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ALTERNATIVE INDICATORS OF LIVING STANDARDS AND HOUSEHOLD CONSUMPTION EXPENDITURE IN A GLOBAL PERSPECTIVE

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Abstract

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The paper deals with identifying relationships between the household consumption expenditure and the human development index (HDI) on the sample of countries of the world. It provides an analysis of the HDI and the household consumption expenditure and on the basis of available statistic data carries out evaluation of the correlation analysis between household consumption expenditure and HDI in six groups of countries: developed countries, countries of the former eastern bloc, countries of the Near East, countries of South East Asia, Latin American countries and African countries. With respect to results of the analysis, statistically significant dependences were found between the development of household consumption expenditure per capita and HDI. At countries of the former eastern bloc, the dependence is always statistically significant but it does not reach such intensity. At African and some Latin American countries, the dependence is already statistically insignificant. Thus, we can summarize that with decreasing GDP per capita the dependence of the household consumption expenditure development on HDI weakens. In this respect, the validity of a hypothesis is also verified that household consumption expenditure is correlated to the HDI development at the global comparison on the more heterogeneous sample of countries than any other analyses published so far.

human development index, household consumption expenditure, correlation analysis, global comparison

The number of papers of authors dealing with the analysis of household consumption expenditure demonstrates that this problem ranks among the most discussed themes in economics both from theoretical aspects and empirical research. Chatterjee (2010) summarizes the development of opinion thinking, which tries to describe the behaviour of consumers at decision making on the distribution of their incomes. He mentions John Maynard Keynes and considers him to be the main pioneer in this field of economics. Keynes (1936) in his "General theory of employment, interest and money" from 1936 laid principles, which became a starting point but also a point of polemics for his followers. We may also mention other authors, such as Arlt (2001), Poměnková and Toufarová (2008). The aim of the paper is, on the basis of available statistical data, to evaluate relationships between the HDI and household consumption expenditure in the selected sample of countries. In this connection, the validity of a hypothesis will be verified that household consumption expenditure is correlated to the HDI development at the global comparison on the heterogeneous sample of countries.

METHODS AND DATA

The reference sample for following analysis represents 35 countries of the world, which are divided into six following groups:

1. Developed countries: United Kingdom, France, Norway, Netherlands, Italy, Iceland

2. Countries of the former eastern bloc: Czech Republic, Hungary, Latvia, Bulgaria
3. Countries of the Near East: Syria, Jordan, Iran, Pakistan
4. Countries of South East Asia: Hong Kong, South Korea, Thailand, China, India
5. Latin American countries: Brazil, Peru, Bolivia, Uruguay, Venezuela
6. African countries: Egypt, Morocco, Kenya, Mali, Rwanda, Zimbabwe.

Each group contains important economies of the region together with smaller ones, rich or poor (with exception of the group of developed countries). The selection has been made quite subjectively after a thorough study of data from particular countries where common features and deviations from the "typical" HDI structure were searched. The number of countries in each of the groups is conditioned by the number of countries with available data in the on-line Nationmaster (2010) database and Human Development Report (2010) within a necessary time horizon. For some groups, suitable data were available for more countries. In this case, countries with the longest time series of data necessary to carry out the analysis were selected. As for consumption expenditure, we use the indicator of household final consumption expenditure (HFCE).

A starting point of the paper was the study of domestic and foreign specialized literature sources. Keynes (1936), Hayes (2006), Chatterjee (2010) and Heim (2010) dealt with problems of aggregate consumption spending and consumption functions. For example, Arlt (2001) or Mandel and Tomšík (2003) dealt with the analysis of consumption functions under conditions of the Czech Republic. Palát (2010) and Kraft (2008) were engaged in problems aimed at the evaluation of interrelationships in changes of the GDP, consumption, investments and savings. Testing the truth of the selected hypothesis, which is the objective of this paper, can be carried out using methods of regression and correlation analysis. The use of statistical methods was described by Mason and Lind (1990). The factual data processing comes from the methodology published by Hindls *et al.* (2003) and Seger *et al.* (1998). The graphical data presentation tool for examining the dependence between two variables may be a point diagram, where we can mark particular cases as points in a reference frame with coordinates, which are the values of particular dependent and independent variables.

