

## YOUTH VERSUS OLD AGE – CONSUMPTION DETERMINANTS

Marlena Piekut✉

Warsaw University of Technology

### ABSTRACT

The age of household members is an important determinant for expenditures. The aim of the present study is to determine expenditure structure and also the hierarchy of consumption determining factors in Polish both young and older households. The research material comes from unpublished Household Budget Survey of Central Statistical Office of Poland for 2012. Canonical correlation analysis was applied as a research method. The most important determinants of expenditures turned out disposable incomes per capita and household size. In spite of transformations taking place in the last years, financial aspect still plays deciding role in consumer spending, particularly in spending on services. The study on consumption determinants at different age groups leads to better understanding of consumer behavior circumstances and thereby ensuring a good quality of life for the people of different age.

**Key words:** households, consumer, consumption factors, seniors, Poland

### INTRODUCTION

The generation attitude is one of multiple factors deciding on consumption. Demographic features, including the age of household members are important criteria of consumer's typology. As the consumers get older they have more and more new needs, which become deciding factors in household budget distribution.

The aim of the present study is to determine expenditure structure and also the hierarchy of consumption determining factors in Polish both young and older households.

The age of household members is an important determinant for expenditures [Derrick and Lehfeld 1980, Wagner and Hanna 1983, Soberon-Ferrer and Dardis 1991, Schaninger and Danko 1993, Wilkes 1995]. Most of households pass from one stage of the household life cycle (based on age) to another in which their incomes, financial situation, consumption models, buying patterns [Wells and Gubar 1966], expectations and sense of style are changing.

It was indicated that young people in the first stages of their professional life strive for accumulation their savings and durable goods so as to take advantage of them in older age [Attanasio and Weber 1994, Attanasio et al. 1999, Jappelli 1999, Aguiar and Hurst 2013].

However, the behaviors of single young people concentrated on their expenditures on clothes, cosmetics, tourism, hobby development etc. are different from the behaviors of young married couples for whom apartment/house buying and furnishing becomes necessary. When children appear in the household, new needs also appear (food, clothing, toys and other children goods together with suitable furnishing) [Rudnicki and Bywalec 2002].

In the elder age households there are increasing expenditures for prophylaxis, drugs and medical care for adults. The members of this group show an increased interest in hobbies, travel, recreation [Gutkowska et al.

✉mpiekut@op.pl

2001], but with retirement and perhaps with the death of the spouse, people pay more attention to food, medicines and medical service expenditures.

## DATA AND METHODOLOGY

The research material comes from Household Budget Survey of Polish Central Statistical Office of Poland for the year 2012. The database is comprised of 37,375 households.

This study reviews the households which head were as old as:

- 30 or younger (minus 30), approximately 10% total number of households;
- 70 or older (70 plus), approximately 15% total number of households.

A head of household is defined as the person who gets the highest wage and salary income of all household members.

In this study, canonical correlation analysis was applied as a research method. The method is a way of identification of the linear relationships between two sets of multiple variables, using a variance–covariance matrix of the variables. Classical correlation analysis shows the relationship between two random vectors  $\mathbf{Y}$  and  $\mathbf{X}$ . The purpose is to find such two weight vectors  $\mathbf{l}$  and  $\mathbf{m}$ , which can show maximal correlation in linear combinations  $\mathbf{l}'\mathbf{Y}$  and  $\mathbf{m}'\mathbf{X}$ , called canonical variates [Krzyśko and Waszak 2013].

The analysis could be applied only after the conversion of quality features into zero–one (0–1) indicator variables. This effort was made for the following variables:

- dwelling place class;
- education degree of the household head;
- socio-economic group;
- gender differentiation of household heads;
- biological household type.

The following variables were applied to create the model:

- 13 categories of expenditures on consumption goods and services in PLN per capita, including expenditures on food and non-alcoholic beverages, alcoholic beverages and tobacco products, clothes and footwear, for services of owner-occupied housing, routine household maintenance, housing, utilities, and fuels, furnishing, household equipment, and routine household maintenance, health, transportation, communication, leisure, education, food service and accommodations, miscellaneous goods and services (personal hygiene, prostitution), other personal goods (e.g. jewellery), financial services and insurance, services not classified above, pocket money, other expenses (gifts from the household, other expenditures not classified anywhere, expenditures abroad);
- qualitative predictors: dwelling place class (four 0–1 variables: towns with the number of inhabitants: 500,000 and more, 200,000–499,000, less than 20,000 and villages), education degree of the household head (three 0–1 variables: elementary, high school or without education, vocational secondary education, university education), biological household type (households without dependent children, other households), socio-economic group (blue-collar workers, white-collar workers, self-employed, farmers, retirees, pensioners), gender differentiation of household heads (female);
- quantitative predictors: number of people in a household, number of disabled people in a household, age of the household head, disposable income per capita in a household, number of rooms in a flat/house, living area occupied by a household.

