – poor in overall personal income and not poor in earned income **Not applicable**
	Not poor	C – not poor in overall personal income and poor in earned income 23 0.7%	D – neither poor in overall personal income nor in earned income 3 917 94.8%

Source: Own calculations based on the EU-SILC 2011 data

Concerning additional income, all persons from Subgroup C have naturally some additional income. In Subgroup A, on the other hand, there are only slightly less than 2 thousand people who have some additional income, while there are estimated about three hundred thousand of those whose overall personal income is higher than earned income from the main employment in Subgroup D.

Subgroup A: poor both in earned income and in overall personal income
There is almost two times higher share of women in this subgroup of employees (86.9%) in comparison to the whole group of employees (44.1%) (Table 2).

People in this subgroup have lower highest education level attained – there are three times more employees with lower secondary education and no people with post-secondary non-tertiary education, first stage of tertiary education or second stage of tertiary education, while these make up a bit below 20% among all employees (Table 2).

Different is also the age structure of the subgroup. There is a higher proportion of younger people – 1.7 times higher share of employees at the age of 20–24 years and 6.5 times higher of those 25–29 years. On the other hand, people at the age of 30–49 years have lower proportion. However, there is also higher percentage of employees at the age of 50–64 years. Mean age is only slightly lower in the Subgroup A (41.3 years) in comparison to all employees (42.4 years).

Employees that are poor both in their income from main employment and their overall personal income have, quite naturally, rather low incomes. Their net income from the main employment is concentrated in the three lowest income intervals (up to 8 000 CZK, 8 001 to 9 000 CZK and 9 001 to 10 000 CZK), while these intervals account only for some 7.8% of all employees (Figure 2).

Structure of the households of employees from the Subgroup A and of the whole group of employees differs as well. Employees in Subgroup A are more than two times less likely to live in the single person households. The probability that they live in single person household is by 74% and 18% lower when considering men and women, respectively. They are more likely to live in households with five or more members. They live more frequently in extended families – the share of people living in two-parent families with other relatives is 1.5 times higher, in lone-parent families with other relatives 1.8 times higher (Table 2).

In sum, this subgroup of low wage employees with personal income below one person household poverty line is dominated by women, with lower education, aged below 30 or above 50 and living in larger households.

Subgroup C: not poor in earned income and poor in overall personal income
Similarly to people in the Subgroup A, persons in this subgroup differ from the whole population of all employees. Women are prevailing also in this group (57.2%), while men prevail among all employees (55.9%), the gender difference is however not that profound as in the Subgroup A (Table 2).

There is much lower share of never married persons (5.4%) in the subgroup in comparison to all employees (26.4%). On the other hand, the share of widowed people is 9.8 times higher (Table 2).

The age structure corresponds to the marital status structure – much lower share of people up to 49 years and higher afterwards. Mean age follows the age structure – it is much higher than for all employees (55.7 years compared to 42.4 for all employees).

Both marital status and age-structure differences are reflected also in the household composition. Employees from the Subgroup C live more often in single person households (2.4 times) or in households with two members (1.7 times), and less often in households with more members. Single female households are 3.7 times more frequent and single male households 1.6 times more frequent than in the all employees group (Table 2). Living in households consisted of two adults where at least one is 65 years or older is 3.3 times more frequent in the Subgroup C, which means that there is also higher representation of couples of retirees.

