

Figiel, Szczepan; Kufel-Gajda, Justyna

Article

Trends in food product innovations and the level of economic development

Economic and Environmental Studies (E&ES)

Provided in Cooperation with:

Opole University

Suggested Citation: Figiel, Szczepan; Kufel-Gajda, Justyna (2017) : Trends in food product innovations and the level of economic development, Economic and Environmental Studies (E&ES), ISSN 2081-8319, Opole University, Faculty of Economics, Opole, Vol. 17, Iss. 2, pp. 429-446,
<https://doi.org/10.25167/ees.2017.42.17>

This Version is available at:

<https://hdl.handle.net/10419/178980>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



Trends in Food Product Innovations and the Level of Economic Development

Szczepan FIGIEL and Justyna KUFEL-GAJDA

Institute of Agricultural and Food Economics – National Research Institute, Warsaw,
Poland

Abstract: Existence of relationships between consumption viewed from quantitative as well as qualitative standpoint and level of economic development seems obvious. However, both food perception and food choices depend not only on the level of economic development, but they are also driven by innovative actions of food producers. The purpose of this paper was to analyse how current trends in food product innovations are related to the levels of national incomes in selected countries. An empirical analysis was performed using data on 15 food product innovation trends provided by XTC World Innovation Panorama, and the World Bank data on the GNI levels. It was shown that the level of economic development determines the direction of food innovations and related quality of food consumption. It leads to a conclusion that after reaching a certain threshold income, demand for the food quantity consumed becomes substituted with demand for food quality attributes.

Keywords: innovation trends, food products, national incomes

JEL codes: O570, F630, M37

<https://doi.org/10.25167/ees.2017.42.17>

1. Introduction

In general, it seems obvious that consumption viewed from quantitative as well as qualitative standpoint should be related to the level of economic development. Yet, according to Engel's law functional forms of such relationships depends on a type of goods considered. In the case of food, the quantity consumed cannot be expected to rise proportionally to the increase in economic wealth of countries or world regions. Therefore, the quantity of basic foods consumed in rich economies tends to stagnate, what does not mean that the nature of food demand remains unchanged. Food

Correspondence Address: Szczepan Figiel, Justyna Kufel-Gajda, Institute of Agricultural and Food Economics – National Research Institute, ul. Świętokrzyska 20, 00-002 Warszawa, Poland. Tel. +48 22 505 4518. E-mail: justyna-kufel@wp.pl, sfigiel@gmail.com.

perception and food choices evolve not only as consumer incomes increase. As it can be found in the literature, food perception in the world ranges from surviving to enjoyment, whereas food choices vary from carbohydrate staples to diet, functional and organic food.

Figure 1 illustrates how consumer perception and choices regarding food are supposed to differ across the world depending on economic wealth and related incomes. We can see that the more developed a region or a country is, the higher are both orientation towards fun, quality, health, individualization, and a need for diet, functional, organic, fresh, and convenient food. In other words, higher incomes imply more sophisticated choices of food products with various quality attributes, which are perceived from the perspective of more advanced consumer wants and needs.

Figure 1. A global view on food choices and perception versus income development



Source: Huirne et al., 2014 cited in Rabobank.

Both food perception and food choices depend not only on the level of economic development, but they are also driven by innovative actions of food producers competing very often for the specialized niche food markets. According to Rabobank (2014: 1-5) innovations in agro-food systems should concentrate primary on improved technologies and practices as well as on new business models. Process innovations are place specific as they are solutions to problems occurring

in certain places, for example improving dairy production in India, developing aquaculture in Latin America, or local storage in Sub-Saharan Africa. On the contrary, product innovations, mostly because of international food brands, have much more global character. Although one might think that because of concentration of resources international companies can easier introduce new products, it is no longer so. Inventing products desired by consumers, differentiated and better ones than offered by the market rivals, becomes increasingly difficult. Meanwhile, retailers seek for exclusive products, and the world economic situation increases the risk aversion.

In this context, an interesting question arises, namely, whether occurrence of product innovations trends in the food markets depends on the level of economic development. Therefore, the purpose of this paper is to analyse how current trends in food product innovations are related to national incomes in the selected countries. An empirical analysis was performed using data on food product innovations provided by XTC World Innovation Panorama and the World Bank data on GNI levels. Firstly, the data and methods are described. Then, occurrence of the main food product innovations trends worldwide and in selected countries as well as their levels of the Gross National Income (GNI) are characterized. The next section of the paper contains findings on relationships between shares of innovative trends in food products and the GNI levels in the selected countries. Finally, a discussion of the results is provided and some conclusions are drawn.