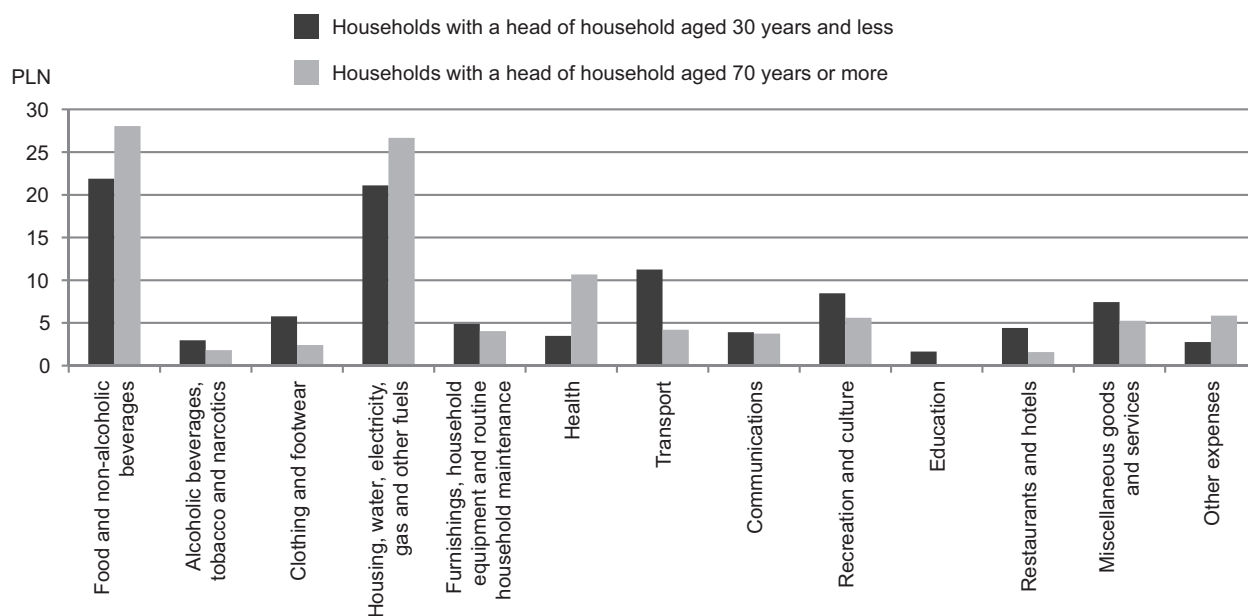
The variance extracted measures the average number of variances captured in a suitable set by all the canonical variables. Total redundancy means the sum of redundancies for the whole number of canonical variables. Its value is the information about average variance percent explained in one variable set against the other variable set, basing on all the canonical variables [Stanisz 2007].

It was assumed that statistically significant ( $P < 0.05$ ) canonical roots (the group of correlated original variables ordered hierarchically according to their contribution in the new variable) would be discussed. For canonical roots interpretation the following factors have been applied:

- canonical loadings – simple linear correlations between the canonical variables and independent variables in every set;
- canonical weights – that make possible the understanding what is the specific contribution of each variable in every set into individual weighed sum. The larger the value, the larger is the negative or positive contribution of the variable into weighed sum [Stanisz 2007].

## EMPIRICAL RESULTS

The income allocation is connected with changing consumer needs, depending on age. The structure of expenditures at young people households shows larger shares of expenditures for stimulants, clothes and footwear, furnishing and homemaking, transport, culture and leisure, education and hotel and catering service sector in comparison to the ones with older head of household. In the age group 70 and over expenditures for basic needs for food and non-alcoholic beverages and home maintenance costs were higher on a percentage basis than at young people households (Fig.).



**Fig.** The structure of Polish household expenditure in the young and elderly in 2012

Source: Own work on the basis of survey of household budgets (unpublished data of CSO). Central Statistical Office of Poland is not responsible for the data and conclusions contained in the publication.

