Bartłomiej Bajan[1✉], Karolina Sowa[1]

[1]**Poznań University of Life Sciences, Poland**

FOOD CONSUMPTION MODELS AROUND THE WORLD IN THE CONTEXT OF GLOBALIZATION

Abstract. The purpose of this paper is to empirically verify the unification of food consumption models around the world, as described in the relevant literature. The study covered the structures of food consumption in different continents, taking into consideration the energy value supplied by particular product groups. The study was conducted for two periods (1963 and 2013) separated by five decades. The analysis relied on data retrieved from FAO's food balance sheets. Also, this study presented the energy value of food consumed around the globe from 1963 to 2013 in 10-year steps. The food consumption structures for different continents were compared using the structure diversity ratio. Following this, the vector elimination method was used to determine the subsets of world regions who are the most similar to each other in terms of the structures covered by this analysis. As shown by this study, the world's continents become progressively more consistent in their food consumption structures. The sole exception is Africa with a food consumption structure which rather seems to move away from other regions of the world.

Keywords: globalization, food consumption, structure similarity

INTRODUCTION

According to its numerous definitions introduced so far, globalization is a diversified phenomenon. It is interpreted in a number of ways, spanning from a process of a developing and integrating economy to a process where the economies converge towards a unique global economy. According to Kowalczyk (2009), globalization is *a process of establishing and developing worldwide (and especially supra-territorial) links and correlations between people, economic operators and socio-political institutions.* According to Stiglitz (2004), globalization helps countries to develop by contributing to economic growth. It enables access to knowledge in developing countries, thus reducing their sense of isolation. He also believes that globalization results in reducing transport costs and in removing barriers to trade in goods, services and capital between countries. However, von Barun and Mengistu (2007) indicate that despite creating conditions for development, globalization cannot be regarded a guaranteed way to reduce poverty.

The main positive aspect of globalization is the broad access to goods and services formerly unavailable in the territory considered. Conversely, the negative implication is the possible emergence of risks and uncertainty because globalization also transmits crises and market

✉MSc Bartłomiej Bajan, Department of Economy and Economic Policy in Agribusiness, Poznań University of Life Sciences, Wojska Polskiego 28 St., 60-637 Poznań, Poland, e-mail: bartlomiej.bajan@up.poznan.pl

instabilities. In agriculture, globalization is largely accountable for the concentration of dispersed farms due to market demand for cheap homogeneous raw materials which small farms are unable to deliver. Other processes observed are capital flows and the relocation of manufacturing sites to regions with more favorable cropping conditions and cheaper workforce (Kowalczyk, 2012).

Globalization also affects the supply side, and more precisely the choices the consumers make on a daily basis. This is because it drives the unification of consumption models around the world (Gulbicka, 2009). This is also true for food: as their incomes grow, people can be observed to adopt what is referred to as the Western consumption model. However, the literature indicates that global food consumption patterns do not converge as rapidly as those of industrial products purchasing (Kowalczyk, 2012).

The purpose of this study is to empirically verify the unification of food consumption models around the world, as described in the relevant literature. Changes in consumption patterns become increasingly visible, which requires further in-depth research. The study is unique in that it examines the similarity of food consumption structures around the world between considerably distant points in time. Also, this study used FAO data which ensures comparability around the world, although the most common approach to these analyses is to rely on household budget figures.

UNIFICATION OF FOOD CONSUMPTION MODELS: A LITERATURE REVIEW

The propensity to consume was already mentioned by Keynes (2003) who presented the relationship between the increase in total incomes and the changes in the propensity to consume. According to that pattern, people at lower income levels are more inclined to consume. However, the essential question is how do they spend their money. One of the most widely known principles in this field is the Engel's law (1857) which states that as income rises, the proportion of income spent on food falls. The consumption model depends on different variables and phenomena which can be divided into three groups (Kowalczyk, 2018): (i) consumer experience; (ii) historical, biological, social and cultural processes taking place in the territory considered; (iii) economic activity and family relationships. Illés and Végh (2009) presented a general model of consumer food behaviors based on the Pilgrim model (1957), with three basic groups of variables such as: socioeconomic conditions, individual consumer characteristics and variables referring to food itself.