Following models were used in this paper:
1. The equation for a linear model is:

$$y' = \beta_0 + \beta_1 x$$

2. The equation for a quadratic model is:

$$y' = \beta_0 + \beta_1 x + \beta_2 x^2$$

3. The equation for a cubic model is:

$$y' = \beta_0 + \beta_1 x + \beta_2 x^2 + \beta_3 x^3$$

4. The equation for a hyperbolic function model is:

$$y = \beta_0 + \beta_1 \times 1/x$$

5. The equation for a power function model is:

$$y = \beta_0 \times x^{\beta}{}_1.$$

The equations for a bisector or second-degree parabola are the same as trend determination in temporal series. In this paper, particular characteristics of tightness of the dependency of variables are calculated. Conjugate regression lines show the same values of the tightness dependency characteristics, the correlation coefficient $r_{yx} = r_{xy}$, determination coefficient $r_{yx}^2 = r_{xy}^2$ (at the first place in this index is stated variable thought to be dependent). The correlation index I_{yx} is a dependency tightness characteristics for any type of regression function (for simple as well as multiple dependencies of variables). Its second power is determination index I_{yx}^2. Determination index multiplied by 100 presents the explanation percentage of the calculated regression function – how the changes of dependent variable *Y* are explained by the changes of independent variable(s). Statistical software Unistat 5.11 for Windows and Microsoft Excel has been used for the calculation of following results.

Because consumption expenditure is examined here in relation to other macroaggregates than income, attention will be turned to them at present. To evaluate the development of certain economics, a more complex indicator, namely gross domestic product (GDP), is used most often instead of household final consumption expenditure. The suitability of GDP as an indicator of living standard (per capita GDP) or the "fruitfulness" of economics is, however, often questioned. Shortcomings of GDP analysed later in Discussion mean that an effort is developed to create and particularly to use another indicator, which would solve deficiencies mentioned above. "These endeavours are particularly aimed at taking into account damage caused by economic activities of people to the environment and natural resources as well as effects of production on the quality of human life" (Jurečka, Jánošíková, 2009). For example, Jurečka and Jánošíková (2009) or also Hruška (2009) mention some alternative indicators.

(1) Net Economic Welfare (NEW)

Jurečka and Jánošíková (2009) describe a methodology related to the NEW calculation as follows. A basis for the calculation of NEW is the size of GDP. The GDP is adapted in such a way to contain only activities, which contribute to the country welfare. On this account, the GDP is decreased by negative activities and on the contrary, socially valuable activities, which were not taken

into consideration by the present methodology of the GDP calculation, are added. It refers, e.g. to household activities, some parts of shadow economics but also the value of leisure time.

(2) Human Suffering Index (HIS)

This index was created at the turn of the 80s and the 90s by an American commission for population crisis. As mentioned by Global Ideas Bank (2010), the resulting value of the index reflects ten following fields: per capita GDP, average annual rate of inflation, average annual growth of manpower, average annual growth of urban population, death rate per 1000 live-born, daily uptake of calories, percent of population with access to fresh water, per capita consumption of energy, rate of literacy, personal liberty. For each of the fields, 0 to 10 negative points are bestowed. African countries headed by Mozambique (95 negative points) and Angola occur in the absolute majority of cases at last positions with the largest number of negative points, Afghanistan occurs at the third worst position. The first best evaluated positions occupy Switzerland, Germany and Luxemburg.