Canonical correlation analysis, for households both with younger and older heads, included 13 canonical roots for each of these groups, from which 12 were statistically significant ( $P < 0.05$ ) for heads of household aged of 30 or less and 6 for heads of household aged of 70 or over.

### **Expenditure determinants for household heads aged 30 or less**

For household heads aged 30 or less, the feature-based variability measured by total variance regarding independent variables was 65.4% and regarding dependent variables – 100%. Instead, concurrency of changes for both independent and dependent features, in other words total redundancy was 9.2% regarding independent variables and 16.1% regarding dependent variables. Correlation value for the 1<sup>st</sup> canonical root was 0.776; for the 2<sup>nd</sup> – 0.317 and for the 3<sup>rd</sup> – 0.295. The subsequent roots contributed less and less in explanation for variability in expenditures at young people households, they only explained the variability not explained by earlier defined, roots. Correlation value for the 12<sup>th</sup>, the last significant canonical root was 0.038.

The most important relation – in the 1<sup>st</sup> canonical root – was between expenses of home maintenance, hotel and catering service, leisure and culture and disposable income per capita as well as household size. With reference to the analysis of the 2<sup>nd</sup> canonical root for households whose heads were aged 30 or less indicated that with smaller household size in the same biological type of household other than household expenses are connected to food and non-alcoholic beverages. The 3<sup>rd</sup> canonical root showed the following relation: in the households localized at villages, whose heads have higher education degrees, having larger housing area, higher expenses for home maintenance, food and non-alcoholic beverages, i.e. for basic goods and other goods and services.

### **Expenditure determinants for household heads aged 70 or over**

In the context of households whose heads were at least 70, variability measured by total variance regarding independent variables was 63.4% and regarding dependent variables was 100%. Whereas, concurrency of changes for both independent and dependent features, in other words total redundancy was 6.5% regarding independent variables and 10.9% regarding dependent variables.

Correlation value for the 1<sup>st</sup> canonical root was 0.732, for the 2<sup>nd</sup> – 0.346 and for the 3<sup>rd</sup> one – 0.251. The subsequent roots contributed less and less in explanation for variability in expenditures at young people households, although they were specific and explained the variability not explained by earlier defined roots. Correlation value for the last significant canonical root was 0.114.

Upon both the canonical weights and factor structure, at the 1<sup>st</sup> canonical root, the most important relation was between disposable income per capita, household size, household location in the largest cities and expenditures for communication, leisure and culture as well as food and non-alcoholic beverages. The values of both the canonical weights and factor structure for the 2<sup>nd</sup> canonical root indicated that at households of people aged 70+ with more family members and with larger disposable income per capita and having the male head, the expenditure structure may be connected with larger expenditures for alcoholic beverages, tobacco products as well as leisure and culture. It was shown, on the base of both the canonical weights and factor structure for the 3<sup>rd</sup> canonical root, that less expenditures or communication are connected with households of people aged 70+, located in villages and having the head with elementary education level.

## **DISCUSSION**

The level and structure of household consumption depends on several factors [Gutkowska et al. 2001, Piekut 2008], therefore a lot of independent variables were considered for creation a model describing the consumer expenditure level in relation to household feature.

The percentage of explained expenditure variability, which is the sign that consumer needs and behaviors are complex phenomenon, depending on numerous other factors. The diversity of these determinants make consumer market behaviors random and not predictable [Gutkowska and Piekut 2014]. Nevertheless, each of these features contributed in explanation of expenditure variability.

The most important expenditure determinants for both young and older people households were: disposable income per capita, household location and household head education level.

The specific force of disposable income per capita in households was emphasized also in other papers [Piekut 2008, Gutkowska et al. 2012, Radziukiewicz 2012]. However, it was indicated [Gutkowska and Ozimek 2005, Bernini and Cracolici 2015] that household income level depends also on several other determinants, e.g.: household location, presence of children in the family, socio-economical group.

The household size is the other feature besides incomes, deciding on consumption expenditures. The larger is the people number in the household, the less value of food expenses per capita. This is the effect of economizing with the scale of managing the household finances; this phenomenon is observed also with other goods consumption, e.g.: household maintenance and furnishing, clothes, footwear (handing over some clothes and footwear to younger siblings) [Gutkowska et al. 2001].

However, Zalega [2012] observed that household size is not the main indicator in demand. Socio-cultural factors influence consumer demands in greater degree. Intellectual development of consumers and their education level act on both physiological and cultural needs. The higher is household members' education level, the larger are aspiration in a particular household [Zalega 2011]. Other factors diversifying consumption models include gender, health condition, fitness, dwelling place, state of the infrastructure as well as people origin and occupation [Bąk 2012].