The relevant literature includes a series of research which demonstrate that consumption models tend to unify across the globe. The first example is the well-known Bennet's law (1936; 1941) which suggests that as their income grows, consumers shift from low-quality food (especially including starchy food) to higher-value food products. The changes resulting in the unification of food consumption structures are also impacted by urbanization processes (Huang and Bouis, 2001). A decline in the consumption of cereal products is noticeable in cities (Huang and David, 1993). In turn, as shown in other studies, there is increased consumption of animal products in urbanized areas (Rae, 1998). This is also because as their incomes grow, poorer consumers want to follow the trends observed in wealthier countries, primarily in North America and Western Europe. This may be referred to as the westernization of diets and is confirmed by many studies carried out in Asian countries (e.g. Tokoyama et al., 2002; Lee et al., 2006; Fabiosa, 2006; Sheng et al., 2008).

Another reason why consumption patterns become similar around the globe is the rapid growth in consumption of processed foods, as observed for many years in low-to-medium income countries (Veeck and Veeck, 2000; Minten et al., 2010). This is also related to the fact that a growing proportion of food is consumed in restaurants and bars. Previous research carried out in many different countries confirm an increase in the consumption of food away from home (FAFH) and a decline in the consumption of food at home (FAH). This is related to an increase in the population's income (e.g. Mutlu and Gracia, 2006; Bai et al., 2010; Okrent and Alston, 2012).

Globalization drives the convergence of food consumption patterns worldwide. Factors that make cultural distinctions fade away have a strong impact on the access to the same food in many countries around the globe (Gulbicka, 2009). The westernization of diets, as referred to above, usually means an increased consumption of sugar and products of animal origin with a decline in the consumption of products of plant origin. As suggested by Kowalczyk (2012), this situation is largely driven by transnational corporations who intend to reduce production costs through the standardization of a limited number of products available worldwide.

Examples include fast food or even junk food. In recent years, this has resulted in the dominant share of low-quality foods in the consumption structure. However, research on fast food fails to clearly determine the relationship between fast food consumption and income growth. McCracken and Brandt (1987) found that FAFH expenditure in the United States grows as the incomes grow. However, this is primarily true for food consumed in restaurants and other catering facilities rather than in fast food establishments. In turn, research by Nayga (1996) suggests that fast food has a dominant role with respect to breakfasts and lunches in the Unites States while having less importance when it comes to dinners. According to Bai et al. (2012), an increase in incomes drives increased spending on restaurants while having no effect on fast food expenditure. These findings suggest that the reason why fast food consumption follows an upward trend is the intent to save time rather than an increase in incomes. It may therefore be expected to continue as a long-term trend.

MATERIALS AND METHODS

All calculations were based on data retrieved from food balance sheets of the Food and Agriculture Organization of the United Nations. This is the total of global food production and imports less exports, food intended for animal feed, food intended for sowing, food used in the processing sector, and losses occurred during transport and storage. The food balance sheets actually specify the supply of food products per capita. This is the only available method for estimating food consumption on a countrywide basis (Kwasek, 2010).

In this study, continents were analyzed separately. The energy value of food consumed around the globe from 1963 to 2013 was presented in 10-year steps. Then, the consumption structure in extreme periods (i.e. 1963 and 2013) was calculated for 9 separate food product groups: cereals, meat and offals, fruits and vegetables, milk and eggs, oil and oil crops, sugar, fish and seafood, alcohol and stimulants, miscellaneous. Afterwards, the structure diversity ratios between the world's regions were calculated both for 1963 and 2013. This was done using the structure diversity ratio based on Manhattan distance:

$$V = \frac{\sum_{i=1}^{k} |\alpha - \beta|}{2}$$

The data was presented as a symmetric matrix $[v_{jp}]$ with diagonal entries of 0 (the result of comparing the structure of a region to itself). Following this, the vector elimination method was used to divide the countries into subsets with similar structures (Chomątowski and Sokołowski 1978). The vector elimination procedure consists of several consecutive steps:

1. The diversity threshold value β is calculated.
2. The matrix $[v_{jp}]$ is converted into matrix $[w_{jp}]$ so that:

$$w_{jp} = \begin{cases} 0 \text{ if } v_{jp} < \beta \\ 1 \text{ if } v_{jp} \geq \beta \end{cases}$$

3. The sum of entries in each row of the matrix $[w_{jp}]$ is calculated.
4. The largest sum indicates the element which is the least similar at β-level to the largest number of other objects. That object is eliminated by removing the corresponding row and column.
5. The sums are recalculated in the rows of the reduced matrix, resulting in the elimination of another object.
6. The elimination procedure is repeated until all components of the matrix $[w_{jp}]$ are 0. This is how group 1 is created whose objects demonstrate the highest structural similarity.
7. The procedure is resumed from step 3 with the set of objects eliminated during the creation of group 1.
8. The procedure is repeated until all objects are grouped.