(3) Human Development Index (HDI)

As mentioned by Jurečka and Jánošíková (2009), this indicator is used by United Nations (UN) for measurements how economic activities contribute to healthy and long life, better education and sufficient living standard. The principle of the HDI calculation is elucidated by UNDP (2012). This index comprises of life expectancy at birth (this indicator includes all influences, which positively or negatively affect life expectancy), the level of population education (mean and expected years of schooling) and living standards expressed by per capita income (in parity of purchasing power). The HDI rather intensely correlates with per capita GDP. While per capita GDP shows evidence of the country richness, HDI shows how the country is "human developed". "It means that countries with higher HDI than GDP are more (human) developed as compared to their richness and vice versa. Greece, Spain and Finland from developed countries and Costa Rica and Thailand from developing countries rank among countries with the higher HDI (as compared to their financial situation). On the other hand, particularly oil countries rank among countries with lower HDI than it would correspond to their financial situation. As for other countries, it is surprisingly Switzerland and Luxemburg." (Green Circle, 2007a). Jurečka and Jánošíková (2009) notice a non-enviable primacy when exclusively countries of Africa occurred at last 24 places in 2003.

(4) Happy Planet Index (HPI)

Problems of HPI are described by Green Circle (2007b). It refers to a relatively new indicator, which measures the quality of life in relation to the environment. The highest value of the index does not mean that it refers to the "happiest" country. Such countries occur at the first places, which provided a certain degree of happy life for their population with the smallest damage to nature. The index shows that happy life is not necessarily connected with the high consumption of mineral raw materials. According to ChartsBin (2010), Costa Rica occupied the first place being followed by Dominican Republic in 2009. For example, Luxembourg occupied the 122nd place.

However, last two places occupied again African countries, namely Tanzania and Zimbabwe. Hruška (2009) mentions considerable subjectivity as a negative factor of this index because it calculates with feelings of population, which cannot be objectively measured. It does not by far refer to the complete enumeration of indicators; however, the best known indicators were mentioned in order to indicate the direction of development in this field. Particular indicators were created to describe more comprehensively the position of a given country. Up to now, however, it is not possible to say that an indicator has been accepted as a concrete indicator, which provides the most credible information on the level of described fields of life of particular countries. The problem can consist in a fact that all indicators regard the problem from the same aspect, namely they try to express the sum of hardly addable elements in one number. Another problem can consist in a fact that some indicators work with abstract conceptions (luck, literacy, health and death rate). It is difficult to assign a weight or even value to these terms in monetary expression. It is possible that indicators, which are based on these abstract values, do not express their actual importance because in the world where nearly all is converted to money it is difficult to imagine the value of a thing, which does not represent an actual financial gain.

RESULTS

Because HDI is rather a new and steadily developing indicator, its values are available for a relatively shorter time series. Therefore, the analysis of the dependence of consumption expenditure per capita and HDI starts from HDI values for a period of about 25 years for each of the countries. Tab. I and Tab. II mention coefficients of regression equations and correlation indices for respective models of the household consumption expenditure dependence on HDI. The values are calculated for 30 countries, which are divided into six groups mentioned above. Tab. I includes values for developed countries (left upper part of the table), African countries (right upper part) and in the lower part of the table, countries of the former eastern bloc are given. Tab. II includes values for countries of South East Asia (left upper part of the table), Latin America countries (right upper part) and in the lower part of the table, countries of Near East are given.

I: *Parameters of regression functions for the size of HDI and the household consumption expenditure in developed countries, in the countries of the former eastern bloc and in African countries*

