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# URBAN AND RURAL CONSUMPTION PATTERN – CONVERGENCE OR DIVERGENCE? DELIBERATIONS AGAINST SUSTAINABLE DEVELOPMENT

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**ABSTRACT:** The aim of this study is to identify rural and urban patterns of consumption expenditure and to evaluate whether convergence occurs between them. The results based on Household Budget Surveys data from the years 2006-2015 prove that the rural consumption pattern is less sustainable compared with the urban one and that they are akin to each other. The value of expenditure on higher needs (restaurants and hotels, leisure and culture) in rural households grows faster than in urban households, which proves some convergence between them.

**KEY WORDS:** consumption expenditures, rural and urban areas, convergence, sustainable development

## Introduction

Convergence is the idea that poorer countries or regions develop faster than the richer ones, which gives rise to a decrease in disparity between them. It comprises beta convergence (a negative dependency between an average growth rate of the analysed phenomenon and its initial rate) and sigma convergence (dispersion of the phenomenon decreases in time) (Barro, Sala-i-Martin, p. 223-251). Therefore, the convergence may be considered as the phenomenon in which countries or regions become similar to each other. In this context, the convergence may also be considered as the process in which consumption expenditure patterns of rural and urban households become similar to each other, particularly in the context in which consumption patterns are akin to the more sustainable ones.

The aim of this study is to identify patterns of consumption expenditure of rural and urban households and to determine whether they are akin to each other, hence whether in this case there occurs convergence or divergence.

This study is theoretical and analytical. It is based on the Central Statistical Office's secondary data from the Household Budget Surveys for the years 2006-2015. There were identified consumption expenditure patterns and the greatest differences between expenditure on particular categories of consumption goods and services between urban and rural households. It was analysed whether with respect to a category of consumption goods and services with the greatest differences in expenditure per capita between urban and rural households, those differences are greater or smaller. Further, a synthetic measure of the structure similarity based on the Bray-Curtis measure was applied to determine whether structures of consumption expenditure in rural and urban households are getting similar to each other.

## An overview of literature

The aim of sustainable (permanent) development idea is to integrate the three essential aspects of development: environmental, economic and social. But the reality of life today is that the economy dominates environment and society (Giddings et al., 2002, p. 189-190).

According European Union there are ten sustainable development headline indicators, and sustainable consumption and production is one of them (EU 2015, p. 9).

Sustainable consumption and production is defined as “the use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of future generations” (Norwegian Ministry of Environment, Oslo Symposium 1994). Sustainable consumption and production objective is to promote resource and energy efficiency, sustainable infrastructure and to provide access to basic services, green and decent jobs and a better quality of life for all (UNEP 2010, p. 12).

Eurostat analyses sustainable consumption patterns by using the set of indicators (Eurostat):

- electricity consumption by households,
- final energy consumption by sector,
- motorisation rate.

Eurostat also uses two contextual indicators of sustainable consumption and production (Eurostat):

- number of persons in households,
- final consumption expenditure of households, by consumption purpose.

The Central Statistical Office of Poland’s *Sustainable Development Indicators for Poland* study specifies the following indicators of sustainable development measuring consumption patterns (GUS 2015):

- the structure of passenger cars by age groups,
- the consumption of electricity in households per one resident,
- the structure of average monthly per capita expenditures in households by their kinds.

The structure of households’ consumption expenditures illustrates their life quality as well as it is associated with welfare. For more sustainable consumption it is important to increase the share of expenditures on the less-environmentally damaging purposes, such as: leisure, culture and communication.

Some of the consumers are trying to be more sustainable and responsible. There are different responsible consumers attitudes (Jastrzębska, 2017, p. 202-203):

- no wastage,
- not seeking to satisfy artificial needs,
- green consumerism,
- ethical consumerism,
- political consumerism.

But for big corporations sustainable development goals are less important than economic profit (Zimniewicz 2016, p. 71). So it is naive to assume that consumers appreciate more ecological than economical aspects of their consumption.

The most important factor that determines the size and structure of consumption expenditure of households is their incomes which following the accession of Poland to the European Union increased faster in rural areas compared to the urban ones (Utzig, 2014, p. 151). Differences between consumption pattern of Central and Eastern European Countries and EU-15 decrease (Mikula, 2017, p. 209), the sigma convergence at the country level occurs. Rural households are characterized by average lower incomes and an average higher number of persons in the household, which leads to lower income per capita and a lower level of satisfaction with their material situation compared to the urban ones (Hanusik, Łangowska-Szcześniak, 2014, p. 71). In the structure of consumption expenditure of rural households expenditure on basic needs (food and non-alcoholic beverages, transport) is significantly greater in comparison with urban households, whereas expenditure on goods and services that meet higher needs (clothing and footwear, health, communication, recreation and culture, education, restaurants and hotels) is observed to be lower (Utzig, 2016, p. 169). The lifestyle change in rural areas is considerably affected by families predominantly generating their income from non-agricultural sources and since the accession of Poland to the European Union an increase in expenditure of rural households on recreation and culture as well as on restaurants and hotels has been observed (Chmielewska, 2013, p. 21-22). Consequently, there are observed certain symptoms of shifting the rural consumption expenditure pattern towards the urban one which is more sustainable.