The threshold value β was defined as the arithmetic mean of differences between mean non-diagonal entries of the structure diversity matrix and the mean deviation of these entries for 1963 and 2013 (Kukuła, 2010), as per the formula below:

$$\beta = \frac{(\overline{v}_{1963} - S_{v1963}) - (\overline{v}_{2013} - S_{v2013})}{2}$$

with:

$$\overline{v} = \frac{2\sum_{j=1}^{r}\sum_{p>j} v_{jp}}{r(r-1)}$$

where:

$\overline{v}$ – average value of non-diagonal entries of the structure diversity matrix $[v_{jp}]$

r – number of objects compared (world regions)

with:

$$S_v = \frac{2\sum_{j=1}^{r}\sum_{j,p} |v_{jp} - \overline{v}|}{r(r-1)}$$

where:

S_v – mean deviation of non-diagonal entries of the structure diversity matrix $[v_{jp}]$.

RESULTS AND DISCUSSION

Changes which took place in the study period affected the energy value and nutrient distribution of the daily ration. The supply of energy delivered together with food increased around the globe. The highest growth (by 899 kcal/person/day) was recorded in Asia; note that the diet of the Asian population had the second smallest calorific value worldwide in 2013, following that of the African population. The diet with the largest energy supply (3500 kcal/person/day) is that of North American residents. Changes in the total consumption of energy value per capita are presented in Table 1.

In the study period, the energy value of food consumed around the world increased by 28% compared to 1963. The largest percentage increase in the diet energy value (nearly 48%) was recorded in Asia while the smallest was in Oceania (barely 4%). In 1973–1963 and in 1983–1973, the largest increase in the energy value of diets was recorded in Asia (over 10% and 13%, respectively). These were the highest percentage changes in energy values of diets of the population living in different continents within the 10-year periods considered.

Table 1. Energy value of food consumed in different regions of the world in 1963–2013 (kcal/person/day)

Specification	Energy supply value					
	1963	1973	1983	1993	2003	2013
World	2,254	2,388	2,575	2,617	2,737	2,884
Africa	2,028	2,079	2,209	2,343	2,481	2,625
Asia	1,881	2,075	2,354	2,446	2,577	2,779
North America	2,719	2,953	3,180	3,425	3,593	3,510
South America	2,321	2,405	2,576	2,686	2,855	3,027
Europe	3,112	3,281	3,322	3,202	3,284	3,367
Oceania	3,088	3,054	2,985	3,037	3,075	3,214

Source: own compilation based on FAOSTAT, b.d.

In 1983–1993, the energy value of diets of the European population declined by nearly 4%; in 2003–2013, a decline by slightly over 2% was also recorded in North America. The periodic drops may be caused by changes in consumption trends related to counteracting obesity which is a common problem in these regions.

Tables 2 and 3 present data on the structure of food consumption in 1963 and 2013. The most energetic diet was that of the European population in 1963; and that of North Americans in 2013. The lowest amount

Table 2. Energy structure of food consumed in different regions of the world in 1963

Specification	World		Africa		Asia		North America		South America		Europe		Oceania	
	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%
Cereals	1,126	50.0	1,075	53.0	1,194	63.5	798	29.4	823	35.5	1,211	38.9	837	27.1
Meat and offals	125	5.5	70	3.5	45	2.4	299	11.0	208	9.0	255	8.2	529	17.1
Fruits and vegetables	354	15.7	451	22.2	321	17.1	278	10.2	497	21.4	391	12.6	287	9.3
Milk and eggs	136	6.0	54	2.7	47	2.5	347	12.8	142	6.1	307	9.9	359	11.6
Oil and oil corps	234	10.4	214	10.6	135	7.2	433	15.9	203	8.7	428	13.8	410	13.3
Sugar	198	8.8	108	5.3	104	5.5	442	16.3	366	15.8	327	10.5	514	16.6
Fish and seafood	18	0.8	9	0.4	16	0.9	16	0.6	10	0.4	30	1.0	18	0.6
Alcohol and stimulants	58	2.6	40	2.0	13	0.7	102	3.7	71	3.1	161	5.2	132	4.3
Miscellaneous	5	0.2	7	0.3	6	0.3	2	0.1	1	0.0	2	0.1	2	0.1
Total	2,254	100.0	2,028	100.0	1,881	100.0	2,719	100.0	2,321	100.0	3,112	100.0	3,088	100.0

Source: own compilation based on FAOSTAT, b.d.