2. Data and methods

Usually, we consider trend as long-term tendency of a given variable to change its value in one direction (Cieślak 2000). However, for the purpose of this paper the term trend is viewed somewhat qualitatively as described in the Cambridge Dictionary, namely, as *a general development or change in a situation or in the way that people are behaving*. The analysis of producer trends is based on the study performed by XTC innovation. This study consists in segmentation of each food product launched in 2014 and 2013 in 40 countries. Each new product is precisely described regarding innovative features and then positioned on the XTC trends tree, which includes 5 axes within which 15 innovation trends in food products are extracted. The discerned axes are pleasure, health, physical, convenience, and ethics. Innovative products developed in various countries are assigned to different trends within each axis according to their attributes and prevailing utilities. The axes comprise the following trends:

- pleasure (induced by enticing quality, often emotionally charged) – four trends, such as sophistication, variety of senses, exoticism, and fun;
- health (expressed by health benefits and risk prevention) – three trends, such as natural, medical, and vegetal;
- physical (driven by attention to appearance, body shape or state of mind) – three trends, such as slimness, energy, well-being, and cosmetic;
- convenience (based on efficiency of use and adaptation to new lifestyles) – three trends, such as easy to handle, time saving, and nomadism;
- ethics (focused on solidarity, concern for others and the environment) – two trends, such as solidarity, ecology.

The data used in the analysis reflected percentage shares of each food product innovation trend (FPIT) in the total number of food product innovations observed in 14 countries, in 2013 and 2014. In order to make results more robust to some irregular fluctuations, averages for these two years were computed. The obtained numbers served as measures of the trends importance in terms intensity of their occurrence. The following countries were included in the analysis: Germany, Spain, France, Italy, Netherlands, Poland, United Kingdom, Switzerland, Canada, United States, Brazil, Mexico, China, and Japan.

There are many indicators and potential measures showing the level of economic development of countries or regions. In this analysis GNI per capita, Atlas method and PPP (current international \$) from the World Bank was employed as a proxy variable for the consumer incomes. The GNI is calculated as a total domestic and foreign output of country residents. It consists of gross domestic product and factor incomes earned by foreign residents, minus income earned in a domestic economy by non-residents (Todaro and Smith, 2011: 44). Adjusted for purchasing power (PPP) it seems to be a fairly good reflection of the national income levels. To assure consistency with the calculated figures on the intensity of occurrence of the trends in food product innovations, also averages for 2013 and 2014 were computed, and then expressed in logarithms.

In order to test for existence of a relationship between intensity of occurrence of the FPITs and the levels of the GNI per capita, firstly the Pearson correlation coefficients were calculated, and secondly parameters of the following regression equation for each of the 15 FPITs identified were estimated:

$$Y_i = \beta_0 + \beta_1 \ln GNI + \varepsilon,$$

where Y_i is a share of a FPIT ($i = 1, \dots, 15$) in a country, β_0 is a constant; $\ln GNI$ is a logarithmized country's per capita GNI value; β_1 is a regression coefficient showing the mean change in the intensity of occurrence of a FPIT for one unit of the percentage change in the GNI level; and ε is an error term.

3. Food product innovation trends and the GNI levels in the analysed countries

The way how the currently observed food product innovation trends (FPITs) are extracted is based on a qualitative analytical approach. Table 1 contains a brief description and examples of products features and quality attributes for all 15 innovative trends appearing in the world food markets. In this table, also the most crucial consumer needs, which are supposed to be met are descriptively pointed out.

Table 1. FPITs and characteristics of related product in the context of consumer needs

FPIT name	Product characteristics	Examples of features and attributes	Consumer needs
Sophistication	high-quality, exclusive, rare, attaching details regarding: recipes, ingredients, production processes, packaging, design	ingredients with prestigious origin like Amazon rainforest, adding sweet taste to traditionally savoury meals, food treated as art	building personal worth, replacing an monotonous diet with outstanding and elitist products
Variety of senses	new taste, shape, colour, texture, seasonal and occasional products, breaking conventions, new experiences	Greek yoghurt instead of sour cream, meals for hot and cold consumptions, seaweed as an ingredient in sweet and savoury recipes, more delicacy and lightness of textures, introducing exotic products like wasabi into local recipes	discovering new sensations – new flavours, aromas, words
Exoticism	new, different tastes and recipes from abroad	Burma cuisine, ready meals based on recipes from Japan, little known fruits like dragon fruit	getting away be knowing cuisine from different cultures and countries
Fun	surprising, entertaining, interacting products	packaging created with a sense of humour, with pictures taken from social networks, tattoo design	having fun and change from the ordinary
Natural	improving and not harming health	limiting a number of ingredients, stevia as a sweetener, animals reared without antibiotics and GMO, leafy vegetables prepared to eat, especially kale, use of vegetables in snacks	being calmed with food naturalness
Medical	including ingredients benefiting health, additional or naturally present/absent	snacks and drinks improving eyesight, rich in vitamins and minerals superfoods like red berries, guarana, spinach, or seeds (chia, amaranth, quinoa), gluten-free products, food and beverages alkalizing body, baobab raw or for drinking	taking care of health through consuming food with nutrients, or which serve as cures
Vegetal	with a positive influence on health because of basing on plants	adding hemp good for heart, vegetable products consumed during symbolic moments celebrations	taking care of health through taking advantage of benefits provided by plants
Slimness	including ingredients improving a weight loss or a lack of ingredients fostering a weight gain	meals with konjac, slower and less industrial production process, endamene (immature soy bean) in dips, products with ingredients of low calories and fat	staying slim, fighting obesity