Rural and urban households considerably differ from each in the field of the food consumption pattern. Rural households consume more basic and cheaper food products and natural products, whereas urban households consume more highly processed products which are usually more expensive and of higher quality (Kwasek, 2010, p. 44-45). Considering the identical income per capita rural households spend more money on food per capita compared to urban households. This may indicate that differences in income per capita in rural and urban households are, to some extent, equalized by natural consumption of food by rural communities and that rural communities, including agricultural one, rank the food consumption higher in the hierarchy of needs and are willing to incur relatively higher expenditure on it compared to the urban ones (Gałązka, 2013, p. 27-28).

## Research methods

Consumption expenditure patterns in rural and urban households were identified and assessed in terms of sustainability.

Beta convergence is negative dependency between an average growth rate of the analysed phenomenon and its initial rate. To assess if beta convergence between urban and rural consumption patterns occurs categories of consumption expenditures of the biggest differences between rural and urban households were identified. Next, growth rate of consumption expenditures in urban and rural households was calculated.

Sigma convergence occurs when dispersion of the phenomenon decreases in time. Measures based on the multi-dimensional statistical analysis are used to assess structural changes. Since the structure of households' consumption expenditures is shown as shares, its differentiation between urban and rural households is measured by using the Bray-Curtis metrics with the formula (Malina, 2006, p. 11-12):

$$p_{BC} = 1 - \frac{\sum_{j=1}^m |q_{1j} - q_{2j}|}{\sum_{j=1}^m |q_{1j} + q_{2j}|}.$$

In this formula individual structure factors are provided as vectors  $q_{ij}$  ( $i=1, \dots, n, j=1, \dots, m$ ), where  $n$  means a number of objects and  $m$  means a number of structure factors. This measure takes values from 0 to 1, where 0 is for completely dissimilar structures and 1 is for identical structures.

All the calculations were based on Household Budget Surveys data. The analysis covers the span of 2006-2015.

## Results of the research

Table 1 presents monthly per capita consumption expenditures in zlotys.

The average monthly expenditure per capita in rural households in 2006 and 2015 was lower than in urban households in almost all expenditure categories. The exception is pocket-money in 2015 comprising consumption expenditure with respect to which it is impossible to determine what products and services were purchased. The lowest relation between rural and urban expenditure in 2006 applied to expenditures on restaurants and hotels (38%), education (42%) and recreation and culture (46%). In 2015 differences decreased, with the lowest ratio for expenditures on education (44%), restaurants and hotel (47%) and recreation and culture (56%). The highest ratio between rural and urban expenditure level applied to expenditures on food and non-alcoholic beverages (93% in 2006 and 88% in 2015), transport

(84% in 2006 and 87% in 2015) and pocket-money (84% in 2006 and 126% in 2015). The relatively high expenditure on transport in rural households comprising means of transport and their use and transport services may be caused by a low accessibility to public transport in rural areas and, consequently, by necessity to have own means of transport and incur expenditure on its operation (Utzig 2016, p. 139).

**Table 1.** Average monthly per capita expenditures on consumer goods and services in zlotys

Expenditures	Rural areas 2006	Rural areas 2015	Urban areas 2006	Urban areas 2015
food and non-alcoholic beverages	192.59	242.77	208.03	274.84
alcoholic beverages, tobacco and narcotics	16.25	21.62	22.32	30.54
clothing and footwear	31.45	48.73	45.62	65.94
housing, water, electricity, gas and other fuels	112.09	169.04	168.64	251.79
furnishing household equipment and routine maintenance of the house	30.84	44.40	42.39	60.92
health	28.17	43.59	41.80	66.59
transport	58.61	87.58	69.46	101.08
communication	28.17	43.26	44.70	62.37
recreation and culture	30.74	49.58	67.19	88.78
education	5.67	6.34	13.41	14.27
restaurants and hotels	7.36	26.91	19.16	57.18
miscellaneous goods and services	27.33	46.81	44.62	75.57
pocket-money	7.94	20.19	9.50	16.06

Source: author's own work based on GUS (2007), *Household Budget Surveys in 2006* and GUS (2016), *Household Budget Surveys in 2015*.