Table 3. Energy structure of food consumed in different regions of the world in 2013

Specification	World		Africa		Asia		North America		South America		Europe		Oceania	
	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%	kcal	%
Cereals	1,292	44.8	1,284	48.9	1,422	51.2	942	26.8	967	31.9	1,007	29.9	764	23.8
Meat and offals	244	8.5	96	3.7	226	8.1	393	11.2	390	12.9	362	10.8	470	14.6
Fruits and vegetables	417	14.5	627	23.9	382	13.7	351	10.0	413	13.6	388	11.5	362	11.3
Milk and eggs	174	6.0	83	3.2	136	4.9	360	10.3	247	8.2	352	10.5	324	10.1
Oil and oil corps	392	13.6	288	11.0	332	11.9	728	20.8	471	15.6	618	18.4	687	21.4
Sugar	240	8.3	166	6.3	174	6.3	551	15.7	417	13.8	389	11.6	399	12.4
Fish and seafood	36	1.2	20	0.8	41	1.5	31	0.9	18	0.6	47	1.4	45	1.4
Alcohol and stimulants	76	2.6	50	1.9	52	1.9	144	4.1	98	3.2	193	5.7	144	4.5
Miscellaneous	13	0.5	11	0.4	14	0.5	10	0.3	6	0.2	11	0.3	19	0.6
Total	2,884	100.0	2,625	100.0	2,779	100.0	3,510	100.0	3,027	100.0	3,367	100.0	3,214	100.0

Source: own compilation based on FAOSTAT, b.d.

of kilocalories was supplied in food by the Asian population in 1963, and by the African population in 2013. In 1963, over 60% (vs. over 50% in 2013) of the daily energy supply by the Asian population was derived from cereals and cereal products; this was the highest proportion of all regions around the world. In 1963–2013, the Asian and African population experienced the highest increase in the energy value of their diets. Asia witnessed a growing consumption of meat (a huge 5-time increase), milk and eggs (3 times) and seafood (over 2.5 times). A characteristic change in the diet of the African population was the increase in the consumption of fruits and vegetables (by nearly 40%). In turn, a characteristic development experienced both at global and regional level is the fact that energy derived from cereals and cereal products has the largest share in the energy structure.

However, in 1963–2013, the proportion of cereal products in the energy structure of food consumed went down in all regions surveyed, with the greatest decline recorded in Asia (over 12 percentage points). In Asia, too, the consumption of meat and offals increased by almost 6 percentage points. Oceania was the only region to experience a decline (by 2.5 percentage points) in the proportion of meat and offals in the total consumption structure. In the study period, the proportion of fruits and vegetables consumption followed a downward trend, except for Oceania and Africa who witnessed

growth by 1.7 and 2 percentage points, respectively. The group of products such as oils and oilseeds experienced the greatest increase in their share in the energy structure of food consumed (over 8 percentage points in Oceania). The proportion of energy derived from sugar did not follow any clear downward or upward trend, with changes fluctuating between –4.2 to 1.1 percentage points. Around the world, the proportion of energy derived from fish and seafood in the energy structure of food consumed followed a slight upward trend. However, in no case did it exceed 0.8 percentage points.