Model		Parameters				I_{yx}		Parameters				I_{yx}
		β_0	β_1	β_2	β_3			β_0	β_1	β_2	β_3	
1	France	–3.7E+04	5.3E+04	-	-	**0.98615****	Egypt	–4.0E+02	2.3E+03	-	-	**0.97740****
2		–3.1E+04	4.1E+04	7.1E+03	-	**0.98615****		–1.9E+03	7.6E+03	–4.6E+03	-	**0.99040****
3		–7.5E+05	2.5E+06	–2.7E+06	9.9E+05	**0.98628****		–8.1E+02	1.9E+03	5.3E+03	–5.7E+03	**0.99052****
4		5.9E+04	–4.3E+04	-	-	**0.98555****		2.2E+03	–7.3E+02	-	-	**0.98999****
5		1.7E+04	4.47	-	-	**0.98485****		2.2E+03	1.53	-	-	**0.97054****
1	Iceland	–7.5E+04	9.8E+04	-	-	**0.96807****	Kenya	3.0E+02	3.8E+01	-	-	**0.04428**
2		–1.1E+05	1.7E+05	–4.1E+04	-	**0.96817****		–7.8E+02	4.5E+03	–4.5E+03	-	**0.15647**
3		–3.9E+06	1.3E+07	–1.4E+07	5.0E+06	**0.96930****		–4.1E+04	2.5E+05	–5.1E+05	3.5E+05	**0.28454**
4		1.1E+05	–8.2E+04	-	-	**0.96797****		3.4E+02	–1.1E+01	-	-	**0.05374**
5		2.6E+04	6.01	-	-	**0.96308****		3.3E+02	0.05	-	-	**0.04869**
1	Italy	–3.2E+04	4.7E+04	-	-	**0.95904****	Mali	2.4E+02	–2.1E+02	-	-	**0.71465****
2		–3.3E+05	7.3E+05	–3.8E+05	-	**0.99327****		5.5E+02	–2.2E+03	3.0E+03	-	**0.82648****
3		1.8E+06	–6.7E+06	7.9E+06	–3.1E+06	**0.99535****		–6.2E+02	9.0E+03	–3.2E+04	3.7E+04	**0.84081****
4		5.2E+04	–3.7E+04	-	-	**0.96795****		9.8E+01	2.3E+01	-	-	**0.76036****
5		1.7E+04	4.61	-	-	**0.93917****		1.1E+02	–0.40	-	-	**0.74818****
1	Netherlands	–2.3E+04	3.7E+04	-	-	**0.97350****	Morocco	1.4E+02	1.1E+03	-	-	**0.97106****
2		7.6E+04	–1.8E+05	1.2E+05	-	**0.97845****		–1.2E+02	2.0E+03	–8.8E+02	-	**0.97234****
3		1.8E+06	–6.0E+06	6.7E+06	–2.4E+06	**0.98045****		–4.2E+03	2.5E+04	–4.4E+04	2.7E+04	**0.97672****
4		4.3E+04	–2.9E+04	-	-	**0.96952****		1.3E+03	–3.0E+02	-	-	**0.97144****