At young people households rising incomes per capita is accompanied by greater expenditure on housing maintenance and on hotel and catering service sector. Greater expenditures on mentioned purposes may be also expected in the households consisting of smaller number of people, placed in the largest cities.

However, at older people households, rising incomes per capita is accompanied mainly by greater expenditure on communication, culture and leisure as well as food and non-alcoholic beverages. Whereas for young people, after rising incomes more important are housing needs and hotel and catering service, for older people – communication and leisure services and also food.

Greater expenditure on food and non-alcoholic beverages at older people households were noticed also in other studies [Burzing and Herrmann 2012]. Additionally, it was observed that retirement is connected with larger expenses of food consumed at home, with decreasing expenditures on eating out.

Both the hotel and catering and leisure services are partially connected with tourism. Rapoport and Rapoport [1975] and Lawson [1991] stated that age is the main determinant of expenditure on tourism. Empirical studies show that high incomes positively influence decisions on traveling [Alegre et al. 2009, Eugenio-Martin and Campos-Soria 2011, Radziukiewicz 2012] and this effect is greater, if the people have medium or high income [Fish and Waggle 1996, Nicolau and Más 2005].

Bąk [2012] noticed that active use of leisure time by Polish seniors is still not very popular. Elderly people prefer listening to music and radio or watching television to playing sports or jaunting. There are also barriers in participation in cultural events, especially for elderly people with smaller incomes.

It was noted in the research *Diagnoza społeczna 2013* (ang. *Social Dignosis 2013*) that the greatest percentage of the people made to resignation from selected forms of participation in cultural levels was in the poorest households. On the other hand, most of resignations from vacation trips happened in pensioners' households [Czapiński and Panek 2014]. However, Piekut [2013] indicated that improving financial situation and increasing life expectancy will cause increasing free time and consumers will try to get the optimal management of time.

The measurements of canonical weights and factor structures for the 2<sup>nd</sup> root indicated that for young households greater expenditure on food and non-alcoholic beverages and also on housing maintenance may be connected with fewer households, included in the type; "other households". It is known, from analysis of expenditures on food, surveyed among German consumers [Burzing and Herrmann 2012], that these expenditures get higher, when the incomes rise up and smaller with retirement. However, it was not demonstrated that these expenditures are sensitive to difference at age.

With reference to older people households, it may be expected that the smaller is the female headed household, the smaller expenditures on alcoholic drinks and tobacco, leisure, culture and transportation and the greater for home maintenance. Darrow with collaborators [1992] demonstrated that larger expenditures on alcoholic drinks may be expected at younger unmarried women. It is worth noting that female marketing behaviors are specific, and number of factors deciding on female marketing behavior is larger than the male ones [Kieźel and Smyczek 2012].

Basing on measures for the 3<sup>rd</sup> root it may be stated that at young people households placed at villages, with greater number of rooms, larger living area and older head of the household, larger expenditures on home maintenance, food, non-alcoholic beverages and other goods and services may be expected.

At older male headed households placed at villages, in which the head has elementary level of education, smaller expenditures on communication may be expected. The connection between expenditures on communication and older age with low education level of household head was confirmed also by analysis carried out among Koreans over 65 years old [Siwuel and Song Hyun 2010].

A lot of studies point out that question of identity for the particular generation is accompanied by the phenomenon of specific consumption patterns [Beck 1991, Bauman 1998, Ransome 2005]. Consumers, who were young just after the second world war shaped different consumption patterns from modern young consumers, living among “consumer society” [Kramper 2000].

As the society gets older, the structure of consumer spending changes. Therefore it is necessary to adjust supply of goods and services to older people [Bąk 2012] and it is noted that in future, elder people needs will have to be respected to a greater extent. It is also pointed out that probably together with lengthening life, the range of age and behavior pattern typical for elder people today will be shifted on the axis of life. Additionally, longer productive career will result in slow-down marketing changes [Migdał-Najman and Szreder 2013].

## CONCLUSIONS

Based on above analysis the following conclusions may be alleged. The most important determinants of expenditures turned out disposable incomes per capita and household size. In spite of transformations taking place in the last years, financial aspect still plays deciding role in consumer spending, particularly in spending on services.

At young people households together with rising disposable incomes increase also expenditures connected with home maintenance as well as with hotel and catering and leisure and cultural service, whereas for older people – expenditures connected with communication and leisure services and also food and non-alcoholic beverages.