Based on data presented, it may be concluded that changes in the food consumption structure in different regions of the world are convergent. This is confirmed by data relating to the relevant structure diversity ratios, as shown in Table 4. The lower the ratios, the more similar are the structures compared. In 1963–2013, the structure diversity ratios between all continents except Africa either declined or remained the same. This suggests that consumption structures converged globally throughout the study period. In 1963, the greatest differences in consumption structures could be observed between Asia and other regions of the world. The Asian structure was similar only to that of Africa. In turn, in 2013, it was clearly getting closer to other countries while still being similar to the African structure (in 1963–2013, the structure diversity ratio for Africa

Table 4. Matrix of food consumption structure diversity in different regions of the world in 1963 and 2013

1963						
Region	Africa	Asia	North America	South America	Europe	Oceania
Africa	0.00	0.11	0.36	0.20	0.24	0.39
Asia	0.11	0.00	0.41	0.29	0.29	0.45
North America	0.36	0.41	0.00	0.17	0.14	0.07
South America	0.20	0.29	0.17	0.00	0.15	0.20
Europe	0.24	0.29	0.14	0.15	0.00	0.17
Oceania	0.39	0.45	0.07	0.20	0.17	0.00
2013						
Region	Africa	Asia	North America	South America	Europe	Oceania
Africa	0.00	0.10	0.36	0.28	0.31	0.38
Asia	0.10	0.00	0.29	0.21	0.24	0.30
North America	0.36	0.29	0.00	0.10	0.07	0.07
South America	0.28	0.21	0.10	0.00	0.09	0.12
Europe	0.31	0.24	0.07	0.09	0.00	0.08
Oceania	0.38	0.30	0.07	0.12	0.08	0.00

Source: own compilation based on FAOSTAT, b.d.

and Asia decreased from 0.11 to 0.10). Meanwhile, the structure of food consumption in Africa either moves away from other continents (compared to what it was in 1963) or remains similar. In other countries, the consumption structures may be observed to converge in the period considered.

The changes in the structure diversity ratios discussed above are reflected in the division of the world's regions into subsets characterized by relatively small structural differences. In 1963, 4 region groups were identified, with North America and Oceania in the first one; Africa and Asia in the second; Europe in the third; and South America in the fourth. This means that Europe and South America were the least similar in terms of their structures compared to other regions. North America and Oceania had a similar structure due to high development levels of countries located in these regions. This

primarily means the United States in North America, and Australia in Oceania. Conversely, in 1963, Europe was still struggling with post-war reconstruction issues and strong impacts of Soviet centrally planned economies in many countries; this clearly contributed to the structure of food consumption, too.

Figure 1 shows the movement of the world's regions in the groups defined from 1963 to 2013. In 2013, there were only 2 groups of continents with similar food consumption structures. The first group is composed of North America, Oceania, Europe and South America while the second includes Africa and Asia. The fact that Europe and South America moved to form a single group with North America and Oceania proves the convergence of consumption structures in these regions.

Europe, North America and Oceania demonstrate extremely low ratios of structure diversity (less than 0.1) between them (Table 4). A slightly higher ratio could be observed between these three regions and South America. This is most probably due to differences in the development level of these continents; in the relatively less developed South America, consumption trends do not evolve as rapidly as in the other three regions of the same group.

Even though the difference in consumption structures between Asia and other regions of the world has considerably decreased, the Asian structure continues to share the greatest similarity with the African one. Note however that back in 1963, Asia was much more distant than Africa from more developed regions of the world in terms of the food consumption structure. But in 2013, the Asian structure was much closer to that of more developed continents. The above provides grounds for concluding that this trend will persist, and that consumption structures will become increasingly similar in all regions around the world. However, Africa could be an exception because the results of this analysis suggest the African structure rather moves away (or stays within the same distance) from other regions of the world.

SUMMARY

The analysis of the value and structure of food consumption allows to confirm that the unification of food consumption models is experienced worldwide. As shown in this study, all continents around the globe become increasingly similar in their consumption structures. The sole exception is Africa with a consumption
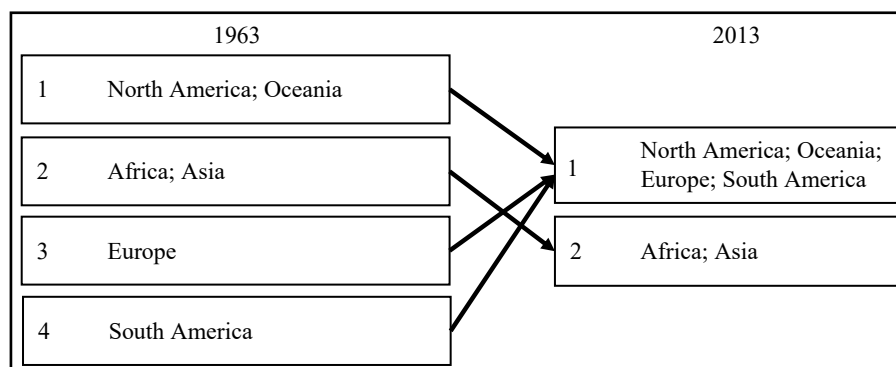
Fig. 1. Groups of the world's regions with similar food consumption structures in 1963 and 2013 (β threshold for the elimination of vectors = 0.1214)