More sustainable consumption pattern is determined by higher level of expenditure on non-environmentally damaging purposes and expenditure meeting higher needs. So it can be stated that urban households' consumption with the higher level of expenditure on recreation and culture and restaurants and hotels is more sustainable than rural one.

In the years 2006-2015 the nominal expenditure on all categories of consumption goods and services increased. The smallest increase was observed for expenditure on education (by 6% in urban households and by 12% in rural ones), whereas the highest one was noted for restaurants and hotels

(by 198% in urban households and by 266% in rural ones). This small increase in average expenditure on education per capita may result from the change of the demographic structure of households in that period. While in 2006 an average number of persons in a household in Poland was 3.05, in 2015 this number was only 2.72 (GUS 2007 and GUS 2016). Expenditure on the remaining categories for which the largest differences between rural and urban households were observed (recreation and culture as well as restaurants and hotels) increased faster in rural households compared to the rural ones. It may therefore be concluded that between consumption expenditure of rural and urban households there occurred the beta convergence, particularly with respect to expenditure on non-basic needs such as leisure, culture, restaurants and hotels.

The table 2 presents the ratio between consumption expenditures in rural and urban households in 2006 and their growth rate between 2006 and 2015.

**Table 2.** Relationship between rural and urban consumption expenditure and its growth rate in the span of 2006-2015 [%]

Expenditures	Rural/urban ratio in 2006	Growth rate – urban households	Growth rate – rural households
Food and non-alcoholic beverages	93	32	26
Alcoholic beverages, tobacco and narcotics	73	37	33
Clothing and footwear	69	45	55
Housing, water, electricity, gas and other fuels	66	49	51
Furnishing household equipment and routine maintenance of the house	73	44	44
Health	67	59	55
Transport	84	46	49
Communication	63	40	54
Recreation and culture	46	32	61
Education	42	6	12
Restaurants and hotels	38	198	266
Miscellaneous goods and services	61	69	71
Pocket-money	84	69	154

Source: author's own work based on GUS (2007), *Household Budget Surveys in 2006* and GUS (2016), *Household Budget Surveys in 2015*.

The highest differences between rural and urban expenditure growth rate were observed in categories: pocket-money, restaurants and hotels, recreation and culture. So it can be stated that there is beta convergence between rural and urban consumption pattern because in the categories of highest differences of consumption expenditure level growth rate was higher in rural households.

The sigma convergence provides for a decrease in dispersion between the phenomena. The difference between an average consumption expenditure in rural and urban households in the years 2006-2015 decreased with respect to expenditure on most categories of consumption. Those differences have increased only with respect to expenditure on food and non-alcoholic beverages (rural/urban ratio decreased from 93% to 88%), alcoholic beverages, tobacco and narcotics (rural/urban ratio decreased from 73% to 71%), and health (rural/urban ratio decreased from 67% to 65%). It can thus be concluded that for most categories of consumption expenditure there occurred the sigma convergence between the urban and rural pattern of consumption expenditure.

The Bray-Curtis similarity structure measure of consumption expenditure of rural and urban households is shown in table 3.

**Table 3.** Similarity structure measure between urban and rural consumption expenditures pattern

Similarity measure	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
$P_{BC}$	0.911	0.913	0.926	0.926	0.926	0.929	0.921	0.923	0.920	0.923

Source: author's own work based on GUS (2007-2016), *Household Budget Surveys in (2006-2015)*.

The structures of consumption expenditure of rural and urban households are very similar to each other. In the period from 2006 to 2011 they were similar to each other, in the subsequent years this similarity slightly decreased but at the end of the analysed period it was higher than in the beginning. Thus, it can be stated that the structures of consumption expenditure of rural and urban households were slightly akin to each other.

## Conclusions

Rural households are characterised by the less advantageous and less sustainable consumption pattern and by the smaller expenditure on basic needs. In the analysed period, the expenditure on restaurants and hotels per



capita grew the fastest, whereas it increased quicker in urban households. The expenditure on recreation and culture in rural households was close to the urban ones. Therefore, it may be stated that the disparities with respect to the expenditure on non-basic needs decreased. On the other hand, the differences have slightly increased with respect to the expenditure on food and non-alcoholic beverages, alcoholic beverages, tobacco products, drugs and health.

The results of the calculation of the structure similarity show the slight similarity to the structure of rural consumption expenditure to the urban one. In response to the question raised in the beginning it may be stated that there occurs the convergence between the rural and urban consumption pattern but not in each area. The positive phenomenon is that urban households are caught up by the rural ones with respect to expenditure on non-basic goods whose higher share is characterised by the more sustainable consumption pattern.

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