

TRENDS IN THE QUALITY OF LIFE OF THE V4 COUNTRIES IN THE FIELD OF MATERIAL LIVING CONDITIONS

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Consumption and increasing level of living conditions are the main characteristics of society nowadays. Quality of life is necessarily related to living conditions of population, therefore form a basis of sustainable development. The aim of the article is to determine the economic conditions of the population in Visegrad countries (V4) based on the economic indicators of quality of life. The main data source is Eurostat for the period 2005–2017. In the paper is stated and analyzed development of eight indicators of quality of life in the field of material living conditions. They are divided into three groups: indicators on income, consumption and indicators related to the living conditions of the V4 population. The results of the analysis showed that residents of the Czech Republic have the highest quality of life, followed by Slovakia, Poland and Hungary. Position of the Czech Republic and Slovakia among the V4 countries is relatively stable over the reported period. The most significant positive change in several indicators of quality of life was recorded in case of Poland. As for the individual indicators, it was proved in case of Hungary, they had dramatic development without the statistical attributability of their development trend.

Keywords: quality of life indicators; risk of poverty; material deprivation; median equivalised net income

Introduction

Quality of life is not necessarily a simple function of material wealth. World Health Organization (WHO) considers quality of life a multidimensional concept that integrates subjective well-being (WHOQOL: Measuring Quality of Life) (<http://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/>). The well-being includes many aspects of quality of life like health and safety, access to educational, recreational, natural, and cultural resources (Greenwood and Holt, 2014). The United Nations (UN) systematized social indicators of quality of life into eight groups: health, quality of work, purchasing of goods and services, opportunities for leisure, social security, personality development, the quality of the physical environment and the opportunity to participate in social life. Thus, the quality of life indicators do not only include economic indicators, but also medical, socio-political, legislative, psychological and other indicators (Hnilcová, 2002). There are currently several concepts of quality of life. Quality of life is the result of the interactions of social, health, economic and environmental conditions relating to human and social development. On the one hand, it presents the objective conditions for a good life and, on the other hand, the subjective perception of living a good life (Kreidl, 2001). Quality of life is reflected in social conditions that provide the autonomy of individuals in their everyday lives and create the environment for sustainable development of social climate within the country (Pol et al., 2017).

Balegova (2002) identifies three key areas of interest in the quality of life indicators, including quantitative and qualitative data:

1. Economic indicators, tracking wage and income stratification within a society, distribution of wealth and poverty.
2. Social indicators in a narrow sense, including health and health system, crime, knowledge and education, and diverse empirically acquired demographic indicators.
3. Indicators of subjective well-being related to the reactions of individuals to their own lives.

Material and methods

The aim of the article is to determine the economic conditions of the population in individual V4 countries on the basis of economic indicators of quality of life. The economic conditions are monitored through the material living conditions of the population of the individual countries.

The analytical part of the contribution is based on the Eurostat input database (2008–2017), which is used to determine the development trends of the individual quality of life indicators in the area of material living conditions in individual V4 countries.

Results and discussion

The objective aspect of quality of life is to satisfy social and cultural needs, depending on material sufficiency, social acceptance of the individual and physical health (Kreidl, 2001).

Economic indicators of quality of life can be classified into groups according to the objective of quality of life survey:

1. Household income.
2. Consumption.
3. Living conditions of households.

1. Household income

The first group includes indicators that relate to household income. Indicators belonging to this group:

- Median equivalised net income, i.e. the equivalent disposable income value, which divides the population according to income into two equal groups by number of persons within each group.

Figure 1 shows the development of median equivalised net income in V4 countries over the period 2005–2017.

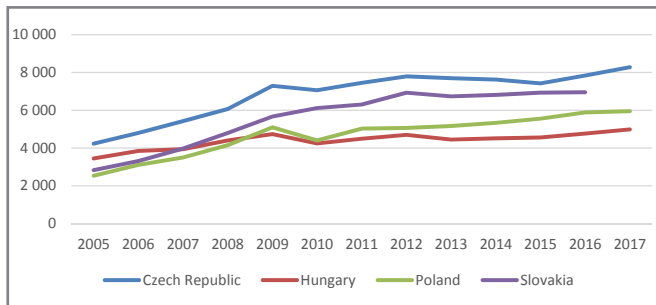


Figure 1 Median equivalised net income
Source: Eurostat

The development trend of median equivalised net income:

Czech Republic:	$I = 4,780.5 + 294.84t$ (0.01) (0.01)	$adj \cdot R^2 = 0.78$	($n = 13$)
Hungary:	$I = 3,754.46 + 90.84t$ (0.01) (0.01)	$adj \cdot R^2 = 0.66$	($n = 13$)
Poland:	$I = 2,871.58 + 257.61t$ (0.01) (0.01)	$adj \cdot R^2 = 0.87$	($n = 13$)
Slovakia:	$I = 3,080.53 + 389.60t$ (0.01) (0.01)	$adj \cdot R^2 = 0.85$	($n = 12$)

From Figure 1 and the estimated functions of development trends, the increase in median equivalised net income in Slovakia was the most significant. In the period under review, the average annual increase was € 389.60. In 2005, it was 2,830 €, in 2016 it was 6,951 €. Significant increase of the indicator can be also observed in the Czech Republic and Poland. The Czech Republic is the country with the highest median equivalised net income. This is the most favorable situation from the viewpoint of the quality of life of the population, among the V4 countries in terms of constant increase in the indicator value. The median equivalised net income in Hungary was the least significant. From 3,447 € in 2005, it increased to 4,988 € in 2017. According to the estimated trend function, it increased annually by 90.84 €.

- The income top and bottom quintile ratio belongs to the group of indicators of quality of life in the area of income of the population. It measures the disparity in the income distribution of the population and is calculated as the share of the income of 20% of the population with the highest income to the income of 20% of the population with the lowest income.

The highest income inequality was observed in Poland in the reference period (Figure 2). In 2005, it was 6.6 and it gradually declined, reaching 4.6 in 2016. In 2016, the highest earnings population group had the income 4.6 times higher than the lowest earning population group. Income inequality was not as high in any other V4 country as in Poland. In the Czech Republic it oscillated around the value of 3.5 and over the reported period maintained the position of the country with the lowest income quintile share ratio. The most dramatic changes were recorded in Hungary in 2006 and 2010. Overall, the trend of income inequality in Hungary seems to be growing negatively. In Slovakia, income inequality has a fluctuating trend. On average, the highest earning population group had a 3.8 times higher income than the lowest earning group.

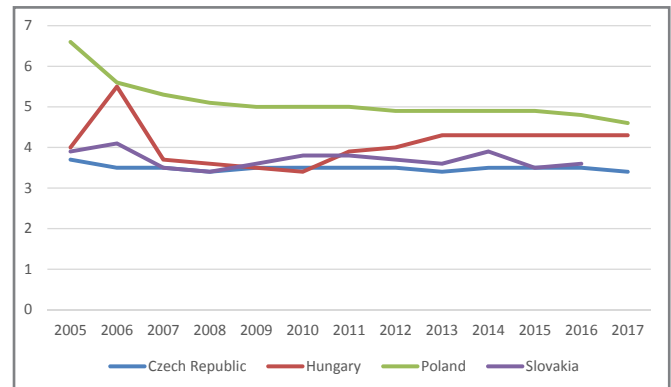


Figure 2 Income quintile share ratio
Source: Eurostat

Estimates of the trend functions of income disparities for individual V4 countries over the observed period were not statistically reliable. An exception is the trend function in Poland. According to the estimated function, the income quintile share ratio on average decreases by 0.10% in Poland with each subsequent period.

The development trend of income quintile share ratio:

Poland:	$Qsr = 5.8 - 0.10t$ (0.01) (0.01)	$adj \cdot R^2 = 0.63$	($n = 13$)
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By regression analysis in case of Poland we studied the dependance of development in income disparity on the income size. This dependance was proved. By the linear function we described 77% of income quintile share ratio development. We can evaluate this in terms of the quality of life of the middle and lower income groups of the population, as with the increase of the median equivalised net income the inequality of income distribution decreases.

Poland:	$Qsr = 7.08 - 0.0004t$ (0.01) (0.01)	$adj \cdot R^2 = 0.77$	($n = 13$)
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- Risk of poverty is the last of the indicators of quality of life in terms of income. It is a share of individuals with an equivalent disposable income below 60% of the national median equivalent income (www.statistics.sk).¹

In terms of poverty rate, the most favorable trend is observed in the Czech Republic over the observed period. Risk of poverty was most balanced among the V4 countries and ranged at an average rate of 9.6% of the population, which means that approximately 990,000 inhabitants is at risk of poverty (Figure 3). In Slovakia, the rate of poverty risk was slightly fluctuating, but at the beginning and end of the period, the risk of poverty rate was around 13%, which is about 780,000 inhabitants. Nearly twice as many people (1,400,000) were at risk of poverty in Hungary on average. The share of vulnerable population in the total population in Hungary was on average 13.9%. The highest risk of poverty was in Poland in the reference period. Not even the marked downward trend changed the last position of

¹ Equivalent disposable income is the disposable household income divided by the equivalent household size. This income is assigned to every member of the household. Coefficient 1 is applied to the first adult household member, 0.5 for the other and each adult household member, 0.5 for 14 years old and older and 0.3 for each child under the age of 14.