5		1.5E+04	3.18	-	-	**0.97642****		1.2E+03	0.81	-	-	**0.97158****
1	Norway	–5.5E+04	7.5E+04	-	-	**0.99113****	Rwanda	1.5E+02	1.3E+02	-	-	**0.28476**
2		–5.9E+03	–3.3E+04	5.9E+04	-	**0.99143****		–5.3E+02	3.6E+03	–4.4E+03	-	**0.46804**
3		–1.4E+06	4.4E+06	–4.8E+06	1.8E+06	**0.99170****		–1.3E+04	1.0E+05	–2.6E+05	2.2E+05	**0.62926****
4		8.2E+04	–6.2E+04	-	-	**0.98974****		2.5E+02	–2.2E+01	-	-	**0.32132**
5		2.1E+04	5.15	-	-	**0.99043****		2.6E+02	0.31	-	-	**0.29729**
1	United Kingdom	–6.3E+04	8.5E+04	-	-	**0.97858****	Zimbabwe	–3.3E+00	8.5E+02	-	-	**0.55199***
2		2.0E+05	–5.0E+05	3.3E+05	-	**0.98249****		–7.4E+01	1.1E+03	–2.4E+02	-	**0.55202***
3		–1.1E+07	3.7E+07	–4.2E+07	1.6E+07	**0.99141****		1.1E+05	–6.1E+05	1.1E+06	–6.6E+05	**0.71634****
4		8.9E+04	–6.8E+04	-	-	**0.97611****		9.2E+02	–2.5E+02	-	-	**0.54942***
5		2.5E+04	5.97	-	-	**0.98261****		8.5E+02	1.02	-	-	**0.55199***
1	Bulgaria	–4.6E+03	7.3E+03	-	-	**0.75019****	Latvia	–7.6E+03	1.3E+04	-	-	**0.62175***
2		–2.7E+04	6.5E+04	–3.6E+04	-	**0.75368****		–6.2E+04	1.5E+05	–8.5E+04	-	**0.63883***
3		–1.3E+06	4.8E+06	–6.1E+06	2.5E+06	**0.75915****		–4.9E+05	1.8E+06	–2.1E+06	8.4E+05	**0.64003***
4		7.0E+03	–4.6E+03	-	-	**0.75179****		1.3E+04	–8.1E+03	-	-	**0.62765***
5		3.8E+03	4.96	-	-	**0.74592****		6.5E+03	4.48	-	-	**0.60902***
1	Czech Republic	–8.1E+03	1.3E+04	-	-	**0.93770****	Hungary	–1.0E+04	1.6E+04	-	-	**0.94631****
2		5.8E+03	–1.9E+04	1.9E+04	-	**0.93794****		7.1E+04	–1.8E+05	1.2E+05	-	**0.96591****
3		2.0E+06	–6.9E+06	8.0E+06	–3.1E+06	**0.93966****		–8.4E+05	3.1E+06	–3.9E+06	1.6E+06	**0.96872****
4		1.4E+04	–9.6E+03	-	-	**0.93716****		1.6E+04	–1.1E+04	-	-	**0.93934****
5		5.2E+03	3.74E+00	-	-	**0.93792****		6.8E+03	4.28	-	-	**0.95550****

