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Does the Attained Level of Education Affect the Income Situation of Households?

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Abstract

An increasing number of inhabitants with higher levels of education provide conditions for formation and development of knowledge or information society. In this society, the significance of education is increased and the utilization of scientific findings becomes the key source of the society's competitiveness. However, does the attained education affect the income situation of a household? The paper provides results of an analysis focusing exactly on relationship between attained level of education and the income situation of households in the Czech Republic, mainly those ones living at risk of poverty. The source for the analysis of the effect of achieved level of education on the income situation of households are the results of a survey conducted by EU-SILC (European Union Statistics on Income and Living Conditions) in 2005–2009. The level of education of a household was determined based on the level of education of the household member with the highest income – the head of household. The income situation is determined by mean and median values, differentiation and development between 2005 and 2009, representing the period of economic development but also economic crisis. The results of analysis of households categorized by education level and their risk of poverty clearly show that the most vulnerable group comprises households with primary education or no education. At the same time, when analyzing the mean disposable income per member in households at risk of poverty; it was found that the households with lowest income are rather surprisingly the ones headed by a person with the highest level of education (tertiary). The connection of income inequality and poverty of economically weak households and attained level of education has been proven; however, we can conclude that a higher level of education of the head of a household is no guarantee of a lower risk of poverty and more and more attention should be paid to the applicability of university graduates in practice.

JEL classification: I25, I32

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1. Introduction

Increasing number of people with higher education provides conditions for formation and development of knowledge society. GDP structure, manifested by growing share of knowledge assets compared with psychical capital is a key feature.

Education not only affects the individual's position in society; it also determines his or her position on the labor market. In addition to personal benefits, it is possible to prove that education of an individual plays an important role in productivity of the whole society. Krueger and Lindahl (2001) consider education as a key driver of economic growth. However, Fields (1980), believes that the level of income inequality in society does not differ significantly, depending on how much individual countries invest in public education. Ram (1989) provides a summary of previously published theoretical and empirical contributions and says that there is no strong support for a direct correlation between increasing levels of education and reduction of income inequality. Nevertheless, Sylwester (2002) suggests that countries that invest more resources in public education (in terms of GDP share) reach lower income inequality in the following years, although this effect can sometimes be delayed, and thus points out that there are other reasons for investment in education than stimulation of economic growth. Similarly, Röbel and Easterly (1993) already earlier assessed such investments and share the view that in the short term investment in education cannot be directly linked with economic growth, but ultimately it contributes to reduction of income inequality.

Education also has a positive impact on public health, the environment, reduction of crime rate, approach to parenthood, participation in public life, etc. It is therefore desirable that the society sets up a system appreciating and supporting educated people in the form of financial rewards.

As already mentioned, the empirical research findings have mostly pursued a relationship of education level to GDP level. The aim of this paper is to follow the relationship of attained education to the income of individuals, respectively households and their standard of living. Evidence from various sources point out that low-income households are often associated with lower standard of living and welfare of the household and children living there (Duncan, Yeung, Brooks-Gunn, and Smith, 1998). Researches also show that children of all ages living in poverty suffer more health problems than children from affluent families (Newacheck, Hughes, and Stoddard, 1996).

When we want to define who is considered to be poor, we can apply Hallerod and Larsson's definition (2008); they define poor people as those, who, due to insufficient access to economic resources, have an unacceptably low level of consumption of goods and services. Income poverty is measured in accordance with the conventional EU measurement of relative poverty. Those people who live in household with an equivalent of disposable income that is below 60 per cent of the median household income are defined as poor.

Poverty threshold is defined in different countries at different levels. People living below this level are then defined as poor. It is also called subsistence minimum. This definition is closely linked to the income level people require to buy life's basic necessities, such as food, clothing, housing, but also what is necessary for satisfaction of their most important socio-cultural needs. What we must take into account is the fact that the poverty line changes over time and it also varies by region, and the official national poverty line is determined by a country's government (Beyond Economic Growth, 2004).

2. Methodology

The data set was drawn from a survey EU-SILC (European Union Statistics on Income and Living Conditions), available for years from 2005 to 2009, collected in the Czech Republic on the number of households, as shown in Table 1.

Table 1.