Poland among the V4 countries in the period under review. Estimated trend functions of development were not statistically reliable.

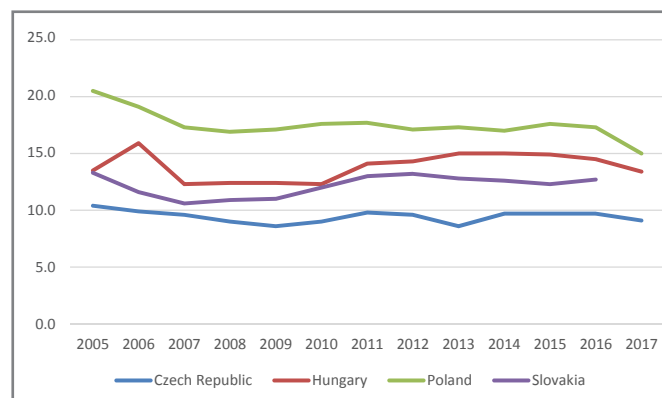


Figure 3 Risk of poverty (percentage)
Source: Eurostat

2. Consumption

The second group of indicators of quality of life in terms of material living conditions is consumption. We use the GDP indicator to monitor consumption, which provides us with information not only about the final consumption of households but also about the total consumption of goods and services in the economy.

Figure 4 provides a clear Gross Domestic Product (GDP) development per country in Purchasing Power Standards (PPS) per capita. In all countries the development trend is growing. The indicator reached the highest values in Czech Republic and in Slovakia. On average, it grew by 332.97. The lowest GDP in PPS per capita was in Hungary during the observed period. According to estimated trend functions, Hungary was also the country with the lowest GDP growth. On average, it grew by 193.96 per year.

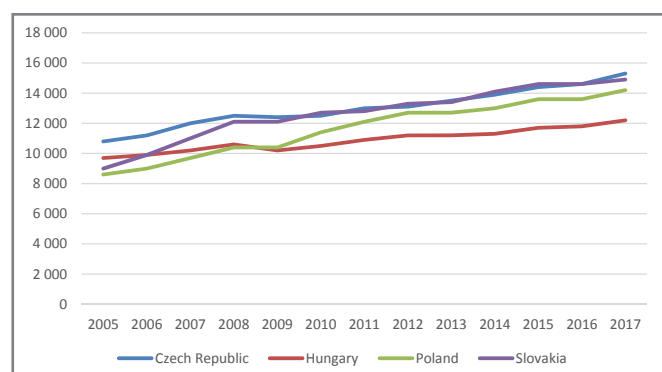


Figure 4 GDP in PPS per capita
Source: Eurostat

The development trend in GDP:

Czech Republic:	$GDP = 10,684.62 + 332.97t$	$adj \cdot R^2 = 0.97$	$(n = 13)$
	(0.01) (0.01)		
Hungary:	$GDP = 9,519.23 + 193.96t$	$adj \cdot R^2 = 0.95$	$(n = 13)$
	(0.01) (0.01)		
Poland:	$GDP = 8,342.31 + 471.98t$	$adj \cdot R^2 = 0.97$	$(n = 13)$
	(0.01) (0.01)		

$$\text{Slovakia: } GDP = 9,480.77 + 453.30t \quad adj \cdot R^2 = 0.93 \quad (n = 13)$$

(0.01) (0.01)

3. Household living conditions

The third group of indicators indicates household living conditions. They have two aspects, the material deprivation informing about the financial conditions and the management of households and household conditions, which informs about the material living conditions of the population.

□ Material deprivation

Severe material deprivation represents the share of persons exposed to the forced shortage of at least four of the nine items under review which the household can not afford financially. Nine items under review: 1. face unexpected expenses; 2. to spend holiday away from home once a year for one week; 3. to cover arrears related to mortgages or rents; 4. to pay for energy or to repay installments and other loans, eat meat, chicken or fish every other day; 5. to maintain adequate heat in the apartment, due to affordability; 6. washing machine; 7. color television; 8. telephone or; 9. car (www.statistics.sk).