As for less numerous young households, expenditures on home maintenance, food and non-alcoholic beverages are specific, which is the consequence of finance managing scale. Larger expenditures on food and non-alcoholic beverages are specific for young people living in villages, with larger houses and whose head has high education level.

As for less numerous older households, less expenditures on alcoholic drinks and tobacco products, leisure and culture and transportation, especially female headed household. It was also noticed that for older male headed households localized in villages less expenditures on communication could be expected.

The study on consumption determinants at different age groups leads to better understanding of consumer behavior circumstances and thereby ensuring a good quality of life for the people of different age. This analysis is only a small piece of the problem goods and services expenses at households. Apart from the determinants taking here into consideration in studying of household budgets, there are also a lot of other ones connected with expenditures at households.

## REFERENCES

- Aguiar, M., E., Hurst (2013). Deconstructing lifecycle expenditure. *Journal of Political Economy*, 121 (3), 437–492.
- Alegre, J., S., Mateo, L., Pou (2013). Tourism participation and expenditure by Spanish households: the effects of the economic crisis and unemployment. *Tourism Management*, 39, 37–49.
- Attanasio, O., Weber, G. (1994). The UK consumption boom of the late 1980s: aggregate implications of microeconomic evidence. *The Economic Journal*, 104 (427), 1269–1302.
- Attanasio, O.P., Banks, J., Meghir, C., Weber, G. (1999). Humps and bumps in lifetime consumption. *Journal of Business & Economic Statistics*, 17 (1), 22–35.
- Bauman, Z. (1998). *Work, Consumerism and the New Poor*. Open University Press, Buckingham.
- Bąk, I. (2012). Turystyka w obliczu starzejącego się społeczeństwa. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* 258, 13–23.
- Beck, U., (1991). *Risk Society*. Sage, London.
- Bernini, C., Cracolici, M.F. (2015). Demographic change, tourism expenditure and life cycle behaviour. *Tourism Management*, 47, 191–205.
- Burzig, J., R., Herrmann (2012). Food Expenditure Patterns of the Generation 50+: An Engel-Curve Analysis for Germany. *British Food Journal*, 114 (10), 1380–1393.
- Czapiński, J., Panek, T. (2014). *Diagnoza społeczna. Warunki i jakość życia Polaków*. Warszawa. Raport.
- Darrow, S.L., Russell, M., Cooper, M.L., Mudar, P.J., Frone, M.R. (1992). Sociodemographic correlates of alcohol consumption among African-American and white women. *Women & Health*, 18 (4), 35–51.
- Derrick, F.W., Leheld, A.K. (1980). The Family Life Cycle: An Alternative Approach. *Journal of Consumer Research*, 7, 214–217.
- Eugenio-Martin, J.L., Campos-Soria, J.A. (2011). Income and the substitution pattern between domestic and international tourism demand. *Applied Economics*, 43 (20), 2519–2531.
- Fish, M., Waggle, D. (1996). Current income versus total expenditure measures in regression models of vacation and pleasure travel. *Journal of Travel Research*, 35, 70–74.
- Gutkowska, K., Laskowski, W., Ozimek, I. (2012). *Konsumpcja żywności w polskich gospodarstwach domowych – kryteria różnicowania*. Wydawnictwo SGGW, Warszawa.
- Gutkowska, K., Ozimek, I. (2005). *Wybrane aspekty zachowań konsumentów na rynku żywności – kryteria różnicowania*. Wydawnictwo SGGW, Warszawa.
- Gutkowska, K., Ozimek, I., Laskowski, W. (2001). *Uwarunkowania konsumpcji w polskich gospodarstwach domowych*. Wydawnictwo SGGW, Warszawa.
- Gutkowska, K., Piekut, M. (2014). Konsumpcja w wiejskich gospodarstwach domowych. *Więś i Rolnictwo*, 4 (165), 159–178.
- Jappelli, T. (1999). The age-wealth profile and the life-cycle hypothesis: a cohort analysis with a time series of Italian households. *Review of Income and Wealth*, 4, 57–75.
- Kieźel, E., Smyczek, S. (2012). *Zachowania rynkowe kobiet. Wybory i determinanty*. Placet, Warszawa.
- Kramper, P. (2000). *From Economic Convergence to Convergence in Affluence? Income Growth, Household Expenditure and the Rise of Mass Consumption in Britain and West Germany, 1950–1974*. LSE, Department of Economic History, Working Paper 56.
- Krzyżko, M., Waszak, Ł. (2013). Canonical correlation analysis for functional data. *Biometrical Letters*, 50 (2), 95–105.
- Lawson, R. (1991). Patterns of tourist expenditure and types of vacation across the family life cycle. *Journal of Travel Research*, 29, 12–17.
- Migdał-Najman, K., Szreder, M. (2013). Nowe trendy demograficzne a zmiany w konsumpcji w Polsce. *Marketing i Rynek*, 20 (11), 2–8.
- Nicolau, J.L., Más, F. (2005). Stochastic modeling: a three-stage tourist choice process. *Annals of Tourism Research*, 32 (1), 49–69.
- Piekut, M. (2008). *Polskie gospodarstwa domowe: dochody, wydatki i wyposażenie w dobra trwałego użytkowania*. Wydawnictwo SGGW, Warszawa.