Correlation index: I_{yt} Significance level: * $\alpha = 0.05$; ** $\alpha = 0.01$
Source: Own calculations

First, we shall pay attention to the evaluation of calculated indexes of correlation given in Tab. I and Tab. II. At the first group of countries (the most developed countries) and countries of South East Asia, we can observe for all models high correlation indexes near to one, which means that the examined dependence is statistically high significant. Differences in correlation indexes for linear and cubic models of respective countries range in the order of hundredths to thousandths, which means that we can achieve only small improvement supplying a linear regression function by a quadratic function. In a graphic form, the cubic function appears to be often a linear function.

II: *Parameters of regression functions for the size of HDI and the household consumption expenditure in countries of South East Asia, in Latin American countries and in the countries of the Near East*

Model		Parameters				I_{yx}		Parameters				I_{yx}
		β_0	β_1	β_2	β_3			β_0	β_1	β_2	β_3	
1	China	–1.0E+03	2.0E+03	-	-	**0.98964****	Bolivia	6.0E+02	2.4E+02	-	-	**0.36317**
2		6.5E+02	–3.2E+03	4.0E+03	-	**0.99810****		3.3E+03	–8.6E+03	7.3E+03	-	**0.68038****
3		1.3E+03	–6.1E+03	8.5E+03	–2.3E+03	**0.99812****		2.3E+04	–1.1E+05	1.7E+05	–8.9E+04	**0.76926****
4		1.6E+03	–8.2E+02	-	-	**0.97135****		8.7E+02	–7.3E+01	-	-	**0.31063**
5		2.2E+03	5.05	-	-	**0.99529****		8.1E+02	0.18	-	-	**0.34247**
1	Hong Kong	–4.6E+04	6.8E+04	-	-	**0.95206****	Brazil	–1.1E+03	4.1E+03	-	-	**0.74240****
2		–2.2E+05	4.9E+05	–2.5E+05	-	**0.97251****		–3.2E+04	9.0E+04	–5.9E+04	-	**0.90172****
3		2.2E+06	–8.1E+06	9.9E+06	–4.0E+06	**0.98461****		1.5E+04	–1.1E+05	2.1E+05	–1.3E+05	**0.90290****
4		6.9E+04	–4.9E+04	-	-	**0.96244****		4.9E+03	–2.2E+03	-	-	**0.77441****
5		2.8E+04	6.00	-	-	**0.90497****		3.3E+03	1.78	-	-	**0.72918****
1	India	–1.9E+02	8.4E+02	-	-	**0.98053****	Peru	2.3E+03	–1.1E+03	-	-	**0.35825**
2		4.9E+02	–1.8E+03	2.6E+03	-	**0.99592****		3.4E+04	–9.1E+04	6.3E+04	-	**0.83831****
3		–8.8E+02	6.3E+03	–1.3E+04	1.0E+04	**0.99666****		2.1E+04	–3.4E+04	–1.7E+04	3.8E+04	**0.83850****
4		6.6E+02	–2.1E+02	-	-	**0.95553****		6.6E+02	6.1E+02	-	-	**0.39764**
5		7.6E+02	1.75	-	-	**0.98695****		1.3E+03	–0.48	-	-	**0.38760**
1	South Korea	–1.5E+04	2.4E+04	-	-	**0.97745****	Uruguay	–9.6E+03	1.7E+04	-	-	**0.70754****
2		–3.1E+03	–6.6E+03	1.9E+04	-	**0.97869****		–9.2E+04	2.2E+05	–1.3E+05	-	**0.72217****
3		4.3E+05	–1.6E+06	2.0E+06	–8.3E+05	**0.98874****		6.0E+06	–2.2E+07	2.8E+07	–1.2E+07	**0.82168****
4		2.3E+04	–1.5E+04	-	-	**0.96961****		1.7E+04	–1.1E+04	-	-	**0.71144****
5		1.1E+04	5.26	-	-	**0.97016****		8.3E+03	3.72	-	-	**0.69994****
1	Thailand	–2.8E+03	5.2E+03	-	-	**0.97297****	Venezuela	3.7E+03	–1.4E+03	-	-	**0.14436**
2		4.7E+03	–1.6E+04	1.5E+04	-	**0.98279****		1.9E+04	–4.2E+04	2.7E+04	-	**0.15748**
3		3.8E+04	–1.6E+05	2.2E+05	–9.9E+04	**0.98402****		–6.5E+06	2.6E+07	–3.4E+07	1.5E+07	**0.78017****
4		4.4E+03	–2.5E+03	-	-	**0.96078****		1.5E+03	8.1E+02	-	-	**0.14553**
5		3.8E+03	4.37	-	-	**0.98201****		2.3E+03	–0.36	-	-	**0.14527**
1	Iran	1.5E+02	9.1E+02	-	-	**0.51682**	Pakistan	–2.4E+01	8.2E+02	-	-	**0.95048****
2		1.1E+04	–3.3E+04	2.6E+04	-	**0.88153****		–2.0E+02	1.6E+03	–9.1E+02	-	**0.95221****
3		–4.8E+04	2.4E+05	–3.9E+05	2.1E+05	**0.94161****		–2.8E+03	1.9E+04	–4.1E+04	2.9E+04	**0.95858****
4		1.3E+03	–3.4E+02	-	-	**0.46526***		7.0E+02	–1.6E+02	-	-	**0.95221****
5		9.9E+02	0.69	-	-	**0.50875**		8.2E+02	1.09	-	-	**0.95012****
1	Jordan	4.5E+02	1.6E+03	-	-	**0.24736**	Syria	3.0E+02	6.3E+02	-	-	**0.56826***
2		6.2E+04	–1.7E+05	1.2E+05	-	**0.84190****		–6.4E+02	3.6E+03	–2.3E+03	-	**0.57889***
3		–3.6E+05	1.6E+06	–2.4E+06	1.2E+06	**0.88083****		–3.5E+04	1.7E+05	–2.6E+05	1.3E+05	**0.63965***
4		2.4E+03	–6.3E+02	-	-	**0.20101**		1.1E+03	–2.6E+02	-	-	**0.57700***
5		1.9E+03	5.93E-01	-	-	**0.23789**		9.0E+02	0.58	-	-	**0.57025***