Number of households participating in the survey EU-SILC

Year	2005	2006	2007	2008	2008
Number of households	4351	7483	9675	11294	9911

The Czech national module of the project called “Living Conditions” is performed by the Czech Statistical Office every year in compliance with the Directive of the European Parliament and the Council. The authors did not participate in data collection; they purchased them in a form of a database. The data collection method is unified by the European Union.

The data set provides information on household income, household structure, economic activity, social situation and level of attained education of the head of household. The selected variables for the analysis were:

- The equivalized monthly disposable income of a household per household member. The conversion is performed in accordance with EU methodology, where the head of household is assessed by the coefficient 1, children below 14 years of age are assigned with coefficient 0.3 and other persons are assigned a coefficient of 0.5 (Longford et al., 2010).
- The attained level of education in following four categories:
 - Primary or no education,
 - Learned a trade through apprenticeship, lower secondary education, without a leaving certificate,
 - Full secondary, vocational or post secondary education,
 - Higher (tertiary) education.

The analysis will use income categories of households at risk of poverty. Poverty threshold for an individual country is defined as the percentage of households with income below 60% of the national median income.

The analysis is focused on the number of households in the Czech Republic with the specified attained level of education and their income situation. The income situation is determined by middle values (mean and median), differentiation and development between 2005 and 2009, which included both economic development and economic crisis.

3. Results

The data set compiled by the above mentioned method gives the results shown in Table 2.

Table 2.

Characteristics of the household income situation categorized by the highest attained level of education of the head of household

The level of education attained by the head of household	2005		2009	
	Number of households (%)	Mean income per an equiv. member (in CZK)	Number of households (%)	Mean income per an equiv. member (in CZK)
Elementary or no education	12.71	8 794	12.40	11 421
Learned a trade through apprenticeship, lower secondary education, without a leaving certificate	45.07	11 096	45.16	14 521
Full secondary, vocational or post secondary education	30.06	13 070	30.27	16 834
Higher (tertiary) education	12.16	17 961	12.17	23 029
Czech Republic	100	12 232	100	15 972

The table shows that the first two categories of education level (elementary and secondary, vocational), do not even reach the national mean income, while their representation in society is more than 57% of households. In the Czech Republic, the development of household income was positive in terms of time and the income increased by 30.6%, the mean income was reached only by the category “learned a trade through apprenticeship” (30.9%) and similarly the category “elementary education” (29.9%), the category “full secondary” achieved a 28.8% increase and the category of “higher education” has the lowest increase of 28.2%). It shows a negative evolution of the dependence of income and education level.

The least numerous category (households with their head with tertiary level of attained education) reached their income 46.68% higher than the mean income in CR in 2005, while in 2009, it was 45.09% higher than the mean income in the country. This finding confirms the lower financial reward of higher attained level of education and confirms the trend of reducing income inequality from this perspective.

The frequencies of households by education categories, respectively their development can not be assessed, as the representation of households in each category corresponds with the educational structure of the Czech Republic.

Advanced economies focus in their social policies on those social groups that live in poverty. This paper, therefore, presents an analysis of income vulnerable households in relation to the attained level of education.

In 2005, the poverty line in the Czech Republic equaled to 6 350 CZK per equalized household member, in 2009, it was set at 8 314 CZK. Out of it, all households we filtered out with income above the specified values, and Table 3 shows the frequencies of households at risk of poverty, categorized by level of attained education.

Table 3.

Households at risk of poverty, broken down by category of education level

The level of education attained by the head of household	Households at risk of poverty	
	2005	2009
Elementary or no education	13.74	14.72
Learned a trade through apprenticeship, lower secondary education, without a leaving certificate	7.34	5.94
Full secondary, vocational or post secondary education	5.14	4.60
Higher (tertiary) education	1.70	2.16
Czech Republic	6.80	6.16

Positive trend is observed in categories “learned a trade through apprenticeship” and “full secondary education”, while a negative trend in the category “elementary education” and, surprisingly, the “higher education” category. This gives rise to further reflection and analysis on the suitability of the distribution of fields of higher education, their availability and usability of graduates in practice. This may also be due to downsizing and mass layoffs in most companies at all levels of management, often engaging employees with a university degrees, for whom it has been difficult to find appropriate new employment then.