structure which either moves away from that of other regions of the world or remains as is. A 50-year study period allowed to better capture the changes. In 1963, there were 4 groups of countries with similar food consumption structures. In 2013, there were only 2 of them. This fact, too, testifies to the unification of food consumption models around the world.

The analysis was based on data from food balance sheets with consumption expressed in kcal. This enables a better reflection of global changes in food consumption. In the relevant literature, this type of research is usually based on quantitative consumption figures recorded in household budgets, placing in it a more regional context.

REFERENCES

Bai, J., Wahl, T., Lohmar, B., Huang, J. (2010). Food away from home in Beijing: effects of wealth, time and 'free' meals. China Econ. Rev., 21(3), 432–441. https://doi.org/10.1016/j.chieco.2010.04.003

Bai, J., Zhang, C., Qiao, F., Wahl, T. (2012). Disaggregating household expenditures on food away from home in Beijing by type of food facility and type of meal. China Agr. Econ. Rev., 4(1), 18–35. https://doi.org/10.1108/17561371211196757

von Barun, J., Mengistu, T. (2007). Poverty and the Globalization of Food and Agriculture System. 2020 Focus Brief on the World`s Poor and Hungry People. Washington, DC: IFPRI.

Bennett, M. (1936). World Wheat Survey and Outlook. Stanford University, Food Research Institute, 12, 1–35.

Bennett, M. (1941). Wheat in National Diets. Stanford University, Food Research Institute, 18, 1–44.

Chomątowski, S., Sokołowski, A. (1978). Taksonomia struktur. Prz. Statyst., 2, 217–226.

Engel, E. (1857). Die Produktions- und Consumtionsverhältnisse des Königreichs Sachsen. Reprinted with Engel (1895), Anlage I, 1–54.

Fabiosa, J. (2006). Westernization of the Asian diet: the case of rising wheat consumption in Indonesia. CARD Working Paper No. 06-WP 422, Iowa State University, April.

FAOSTAT (b.d.). Food Balance Sheets. Pobrane 17 kwietnia 2019 z: http://www.fao.org/faostat/en/#data/FBS.

Gulbicka, B. (2009). Problemy wyżywienia w krajach rozwijających się. Publikacje Programu Wieloletniego, 124. Warszawa: IERiGŻ-PIB.

Huang, J., Bouis, H. (2001). Structural changes in the demand for food in Asia: Empirical evidence from Taiwan. Agricultural Economics, 57–69. https://doi.org/10.1016/S0169-5150(00)00100-6

Huang, J., David, C. (1993). Demand for cereal grains in Asia: The effect of urbanization. Agric. Econ., 8, 107–124. https://doi.org/10.1016/0169-5150(92)90025-T

Illés, S., Végh, K. (2009). Hypothetical models of food consumption behavior by the elderly. In: P. Kovács, K. Szép, T. Katona (Eds), Challenges for Analysis of the Economy, the Businesses, and Social Progress, International Scientific Conference Szeged, November 19–21. Szeged: Universitas Szeged Press, pp. 699–706.

Keynes, J. (2003). Ogólna teoria zatrudnienia, procentu i pieniądza. Warszawa: Wyd. Nauk. PWN.

Kowalczyk, S. (2009). Bezpieczeństwo żywności w erze globalizacji. Warszawa: Wyd. SGH

Kowalczyk, S. (2012). Konsekwencje globalizacji dla rolnictwa europejskiego. Zesz. Nauk. SGGW, 12(27), 1, 113–126.

Kowalczyk, S. (2018). Rolnictwo zrównoważone w erze globalizacji. Zagrożenia i szanse. In: Z badań nad rolnictwem społecznie zrównoważonym (45). Publikacje Programu Wieloletniego 2015–2019, 72. Warszawa: IERiGŻ-PIB.