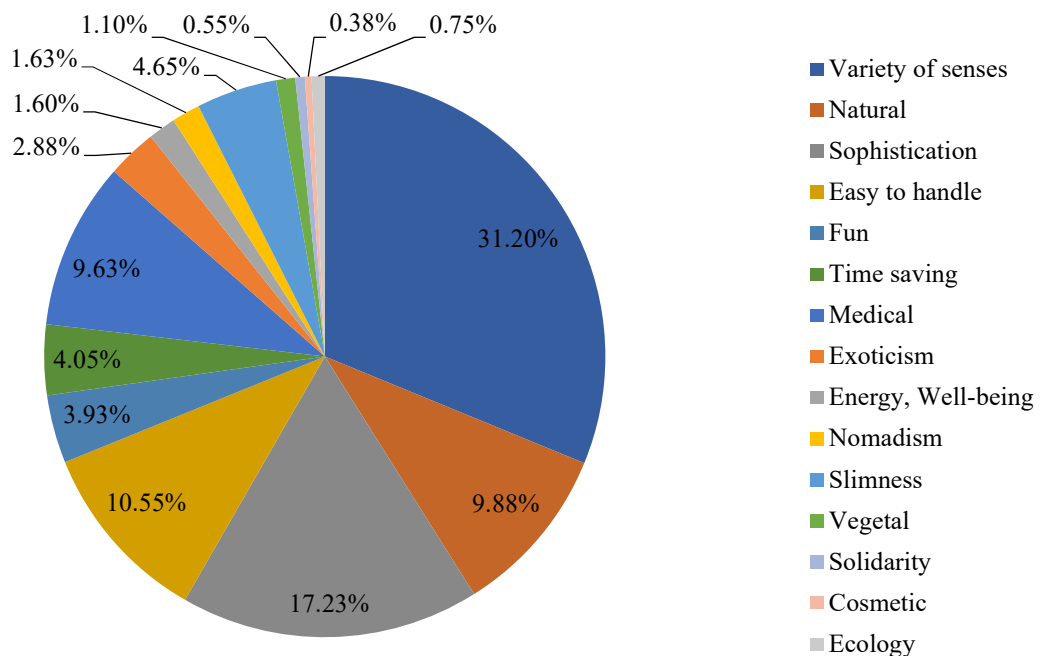
Table 1 cont.

Energy, well-being	relaxing, stimulating body	single-serve size of beverages used in order to cool down or warm-up the body during sporting, lactose free, and enriched with proteins and calcium milk, adding microalgae (e.g. spirula, chlorella, euglena), beverages reducing stress (with lemon balm, kava-kava, GABA)	Increasing a level of energy, providing a sense of well-being
Cosmetic	making more beautiful	beverages lightening skin for young Asian women, strong trend in Latin America, products with aloe, Coenzyme Q10 and collagen improving a condition of a face skin	increasing a beauty asset through a proper diet
Easy to handle	easier carrying, eating, discarding	family-sized ready-made dishes, prior division in portions, kit included, separate sauce, special spoon for babies, herbs, vegetables, mushrooms for self-growing at home, packaging with windows, products ready to be served, e.g. in slices	having less problems with carrying, eating and discarding packaging
Time saving	reducing time of preparation of a product or cooking meals	semi-ready or precooked products, packages with vanilla, spices, herbs for infusion cooking, so called meal solutions combining appetizer, main dish and dessert in a single box to take away	saving time of food preparations
Nomadism	easiness of eating regardless conditions	on-the-go and economy sizes, seaweed in snacks and as salads after adding water	eating anywhere and anytime
Solidarity	supporting disadvantaged people, not harming human rights	resigning from a part of the profit for the sake of regional economic development, children with autism, people with breast cancer (pink ribbon) and prostate cancer (moustache)	respecting humanity and not eating at someone expense
Ecology	claiming to respect animals and nature	bottles and coffee capsules made of plants, edible packaging, packages embedded with seeds possible to plant in the ground, assuring animal welfare, and protection and sustainability of marine resources	respecting every leaving creature, having ecological concern

Source: Authors' own elaboration based on: XTC World Innovation, 2015, 18-47.