The old-age benefits are the main reason why these people living in single person households are not poor in their overall personal income, while their income from the main employment is not sufficient to keep them above the poverty line for single person household.
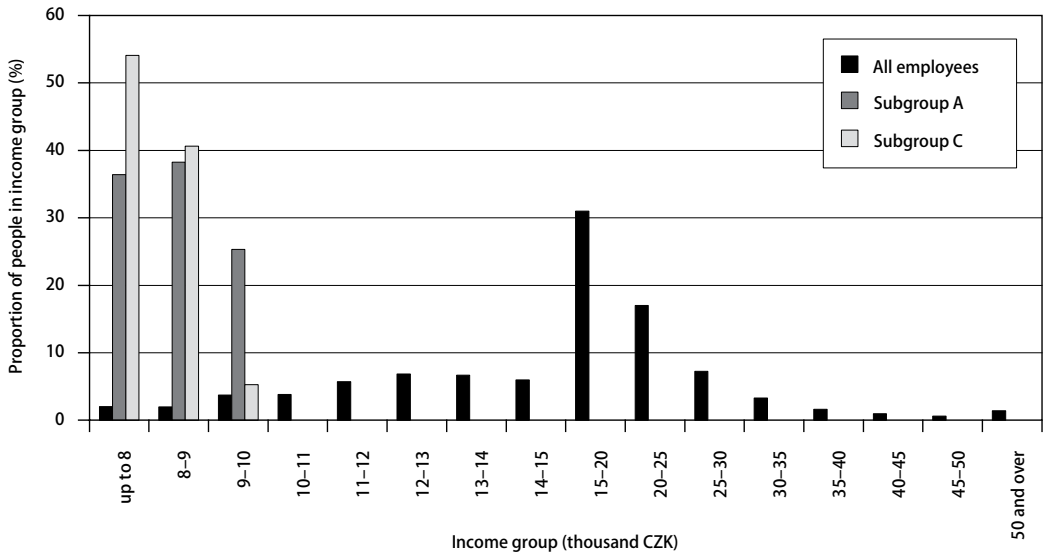
Share of people in this subgroup having lower secondary education (12.7%) is 3 times higher than the proportion of persons with the same highest attained education level in the whole group of employees (4.2%). Similarly as in the Subgroup A, there are no people with post-secondary non-tertiary education, first stage of tertiary education or second stage of tertiary education, while these make up a bit below 20% among all employees (Table 2).

Net income from the main employment belongs again to the three lowest income intervals (up to 8 000 CZK, 8 001 to 9 000 CZK and 9 001 to 10 000 CZK). However, incomes in this subgroup are even more concentrated in the first two intervals – 94.7% of people have their income from the main employment up to 9 000 CZK. The comparison of the income structure of the subgroups A and C and the whole group of employees is shown on Figure 2.

Table 2 Comparison of characteristics of the whole group of employees who worked full-time for 12 months and the subgroups A and C of these employees, Czech Republic, 2011

	Category	1	2	3	4	5
		% in employees	% among the working poor in Subgroup A	Ratio (2) / (1)	% among the working poor in Subgroup C	Ratio (4) / (1)
Gender	Male	55.9	13.1	0.2	42.8	0.8
	Female	44.1	86.9	2.0	57.2	1.3
Marital Status	Never married	26.4	27.9	1.1	5.4	0.2
	Married	60.6	60.0	1.0	63.7	1.1
	Widowed	1.5	1.4	0.9	15.0	9.8
	Divorced	11.4	10.7	0.9	15.8	1.4
Highest education level attained	Lower secondary education	4.2	12.6	3.0	12.7	3.0
	Upper secondary education	76.0	87.0	1.1	84.4	1.1
	Post-secondary non-tertiary education	1.4	0.0	0.0	0.0	0.0
	First stage of tertiary education	17.8	0.4	0.0	2.9	0.2
	Second stage of tertiary education	0.6	0.0	0.0	0.0	0.0
Number of members of the household	1	7.6	3.6	0.5	18.7	2.4
	2	23.8	23.8	1.0	40.2	1.7
	3	30.4	28.5	0.9	17.3	0.6
	4	30.2	28.3	0.9	14.0	0.5
	5+	7.9	15.8	2.0	9.8	1.2
Number of dependent children in the household	0	51.5	57.6	1.1	67.9	1.3
	1	24.5	21.2	0.9	20.6	0.8
	2	20.9	18.5	0.9	11.6	0.6
	3+	3.1	2.6	0.8	0.0	0.0
Type of the household	Two-parent nuclear families	51.4	37.4	0.7	43.3	0.8
	Two-parent families with other relatives	29.4	43.8	1.5	25.5	0.9
	Lone-parent families without other relatives	3.0	1.0	0.4	4.5	1.5
	Lone-parent families with other relatives	7.7	13.5	1.8	8.0	1.0
	Not family-related household	1.0	0.5	0.6	0.0	0.0
	Single male	4.7	1.2	0.3	7.7	1.6
	Single female	3.0	2.4	0.8	11.0	3.7

Source: Own calculations based on the EU-SILC 2011 data

2.2 From individual to household level

Employees working full-time for 12 months represented 32.3% of the population of the Czech Republic. 2.7% of these employees are poor in their household's income, which is a considerably lower rate than it is for the whole population of the Czech Republic (9.8%). However, despite this lower relative risk compared to the total population, these employees represent 9.0% of the population at risk of poverty, which is still a significant portion of income poverty population.