Further interesting results can be obtained from a more detailed analysis of the 6.8%, respectively 6.16% of households at risk of poverty, see Table 4.

Table 4.

Income of households at risk of poverty, divided into education categories

The level of education attained by the head of household	2005		2009	
	Number of households (%)	Mean income per an equiv. member (in CZK)	Number of households (%)	Mean income per an equiv. member (in CZK)
Elementary or no education	25.68	5 103	29.62	6 872
Learned a trade through apprenticeship, lower secondary education, without a leaving certificate	48.65	5 001	43.54	6 674
Full secondary, vocational or post secondary education	22.64	4 943	22.59	6 699
Higher (tertiary) education	3.04	4 520	4.25	6 161
Czech Republic	100	4 999	100	6 715

The table shows that the mean income per one equalized member of household at risk of poverty was 4 999 CZK in 2005 in the Republic, and 6 715 CZK in 2009. Interestingly, the lowest income households are headed by a person with the highest level of education. In contrast, households headed by a person with the lowest level of education reach the highest income.

Trying to search for deeper analysis and reasons for this condition, which may be a period of time when the household is in the category at risk of poverty, or setting requirements for social security benefits, willingness to apply for various social benefits, etc., information on social transfers to households and their share of disposable household income by education categories was presented in Table 5.

Table 5.

Ratios of social transfers in disposable income

The level of education attained by the head of household	2005			2009		
	The ratio of all social transfers in disposable income (%)	The ratio of retirement benefits in disposable income (%)	The ratio of social transfers excluding retirement benefits (%)	The ratio of all social transfers in disposable income (%)	The ratio of retirement benefits in disposable income (%)	The ratio of social transfers excluding retirement benefits (%)
Elementary or no education	64.53	56.66	7.87	65.08	57.89	7.20
Learned a trade through apprenticeship, lower secondary education, without a leaving certificate	35.46	28.39	7.07	34.66	29.12	5.54
Full secondary, vocational or post secondary education	26.68	21.12	5.56	26.94	22.29	4.65
Higher (tertiary) education	16.57	13.93	2.64	17.77	14.80	2.97
Czech Republic	31.51	25.67	5.85	31.34	26.44	4.91

As we can see in Table 5, it is clear that the largest ratio of social transfers to their disposable incomes have households headed by a person with primary education or no education. In both years, social transfers are accounted for about 65% of their disposable income, double the national mean. This trend is increasing in the share of social transfers in disposable income of households in the category of retirement benefits, and slightly decreasing for other social benefits over time.

4. Conclusions

The analysis of households according to the attained level of education of their heads and their risk of poverty clearly shows that the most vulnerable group comprises households with primary education or no education. The share of vulnerable households in this group (about 14%) is more than twice the ratio of the whole country (approx. 6.5%). Besides that, we experience a negative trend over the time. It is a group that deals with the income situation and faces the consequent possibility of social exclusion, therefore, it needs help from the society (or the system). The category of households headed by a person with “learned a trade through apprenticeship, lower secondary education, without a leaving certificate” experienced a decline in number of households at risk of poverty within the analyzed period. The frequency of households at risk of poverty in these two groups is lower than the national average.

At the same time when analyzing the mean disposable income per member of household at risk of poverty it was found that the households with lowest income are the ones headed by a person with the highest level of education (tertiary). In contrast, households headed by a person with the lowest level of education reach the highest income. But in terms of share of social transfers in disposable income,

households headed by a person with elementary or no education are the most often represented (up to 65% of their disposable income), while households with their head of household with tertiary education less than 20%.

The connection of income inequality and poverty of economically weak households and attained level of education has been proven on the basis of our results, including the consequences manifested in the distribution of social transfers. However, we can conclude that higher education level of the head of a household is no guarantee of a lower risk of poverty. On the contrary, more and more attention should be paid to the usability of university graduates in practice. We can conclude that households with head of households with tertiary education level are in a relatively better situation than other categories of households (with lower level of attained education), unless they lose their job or stable source of income, because they seem to be affected by such problems more than other household types and face perhaps more difficulties finding new appropriate job or fail in application for social benefits and their incomes drop dramatically.

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