Figure 5 provides insight into the development of severe material deprivation in V4 countries. In the period 2005–2017, the development in terms of quality of life was positive, as in most countries (except Hungary), it was gradually decreasing. Most notably, severe material deprivation has decreased in Poland. According to the estimated function of the trend, on average, each year severe deprivations decreased by 1.96%. Thanks to this positive development, in Poland, the number of people exposed to forced deficiency decreased from 12,752,000 (in 2005) to 2,203,000 in 2017. In relative terms, this is a decrease that we can also follow on the Figure and represents a decrease from 33.8% of population in 2005 to 5.9% of population in 2017. In the Slovak Republic and the Czech Republic it dropped a little less significantly than in Poland. Severe material deprivation dropped on average by 0.95% (Slovakia) and 0.43% (Czech Republic) on average. In Hungary, we have experienced dramatic changes in the period under review, whether the indicator is expressed in thousands of inhabitants or as a percentage.

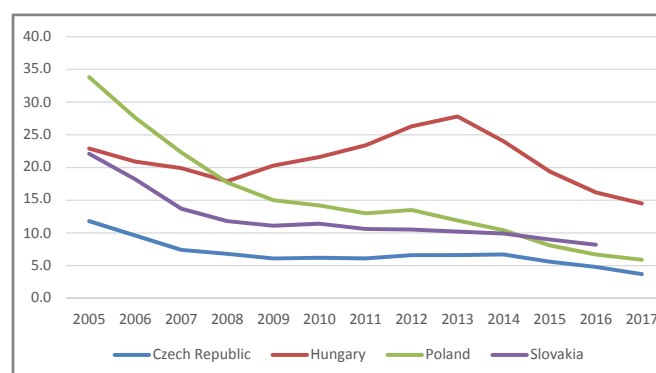


Figure 5 Severe material deprivation (percentage)
Source: Eurostat

The development trend in several material deprivation:

Czech Republic:	$SD = 9.79 - 0.43t$	$adj \cdot R^2 = 0.66$	$(n = 13)$
	(0.01) (0.01)		
Poland:	$SD = 29.14 - 1.96t$	$adj \cdot R^2 = 0.86$	$(n = 13)$
	(0.01) (0.01)		

$$\text{Slovakia: } SD = 18.43 - 0.95t \quad \text{adj} \cdot R^2 = 0.70 \quad (n = 13)$$

(0.01) (0.01)

Inability to make ends meet as an indicator belongs to the group of quality of life indicators of Material deprivation. It points to the difficulty of distribute the money so it covers the usual necessary expenses (food, rent, electricity, gas, etc.) in relation to the total monthly income of the household. We analyze the trends of household development that make end meet with great difficulty.

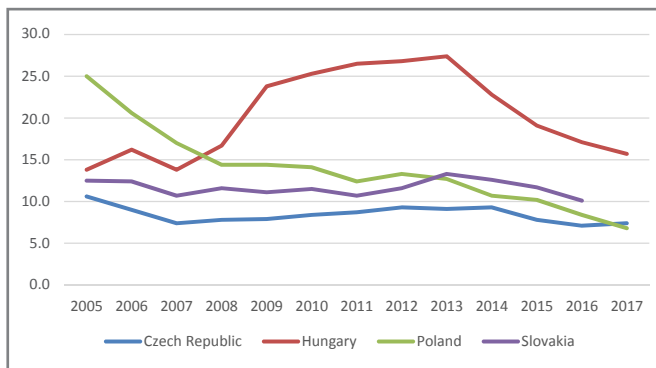


Figure 6 Households making ends meet with great difficulty (percentage)
Source: Eurostat

The share of households, making end meet with great difficulty, was highest in Poland and Hungary in the period under review. While in Poland there was a steady downward trend and according to the estimated trend of indicator, it on average annually declined by 1.17%, this indicator also recorded dramatic changes in Hungary. In the period under review, it varied sometimes by up to 13.6%. The more modest growth in households' share of making end meet with great difficulty was recorded in Slovakia and the Czech Republic. In both countries, the indicator moved at the level 10–12% with an ambiguous development trend.

The development trend of households, making end meet with great difficulty:

$$\text{Poland: } GD = 22.03 - 1.17t \quad \text{adj} \cdot R^2 = 0.85 \quad (n = 13)$$

(0.01) (0.01)

- Household conditions is along with material deprivation another group of indicators in the field of material living conditions of households. Indicator belonging to this group is:

Total population living in a dwelling leaking roof, dump walls, floors or foundation, or rot in window frames of floor.