As shown in the previous part of the article, there were 4.5% of employees whose overall personal income was not sufficient to keep them above single household poverty threshold, which means that there is a 1.8 pp decrease when shifting from individual to household level poverty.

The whole group of employees could be divided into four subgroups according to their poverty status by different poverty measures. There are 3 146 thousand (93.3%) persons who are above poverty thresholds both in their overall personal and household's income. There are 4.0% of employees who worked full-time for 12 months who have a sufficient personal income, but the household composition is such that they are poor at household level. On the other hand, there are 2.2% of people who do not have overall personal income high enough, but are not poor at household level. It is only 0.5% of employees who are below both individual and household poverty thresholds (Figure 3). In other words, only 19.3% of the employees who are poor in their household's income are poor also in their overall personal income.

People in each subgroup have different characteristics, which are summarized below and selected results could be find in the Table 3. The results are based on authors' own calculations based on the EU-SILC 2011 data.

Figure 3 Division of the group of employees who worked full-time 12 months into subgroups by their poverty status according to their overall personal income and their household's income, Czech Republic, 2011

		Poverty in overall personal income Estimated counts in 1000s / share of employees (%)	
		Poor	**Not poor**
Poverty in household's income	**Poor**	1 – poor both in household's and overall personal income 18 0.5%	2 – poor in household's income and not poor in overall personal income 74 2.2%
	Not poor	3 – not poor in household's income and poor in overall personal income 134 4.0%	4 – neither poor in household's nor overall personal income 3 146 93.3%

Source: Own calculations based on the EU-SILC 2011 data

Subgroup 1: poor both in household's and overall personal income (thereafter the term core of the working poor population is used for this subgroup)
This first subgroup consists predominantly of women. The proportion of women in this group (80.3%) is 1.8 times higher than in the base group of all employees who worked full-time for 12 months. There are 2.8 times more divorced people than in the group of all employees (Table 3). A significant part of employees in this subgroup lives in single person households, with their share 4.0 times higher than among all employees. This is reflected also in the structure by the types of households, where the share of single female households (20.6%) is 6.9 times higher in comparison to all employees. Lone-parent families have also higher proportion, while two-parent families are less represented (Table 3). Usually there is only one economically active person in the household, which is reflected in the income distribution – these people are concentrated in the first income interval (up to 8 000 CZK) (45.3%), followed by the second one (8 001–9 000 CZK) (33.0%) and the third one (9 001–10 000 CZK) (21.8%) (Table 4).

In sum, a typical household in this subgroup could be described as a single female household or a lone-parent household, where a divorced woman is the head of the household.

Subgroup 2: poor in household's income and not poor in overall personal income
This subgroup consists mainly of men (65.5%; their share is 1.2 times higher than in the whole group of employees; Table 3) – breadwinners with overall personal income higher than poverty threshold for the household of a single person (113 040 CZK), but their household's equivalised income is not sufficient to keep them above the threshold for the household. The net income from the main employment does not belong into the lowest intervals – the first two intervals (up to 8 000 CZK and 8 001–9 000 CZK) are underrepresented as well as incomes over 15 000 CZK. However, the most people earn in their main employment between 15 to 20 thousand CZK (24.5%) (Table 4). They are usually the only earners in the household (77.2%).

Most of the persons in the subgroup are married (61.3%), followed by divorced people whose proportion is 2.0 times bigger than that in the whole group of employees (Table 3). The age structure is the youngest of all four subgroups with the mean age of 40.9 years.

The structure of the household corresponds with the fact that the persons themselves earn enough money to be above poverty level, but the household composition causes that they are at risk of income poverty. The households with four and more members are overrepresented in the subgroup as well as households with two and more children. The most frequent type of household is two-parent nuclear family (59.1%), followed by two-parent family with other relatives (16.7%) with only one economically active member (usually a man). On the other hand, single person households are underrepresented.