Intensity of occurrence of the described FPITs in the world food markets is shown in figure 2. Among all innovative food products launched in the period 2013-2014 the variety of senses trend was represented to the highest degree, while the second most important trend was sophistication. This is probably because food consumers all over the world mainly look for pleasure in their everyday lives, although they are not willing to spend too much money on products providing fun and exotic ones. The trend easy to handle, belonging to the convenience axis, was on the third place. Within this axis the nomadism trend was the least important. Innovative products representing natural and medical trends were being quite widely introduced to the world food markets, whereas vegetal products have been paid relatively little attention. The trends constituting the physical and ethics axes were represented to the lowest degree. The least occurring trends were ecology, cosmetic, and solidarity. The well-being and slimness attributes of the innovative food products there appeared to be more often observed than the cosmetic ones. The food product innovations related to ecology trend could be seen as somewhat rare considering the amount of attention paid by some societies to ecological aspects of the consumption.

Figure 2. The worldwide intensity of occurrence of the FPITs in 2013-2014 (%)



Source: Authors' own elaboration based on: XTC World Innovation, 2015: 11.

Table 2 contains shares of the particular trends in the overall number of food product innovations, which appeared in 14 analysed countries in the period 2013-2014. As it can be noticed there are considerable differences in the intensity of the FPITs' occurrence depending on the country. The variety of senses trend dominated in all of them (33.9% on average), but its importance in each country was visibly different, even if the degree of relative dispersion measured by coefficient of variation was the lowest as compared with the other trends (20.0%). The most erratic appeared to be occurrence of the cosmetic and solidarity trends (coefficient of variation 186% and 94.5%, respectively). The cosmetic trend was not present at all in 6 countries, while in Japan its share amounted to 4.4%, in Brazil and China to 1.1%, and in Poland to 0.9%. The solidarity trend was noticed the most in the United Kingdom (1.3%), Switzerland (1.2%) and Spain (1.0%), but it didn't occur in Mexico, China, and Poland. The shares deviated more than 50% from the mean concerning such trends as fun, exoticism, energy, well-being, vegetal, and ecology. Moderately dispersed (variation coefficients in the of range 30-40%) were shares of the following trends: easy to handle, sophistication, natural, medical, slimness, nomadism, natural, and time-saving.

It should be emphasised that excluding the variety of senses trend intensity of the other FPITs occurrence varied across the countries also in terms of ranks. The most noticeable FPITs with shares above 10% were as follows:

- Germany – natural, sophistication and easy to handle;
- Spain – medical, easy to handle and sophistication;
- France – sophistication and easy to handle;
- Italy – sophistication, natural and medical;
- the Netherlands – easy to handle and natural;
- Poland – easy to handle and medical;
- in the United Kingdom – sophistication
- Switzerland – sophistication and easy to handle;
- Canada – sophistication and medical;
- the U.S. – natural, medical and sophistication;
- Brazil – medical, sophistication and easy to handle;
- Mexico – natural, medical and slimness;
- China – sophistication and medical;
- Japan – medical and sophistication.

Table 2. Intensity of occurrence of the FPITs in the analysed countries in 2013-2014 (%)