- Piekut, M. (2013). Wydatki na zagospodarowywanie czasu wolnego w gospodarstwach domowych. *Ekonomia i Zarządzanie*, 3 (5), 64–81.
- Radziukiewicz, M. (2012). Zmiany sytuacji dochodowej a wydatki na usługi w polskich gospodarstwach domowych. *Konsumpcja i Rozwój*, 1 (2), 101–116.
- Ransome, P. (2005). *Work, Consumption and Culture: Affluence and Social Change in the Twentyfirst Century*. Sage, London.
- Rapoport, R., Rapoport, R.N. (1991). *Leisure and the family life cycle*. Routledge and Kegan Paul, London.
- Rudnicki, L., Bywalec, C. (2002). *Konsumpcja*. PWE, Warszawa.
- Schaninger, C.M., Danko, W.D. (1993). A Conceptual and Empirical Comparison of Alternative Household Life Cycle Models. *Journal of Consumer Research*, 19, 580–594.
- Siwuel, K., Song Hyun, J. (2010). A Panel Data Analysis of the Determinants of Health Care Expenditures among Older Single-person Households. *Journal of Consumer Studies*, 21, 4.
- Soberon-Ferrer, H., Dardis, R. (1991). Determinants of Household Expenditures for Services. *Journal of Consumer Research*, 17, 385–397.
- Stanisz, A. (2007). *Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. Tom 3. Analizy wielowymiarowe*. StatSoft Polska, Kraków.
- Wagner, J., Hanna, S. (1983). The Effectiveness of Family Life Cycle Variables in Consumer Expenditure Research. *Journal of Consumer Research*, 10, 281–291.
- Wells, W., Gubar, G. (1966). Life Cycle Concept in Marketing Research. *Journal of Marketing Research*, 3, 355–363.
- Wilkes, R.E. (1995). Household Life cycle Stages, Transitions, and Product Expenditures. *Journal of Consumer Research*, 22, 27–42.
- Zalega, T. (2011). Mikrouwarunkowania potrzeb i zachowań rynkowych gospodarstw domowych a nowa konsumpcja. *Studia i Materiały/Wydział Zarządzania. Uniwersytet Warszawski*, (1–2), 79–106.
- Zalega, T. (2012). *Konsumpcja. Determinanty. Teorie. Modele*. PWE, Warszawa.

## **MŁODZI KONTRA STARSI – DETERMINANTY KONSUMPCJI**

### **STRESZCZENIE**

Wiek domowników jest ważnym czynnikiem decydującym o wydatkach. Celem niniejszego opracowania jest określenie struktury wydatków, a także wskazanie na hierarchię czynników determinujących konsumpcję w polskich gospodarstwach domowych. Materiał badawczy stanowiły niepublikowane, indywidualne dane z badania budżetów gospodarstw domowych Głównego Urzędu Statystycznego za 2012 rok. Metodą badawczą była analiza korelacji kanonicznej. Najważniejszymi determinantami wydatków okazały się dochód rozporządzalny na osobę i wielkość gospodarstwa domowego. Pomimo przemian zachodzących w ostatnich latach aspekt finansowy nadal odgrywa decydującą rolę w wydatkach konsumentów, w szczególności w wydatkach na usługi. Badanie uwarunkowań konsumpcji w różnych grupach wiekowych prowadzi do lepszego zrozumienia sytuacji zachowań konsumentów i tym samym zapewnienia dobrej jakości życia dla osób w różnym wieku.

**Słowa kluczowe:** gospodarstwa domowe, konsument, determinanty konsumpcji, seniorzy, Polska