Table 3 Comparison of characteristics of the whole group of employees who worked full-time for 12 months and the subgroups 1, 2 and 3 of these employees, Czech Republic, 2011

	Category	1 % in employees	2 % among the working poor in Subgroup 1	3 Ratio (2) / (1)	4 % among the working poor in Subgroup 2	5 Ratio (4) / (1)	6 % among the working poor in Subgroup 3	7 Ratio (6) / (1)
Gender	Male	55.9	19.7	0.4	65.5	1.2	12.3	0.2
	Female	44.1	80.3	1.8	34.5	0.8	87.7	2.0
Marital Status	Never married	26.4	25.4	1.0	16.2	0.6	28.3	1.1
	Married	60.6	39.7	0.7	61.3	1.0	62.7	1.0
	Widowed	1.5	2.3	1.5	0.0	0.0	1.3	0.8
	Divorced	11.4	32.6	2.8	22.5	2.0	7.7	0.7
Highest education level attained	Lower secondary education	4.2	13.2	3.2	6.9	1.7	12.5	3.0
	Upper secondary education	76.0	86.8	1.1	87.8	1.2	87.0	1.1
	Post-secondary non-tertiary education	1.4	0.0	0.0	1.0	0.7	0.0	0.0
	First stage of tertiary education	17.8	0.0	0.0	4.3	0.2	0.4	0.0
	Second stage of tertiary education	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Number of members of the household	1	7.6	30.9	4.0	3.4	0.4	0.0	0.0
	2	23.8	14.3	0.6	16.0	0.7	25.0	1.1
	3	30.4	19.4	0.6	20.3	0.7	29.7	1.0
	4	30.2	25.4	0.8	35.1	1.2	28.7	0.9
	5+	7.9	10.0	1.3	25.3	3.2	16.6	2.1
Number of dependent children in the household	0	51.5	41.8	0.8	22.0	0.4	59.8	1.2
	1	24.5	33.8	1.4	18.2	0.7	19.5	0.8
	2	20.9	21.9	1.0	43.0	2.1	18.0	0.9
	3+	3.1	2.6	0.8	16.7	5.3	2.7	0.8
Type of the household	Two-parent nuclear families	51.4	28.2	0.5	59.1	1.1	38.7	0.8
	Two-parent families with other relatives	29.4	12.2	0.4	16.7	0.6	48.1	1.6
	Lone-parent families without other relatives	3.0	4.8	1.6	12.2	4.1	0.6	0.2
	Lone-parent families with other relatives	7.7	24.0	3.1	7.5	1.0	12.1	1.6
	Not family-related household	1.0	0.0	0.0	1.0	1.1	0.6	0.6
	Single male	4.7	10.3	2.2	2.7	0.6	0.0	0.0
	Single female	3.0	20.6	6.9	0.7	0.2	0.0	0.0

Source: Own calculations based on the EU-SILC 2011 data

Subgroup 3: not poor in household's income and poor in overall personal income
Personal income of people in this subgroup is below poverty threshold for the household of a single person, but the composition of their household lifts them above poverty threshold for the household. Usually they are women of better paid men. Women's share is 2.0 times higher than in the whole group of employees working full-time for 12 months (Table 3). Most of them are married (62.7%; Table 3). Because their personal income is not high enough to keep them above single person household poverty line, their net income from the main employment is up to 10 000 CZK (Table 4).

There are two typical types of households in this subgroup. The first type is represented by extended families with more household members including children and other dependants. The second typical household are couples, where both members are with their personal incomes below poverty threshold for a household of a single person, but together above poverty level for their household. This is caused by using equivalence scale to calculate household poverty.

Subgroup 4: neither poor in earned income nor in overall personal income
The last subgroup is composed of people who are not poor both in their personal income and in household's one. There are slightly more men (57.7%) in this subgroup than women (42.3%). They are people with higher education level (21.1% has post-secondary non-tertiary education or higher), mostly living without children (51.9% of households has no children).

Table 4 Comparison of income structure of the group of all employees, subgroups 1, 2, 3 and 4, Czech Republic, 2011

Income (in thousand CZK)	All employees	Subgroup 1	Subgroup 2	Subgroup 3	Subgroup 4
up to 8	2.0	45.3	0.8	35.2	0.4
8–9	2.0	33.0	0.0	39.0	0.3
9–10	3.7	21.8	4.2	25.8	2.7
10–11	3.8	0.0	11.4	0.0	3.8
11–12	5.7	0.0	10.3	0.0	5.9
12–13	6.8	0.0	17.9	0.0	6.9
13–14	6.7	0.0	13.7	0.0	6.9
14–15	6.0	0.0	11.6	0.0	6.1
15–20	31.0	0.0	24.5	0.0	32.6
20–25	17.0	0.0	3.0	0.0	18.2
25–30	7.3	0.0	2.2	0.0	7.7
30–35	3.3	0.0	0.4	0.0	3.5
35–40	1.6	0.0	0.0	0.0	1.7
40–45	1.0	0.0	0.0	0.0	1.1
45–50	0.6	0.0	0.0	0.0	0.7
50 and over	1.4	0.0	0.0	0.0	1.5