Correlation index: I_{yt} Significance level: * $\alpha = 0.05$; ** $\alpha = 0.01$
Source: Own calculations

At countries of the former eastern bloc, high values of correlation indexes appear again. However, they are lower than for previous two groups mentioned above. Calculated correlation indexes are statistically highly significant. Only in case of Latvia, values of correlation indexes are lower but always statistically significant. As well as in case of previous two groups it applies that the higher degree of polynomial regression functions does not result in the marked improvement of the model. In case of Near East and Latin American countries, correlation indexes markedly differ for particular models within a certain country. The highest value achieves (as expected) the correlation index at a cubic model where it refers to statistically high significant dependence.

In case of African countries, calculated results differ considerably. On the one hand, there are countries such as Egypt and Morocco, where the dependence of consumption expenditure on GDP is statistically highly significant with the correlation index value near to one. The dependence mentioned above is best described by a polynomial function of the third degree; however, already a model with the

line regression equation reaches similar quality. On the other hand, there are countries such as Kenya or Rwanda where neither of the selected models reaches similar quality as in case of other countries. In case of Kenya, the correlation index at a cubic regression model amounts to 0.28454 and thus, the examined dependence is not statistically significant. In case of Rwanda, the correlation index for this model is higher demonstrating statistical significance. Nevertheless, it does not reach such a value as at the absolute majority of countries. For Rwanda and Kenya as compared with Egypt and Morocco an opposite applies on a difference in the quality of particular polynomial models. With the higher degree of a polynomial, a marked increase in the model quality takes place.

DISCUSSION

The suitability of GDP as an indicator of the "successfulness" of economics or the standard of living (per capita) is often questioned. See, e.g. a following example. "The difficulty of GDP can distinguish in international comparison. Outwardly, it does not say anything what and how a given country produces. Gross domestic product (GDP) converted per capita, which is part of encyclopaedias, can be a symbol of gradually created prosperity as well as fragile richness, which can collapse like a pack of cards. It is, for example, an island Nauru, a small republic in Micronesia measuring only 21 km^2. The domestic product of the equatorial mini-country is US $ five thousand (per capita). A similar situation demonstrates Egypt and Jordan, which are countries roughly in the half of the scale. But, appearances are deceptive. However, already next year, the Nauru product can fall almost to zero. Ninety percent of the country production is represented by the exploitation of phosphates. After exhausting the mineral resources, the only commodity will remain to the islanders for sale, namely fish" (Hruška, 2009). GDP also does not include some facts showing evidence of the increasing standard of living (e.g. the high level of health care) and vice versa. According to Samuelson (1991), troubles of life ("evils"), which are related to economic activities, should be subtracted from the GDP (e.g. air pollution). Another problem is the existence of "shadow economy". However, Mankiw (2000) mentions that GDP, after all, takes into account also off-market activities and the population life quality. At countries with higher per capita GDP, it is possible to suppose that they will provide more money for education, culture, health care and research and, therefore, it is probable that these components of life will be at higher level than at countries with lower per capita GDP. Also Frank and Bernanke (2005) confirm these opinions through data in Tab. III where countries with higher per capita GDP reach better results than countries with lower GDP.

Facts mentioned above show that GDP indicators can not be overestimated but it is suitable to take alternative indicators and other economic relations into account.