Kukuła, K. (2010). Statystyczne studium struktury agrarnej w Polsce. Warszawa: Wyd. Nauk. PWN.

Kwasek, M. (2010). Tendencje w spożyciu żywności w krajach Unii Europejskiej. Publikacje Programu Wieloletniego 2005–2009, 180. Warszawa: IERiGŻ-PIB.

Lee, H., Summer, D., Ahn, B. (2006). Consequences of further opening of the Korean dairy market. Food Policy 31(3), 238–248. https://doi.org/10.1016/j.foodpol.2006.02.005

McCracken, V., Brandt, J. (1987). Household consumption of food-away-from-home: total expenditure and by type of food facility. Am. J. Agric. Econ., 69(2), 274–284.

Minten, B., Reardon, T., Sutradhar, R. (2010). Food prices and modern retail: the case of Delhi. World Dev., 38(12), 1775–1787. https://doi.org/10.1016/j.worlddev.2010.04.002

Mutlu, S., Gracia, A. (2006). Spanish food expenditure away from home (FAFH): by type of meal. Appl. Econ., 38(9), 1037–1047. https://doi.org/10.1080/00036840500399750

Nayga, R. Jr (1996). Analysis of food away from home expenditures by meal occasion. Agribusiness 12(5), 421–427. http://dx.doi.org/10.1002/(SICI)1520-6297(199609/10)12:53.0.CO;2-8

Okrent, A., Alston, J. (2012). The demand for disaggregated food-away-from-home and food-at-home products in the United States. Econ. Res.Report, 139, US Department of Agriculture http://dx.doi.org/10.2139/ssrn.2171315

Pilgrim, F. (1957). The Components of Food Acceptance and Their Measurement. Am. J. Clin. Nutr., 5(2), 171–175.

Rae, A. (1998). The effects of expenditure growth and urbanization on food consumption in East Asia: A note on animal products. Agric. Econ., 18, 291–299. https://doi.org/10.1016/S0169-5150(97)00051-0

Sheng, T., Shamsudin, M., Mohamed, Z., Abdullah, A., Radam, A. (2008). Complete demand systems of food in Malaysia. Agric. Econ. – Czech, 54(10), 467–475. https://doi.org/10.17221/279-AGRICECON

Stiglitz, J. E. (2004). Globalizacja. Warszawa: Wyd. Naukowe PWN.

Tokoyama, Y., Takagi, S., Ishibashi, K., Chern, W. (2002). Recent food consumption pattern of Japanese households: driving forces behind westernization. Paper Provided by American Agricultural Economics Association (New Name 2008: Agricultural and Applied Economics Association) in its series 2002 Annual meeting, Long Beach, CA, July 28–31.

Veeck, A., Veeck, G. (2000). Consumer segmentation and changing food purchase patterns in Nanjing, PRC. World Dev, 28(3), 457–471. https://doi.org/10.1016/S0305-750X(99)00135-7

MODELE KONSUMPCJI ŻYWNOŚCI NA ŚWIECIE W WARUNKACH GLOBALIZACJI

Abstrakt. Celem pracy jest empiryczna weryfikacja opisywanego w literaturze przedmiotu, zjawiska unifikacji modeli konsumpcji żywności w skali światowej. Badaniu poddano struktury spożycia żywności dla poszczególnych kontynentów, biorąc pod uwagę wartość energii, którą dostarczają poszczególne grupy produktów. Badanie przeprowadzono dla dwóch okresów: 1963 i 2013, oddalonych o 50 lat. Przy analizie posłużono się danymi z bilansów żywnościowych FAO. Dodatkowo przedstawiono wartość energetyczną spożywanej żywności na świecie w okresie 1963–2013, skokowo co 10 lat. Struktury spożycia żywności dla poszczególnych kontynentów porównano przy pomocy wskaźnika zróżnicowania struktur, a następnie metodą eliminacji wektorów wyznaczono podzbiory regionów świata, które charakteryzują się największym podobieństwem w zakresie analizowanej struktury. W badaniach wykazano postępujące podobieństwo w zakresie struktury spożycia żywności pomiędzy poszczególnymi kontynentami świata. Jedyny wyjątek w tym zakresie stanowi Afryka, której struktura spożycia żywności zdaje się raczej oddalać od pozostałych regionów świata.

Słowa kluczowe: globalizacja, konsumpcja żywności, podobieństwo struktur