Source: Own calculations based on the EU-SILC 2011 data

2.2.1 Economies of scale

When moving from the individual income to the household's one, the economies of scale represented by an implicit or explicit equivalence scale used in the construction of the household poverty measure play a crucial role. Equivalence scale is used to reflect differences in a household's size and its composition. The needs of a household grow with each additional member but not in a proportional way. Needs for housing space, electricity, etc. are usually not three times higher for a household with three members than for a single person. With the help of equivalence scales each household type in the population is assigned a value in proportion to its assumed needs.

Concerning income, it means replacing per capita income by the equivalised one. As a result, household's poverty rate for a given fixed poverty line should decrease. Total household income in numerator is still the same; the denominator is lower when using equivalence scale than when using number of members of the household. Therefore equivalised income is higher than per-capita one for all except of one-person households and thus the at-risk-of-poverty rate should be lower.

When using per-capita income and poverty threshold of 60% median of national equivalised income, the poverty level increases to 24.7% (831 thousand of employees at risk of income poverty), which means that there are 22.0 pp more people who are at risk of income poverty in their household's income (Figure 5) (there are 2.7% of employees poor in their household's income when using the OECD modified equivalence scale).

When using per-capita concept instead of equivalence scales, the core of working poor employees, poor both in their personal income and in their household's income, growths from 0.5% to 2.4%. The share of those whose income is high enough to keep them above poverty threshold for single person household but are at risk of income poverty when looking at their household's income per-capita increased ten times from 2.2% to 22.2%.

As it could be seen in Figure 5, there are 21.9% of employees who are not at risk of income poverty due to the economies of scale. Naturally, there is no one not poor in per-capita income and poor household's income using equivalence scales.

Figure 4 Division of the group of employees who worked full-time 12 months into subgroups by their poverty status according to their overall personal income and their household's income (per-capita), Czech Republic, 2011

		Poverty in overall personal income Shares of employees (%)	
		Poor	Not poor
Poverty in household's income (per-capita)	**Poor**	1 – poor both in household's (per-capita) and overall personal income **2.4%**	2 – poor in household's income (per-capita) and not poor in overall personal income **22.2%**
	Not poor	3 – not poor in household's income (per-capita) and poor in overall personal income **2.0%**	4 – neither poor in household's (per-capita) nor overall personal income **73.3%**

Source: Own calculations based on the EU-SILC 2011 data

Figure 5 Division of the group of employees who worked full-time 12 months into subgroups by their poverty status according to their household's income per-capita and using equivalence scales, Czech Republic, 2011

		Poverty in household's income (equivalence scales)	
		Poor	Not poor
Poverty in household's income (per-capita)	**Poor**	1 – poor both in household's (equivalence scales) and household's income (per-capita) **2.7%**	2 – not poor in household's income (equivalence scales) and poor in household's income (per-capita) **21.9%**
	Not poor	3 – poor in household's income (equivalence scales) and not poor in household's income (per-capita) **Not applicable**	4 – neither poor in household's (equivalence scales) nor household's income (per-capita) **75.3%**

Source: Own calculations based on the EU-SILC 2011 data

2.3 Material deprivation

Material deprivation, at-risk-of-poverty rate and the share of people living in low work intensity households are three standard European indicators that are used to measure social situation – poverty and social exclusion of people and their households.

The severe material deprivation rate expresses the inability to afford some items considered by most people to be desirable or even necessary to lead an adequate life. The indicator distinguishes between individuals who cannot afford a certain good or service, and those who do not have this good or service for another reason, e.g. because they do not want or do not need it. The indicator measures the percentage of the population that cannot afford at least four of the following nine items:

1. to pay their rent, mortgage or utility bills;
2. to keep home adequately warm;
3. to face unexpected expenses (9 100 CZK for 2011 in the Czech Republic);
4. a meal with meat, chicken, fish or vegetarian equivalent every second day;
5. to go on one week annual holiday away from home (each member of the household);
6. a colour TV;
7. a washing machine;
8. a car;
9. a telephone.[8]

The indicator is based on the enforced lack concept, that means that the person would like to have an item, but cannot afford it, i.e. lack due to insufficient resources and thus problems of affordability, rather than lacks resulting from choices or lifestyle preferences (EU, 2012).