The development trend of population living in a dwelling leaking roof etc.:

$$\text{Czech Republic: } LR = 19.08 - 1.05t \quad \text{adj} \cdot R^2 = 0.87 \quad (n = 13)$$

(0.01) (0.01)

$$\text{Poland: } LR = 39.05 - 2.77t \quad \text{adj} \cdot R^2 = 0.69 \quad (n = 13)$$

(0.01) (0.01)

The highest share of population living in a dwelling leaking roof etc. was reported in case of Hungary and Poland in the period under review. The indicator for Poland together with the Czech Republic shows unambiguously decreasing trend. As can be seen on the Figure 7, the indicator decreased more significantly in Poland. According to estimated development trend, the

annual average decline was 2.77% (from value 43.9% in 2005 it decreased to 11.9% in 2017). In the Czech Republic the annual average decline proved to be 1.05% in period under review. This continuous decreasing trend over the longer period under review represented the overall decrease of indicator by 12%. In remaining V4 countries the clear development trend was not proved for population living in a dwelling leaking roof etc.

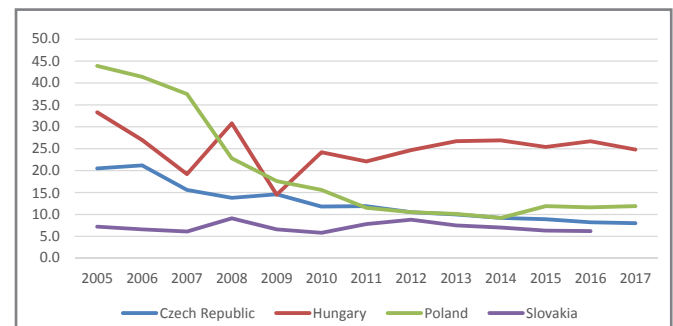


Figure 7 Population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames of floor (%)
Source: Eurostat

- Share of people living in under-occupied dwellings

The development trend of people living in under-occupied dwellings

Czech Republic:	$UO = 10.62 + 1.18t$	$\text{adj} \cdot R^2 = 0.90$	$(n = 13)$
	(0.01) (0.01)		
Hungary:	$UO = 4.09 + 0.36t$	$\text{adj} \cdot R^2 = 0.87$	$(n = 13)$
	(0.01) (0.01)		
Poland:	$UO = 7.70 + 0.47t$	$\text{adj} \cdot R^2 = 0.90$	$(n = 13)$
	(0.01) (0.01)		
Slovakia:	$UO = 8.07 + 0.38t$	$\text{adj} \cdot R^2 = 0.61$	$(n = 12)$
	(0.01) (0.01)		

As can be seen in Figure 8, the share of people living in under-occupied dwelling was increasing in all countries. The most rapid trend was reported in the Czech Republic where the annual average increase of indicator equaled 1.18%. It increased from 11.05% in 2005 to 25.6% in 2017. On the contrary, the lowest increase was in reported in Hungary, where the share of people living in under occupied dwelling was the lowest in the whole monitored period. It was moving at a level between 4 and 9%.

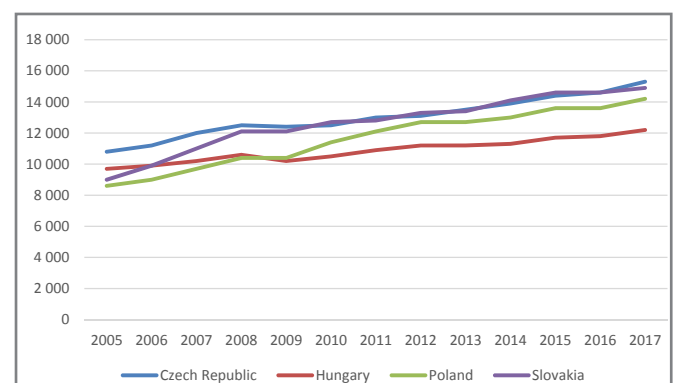


Figure 8 People living in under-occupied dwellings (percentage)
Source: Eurostat

Conclusions

The results of the analysis showed that the quality of life of the V4 population in the area of material living conditions is steadily increasing. Most of the indicators had a positive trend in period under review. The relatively stable leadership position among V4 countries had the Czech Republic, followed by Slovakia. The development of indicators in Poland pointed to a strong shift in the positive direction of the material living conditions of its population. In Hungary, the indicators were mostly fluctuating and unpredictable.

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