CONCLUSIONS

The aim of the paper was to identify relationships between the household consumption expenditure and the HDI value. The knowledge of relationships between alternative indicators and consumption expenditure, which also informs well on the growing standard of living, particularly at the time when GDP begins to be subject to considerable critique on its vague informative value, is important. With respect to results of the analysis, statistically significant dependences were found between the development of household consumption expenditure per capita and HDI. At countries of the former eastern bloc, the dependence is always statistically significant but it does not reach such intensity. At African and

III: *GDP and basic indicators of welfare (prosperity)*

Indicator	Developing countries	Most undeveloped countries	Developed countries
GDP per capita (in US $)	1 294	274	25 879
Average life expectancy at birth (years)	64.4	51.7	77.7
Children's death-rate (per 1000 live-born children)	64	104	6
Children's death-rate up to 5 years (per 1000 live-born children)	94	162	7
Number of doctors (per 100 000 inhabitants)	76	14	253
Daily consumption of calories (per capita)	2 628	2 095	3 377
Daily consumption of proteins (grams per capita)	66.4	51.4	104.8
Primary school attendance (percent of the age group)	85.7	60.4	99.9
Secondary school attendance (percent of the age group)	60.4	31.2	96.2
Number of literate adults (percent)	70.4	49.2	98.6

Source: Frank and Bernanke (2005)
Note: The data are given for 1999 except the number of doctors (1993), consumption of calories (1996) and number of literate adults (1995).

some Latin American countries, the dependence is already statistically insignificant. Thus, we can summarize that with decreasing GDP per capita the dependence of the household consumption expenditure development on HDI weakens.

It is possible to explain this phenomenon as follows. The HDI indicator includes the GDP size (per capita) in parity of purchasing power, the rate of education and life expectancy at birth. In developed countries, the rate of education is at such level that it is possible to expect only gradual increasing in the future. In the same way, the duration of human life is high thanks to quality medical care and thus, it is not possible to expect marked lengthening. It follows that the only possibility how developed countries can increase their HDI is to increase GDP. If the size of HDI is shaped only by the size of GDP and, at the same time, there is strong dependence between GDP and consumption expenditure as already demonstrated it is logical that at developed countries, there is strong dependence between consumption expenditure and HDI.

On the other hand, at poor countries, there is large area both for increasing GDP and the rate of education or increasing the duration of human life. With reference to complicated conditions of the economic growth as compared to relatively easier achieving the growth of literacy and the life expectancy (e.g. due to the foreign aid flow) it is possible to suppose that changes in the life expectancy and literacy will be marked. Thus, they will format HDI more markedly than consumption expenditure through GDP. Thus, this consideration can be a possible explanation of the weak dependence of household consumption expenditure on HDI at economically undeveloped countries. The amount of aspects, which can be used to look at consumption expenditure and its relationships with other macro-aggregates bears evidence of the extent of the problems discussed. We can note that the problems are not only extensive but also complicated by reason of the considerable number of effects participating in the consumption formation. With increasing knowledge new questions appear, which can represent themes for next research and contribute to extend knowledge within an economic theory.

SUMMARY

The paper deals with identifying relationships between the household consumption expenditure and the human development index on the sample of countries of the world. It provides an analysis of the HDI and the household consumption expenditure and on the basis of available statistic data carries out evaluation of the correlation analysis between household consumption expenditure and HDI in six groups of countries: developed countries, countries of the former eastern bloc, countries of the Near East, countries of South East Asia, Latin American countries and African countries.

With respect to results of the analysis, statistically significant dependences were found between the development of household consumption expenditure per capita and HDI. At countries of the former eastern bloc, the dependence is always statistically significant but it does not reach such intensity. At African and some Latin American countries, the dependence is already statistically insignificant. Thus, we can summarize that with decreasing GDP per capita the dependence of the household consumption expenditure development on HDI weakens.

It is possible to explain this phenomenon as follows. The HDI indicator includes the GDP size (per capita) in parity of purchasing power, the rate of education and life expectancy at birth. In developed countries, the rate of education is at such level that it is possible to expect only gradual increasing in the future. In the same way, the duration of human life is high thanks to quality medical care and thus, it is not possible to expect marked lengthening. It follows that the only possibility how developed countries can increase their HDI is to increase GDP. If the size of HDI is shaped only by the size of GDP and, at the same time, there is strong dependence between GDP and consumption expenditure as already demonstrated it is logical that at developed countries, there is strong dependence between consumption expenditure and HDI.

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