As shown in Table 5, altogether more than 640 thousand persons are considered as severely materially deprived in the Czech Republic. Employees who worked full-time for the whole year have 2.5 pp lower material deprivation rate in comparison with all persons in the Czech Republic.

Table 5 Material deprivation, Czech Republic, 2011

	Absolutely (in thousand persons)	Material deprivation rate (%)
Czech Republic	640.8	6.1
All employees (working full time for the whole 12 months)	122.4	3.6

Source: Czech Statistical Office, own calculations based on the EU-SILC 2011 data

The highest material deprivation rate could be seen in the Subgroup 1 – employees who are poor both in their overall personal income and in their household's income (the core of working poor population). Their material deprivation rate is 7.0 times higher than the one for the whole group of employees working full-time for 12 months. On the other hand, employees who are not poor either in overall personal income or in their household's income have the lowest material deprivation rate (Subgroup 4) (Table 6).

The most frequent item that the household cannot afford is the unexpected expense (35.3%), followed by week holidays for all members of the household (33.8%) and eating meat at least every second day (7.5%) in the whole group of employees. Two items that households could not afford are mostly unexpected expenses and holidays in all subgroups (Table 6).

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[8] <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Material_deprivation_rate>.

Table 6 Material deprivation in the groups and subgroups of employees according to their poverty status, Czech Republic, 2011

	Absolutely (in thousand persons)	Material deprivation rate (%)	Ratio (Subgroup / All employees)[9]	Three most frequently missing items
All employees	122.4	3.6	1.0	unexpected expenses (35.3%), holidays (33.8%), meat (7.5%)

Poverty in earned income vs. overall personal income

Subgroup A	14.6	9.7	2.7	holidays (55.7%), unexpected expenses (54.6%), car (17.4%)
Subgroup B	na	na	na	na
Subgroup C	2.3	10.2	2.8	unexpected expenses (55.1%), holidays (51.0%), car (18.4%)
Subgroup D	105.4	3.3	0.9	unexpected expenses (34.2%), holidays (32.6%), meat (7.1%)

Poverty in overall personal income vs. household's income

Subgroup 1	4.5	25.3	7.0	holidays (86.8%), unexpected expenses (73.9%), car (38.8%)
Subgroup 2	9.4	12.7	3.5	holidays (75.9%), unexpected expenses (68.7%), meat (23.3%)
Subgroup 3	10.1	7.6	2.1	unexpected expenses (52.0%), holidays (51.6%), car (14.5%)
Subgroup 4	98.3	3.1	0.9	unexpected expenses (33.6%), holidays (31.7%), meat (6.7%)

Note: na = not applicable.
Source: Own calculations based on the EU-SILC 2011 data

CONCLUSION

According to the poverty in earned income there are 5.2% of workers whose income from main employment is not sufficient to keep them above poverty threshold for a single person household. However, there are 0.7% of workers who have some additional income that helps them to be above the poverty threshold, which results in 4.5% of workers whose overall personal income is lower than the poverty threshold. The most helpful in lowering the poverty are disability and old-age benefits.

There are 2.7% of employees who are poor in their household's income, which means that there is a 1.8 pp decrease when shifting from individual to household level poverty. These employees represent 9.0% of the whole population at risk of poverty. The whole group of employees was divided into four subgroups according to their poverty status by different poverty measures. The core of working poor population – those who are below both individual and household poverty thresholds – consists of 0.5% of employees. In other words, only 19.3% of the employees who are poor in their household's income are poor also in their overall personal income. A typical household of this core working poor

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[9] The ratio was computed as it is shown on the following example: material deprivation rate in the group of all employees is 3.6%; material deprivation rate in the Subgroup A is 9.7%; the ratio for the Subgroup A is computed as 9.7 / 3.6, which is 2.7. The ratios for other subgroups are calculated similarly.

population is either a single female household or a lone-parent household, where a divorced woman is the head of the household.

When moving from the individual income to the household's one the economies of scale play a crucial role. When using per-capita income the poverty level increases by 22.0 pp to 24.7%. When using per-capita concept instead of equivalence scales, the core of working poor employees poor both in their personal income and in their household's income growths from 0.5% to 2.4%.

The employees as a whole have 2.5 pp lower severe material deprivation rate than is the rate for the Czech Republic. However, the rate of the core of the working poor employees is seven times higher than that of the population of employees working full-time for the whole year and thus they are the most severely materially deprived group.

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