FPIT name	Country														AV	VC
	DE	ES	FR	IT	NL	PL	UK	CH	CA	US	BR	MX	CN	JP		
Variety of senses	37.4	22.5	29.5	27.6	34.9	42.6	31.6	31.9	33.2	28.9	30.2	33.7	44.9	46.1	33.9	20.0%
Natural	14.4	8.5	9.4	14.7	12.0	8.7	6.5	9.5	9.8	19.9	11.1	15.6	5.7	0.4	10.4	46.1%
Sophistication	12.9	13.9	26.1	15.7	9.7	7.2	16.0	16.6	16.4	10.4	13.1	7.8	13.7	12.1	13.7	34.3%
Easy to handle	10.2	14.4	13.1	9.2	13.2	13.5	9.5	12.4	9.1	5.5	5.8	8.5	7.5	5.3	9.8	32.1%
Fun	5.2	8.0	4.5	1.8	3.2	0.5	5.1	3.4	2.4	1.7	3.4	2.3	3.3	1.2	3.3	59.9%
Time saving	4.8	4.0	4.1	5.7	8.7	2.0	3.4	4.2	2.3	2.7	3.8	6.6	2.6	1.2	4.0	49.8%
Medical	5.3	14.9	3.7	12.5	4.7	13.1	9.7	9.5	15.2	15.7	15.4	10.7	14.0	13.4	11.3	36.9%
Exoticism	2.8	1.9	3.0	1.2	5.7	3.5	4.2	3.3	2.1	2.3	0.8	0.0	0.2	2.4	2.4	65.6%
Energy, well-being	1.9	2.1	1.0	0.7	0.6	1.4	2.5	0.4	1.1	2.7	3.2	2.0	0.9	4.3	1.7	64.7%
Nomadism	1.8	1.8	1.7	1.3	2.0	0.9	1.9	0.4	0.9	1.1	2.8	2.0	1.9	0.8	1.5	42.6%
Slimness	2.0	6.0	2.6	7.6	3.6	4.8	6.3	4.9	4.8	4.4	5.1	10.4	4.2	6.9	5.2	40.6%
Vegetal	0.5	1.0	0.5	1.3	0.9	1.1	1.5	1.2	1.7	2.8	2.5	0.4	0.3	1.2	1.2	63.1%
Solidarity	0.2	1.0	0.3	0.7	0.3	0.0	1.3	1.2	0.4	0.6	0.4	0.0	0.0	0.2	0.5	94.5%
Cosmetic	0.6	0.0	0.0	0.0	0.0	0.9	0.1	0.4	0.0	0.2	1.1	0.0	1.1	4.4	0.6	186.0%
Ecology	0.2	0.3	0.8	0.3	0.9	0.0	0.8	0.8	1.0	1.5	1.4	0.4	0.0	0.4	0.6	76.0%

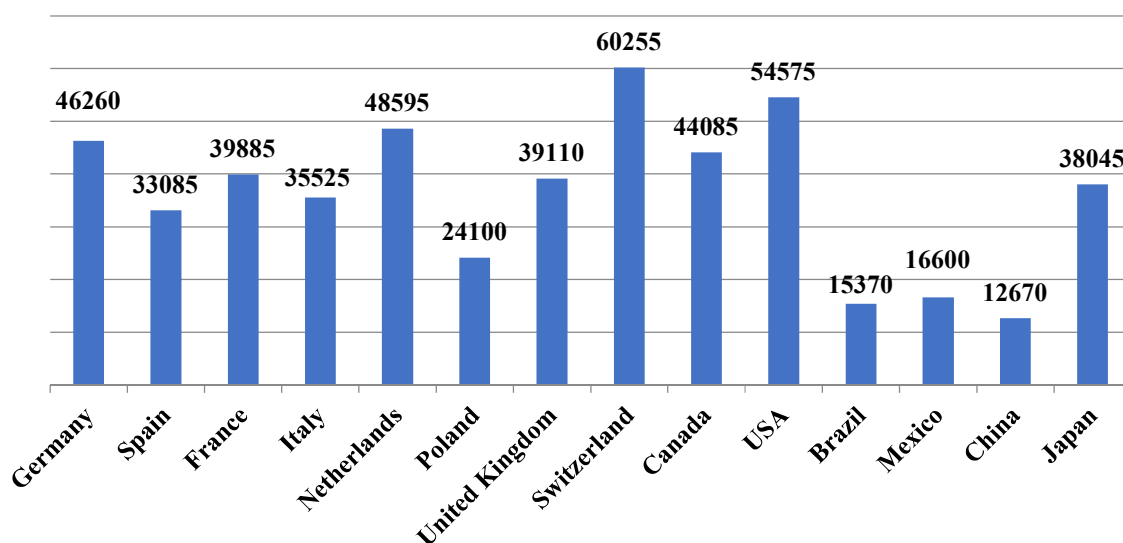
Note: DE – Germany, ES – Spain, FR – France, IT – Italy, NL – Netherlands, PL – Poland, UK –United Kingdom, CH – Switzerland, CA – Canada, US –United States, BR – Brazil, MX – Mexico, CN – China, JP – Japan, AV – Average value, VC – Variation coefficient.

Source: Authors' own elaboration based on: XTC World Innovation, 2015, 53-59.

It is also interesting to note that when looking at the intensity of occurrence of a particular FPIT by country we can find that ecology trend was best represented in the U.S., cosmetic in Japan, solidarity in the UK, vegetal in the U.S., slimness in Mexico, nomadism in Brazil, energy, well-being in Japan, exoticism in the Netherlands, medical in the U.S., time saving in the Netherlands, fun in Spain, easy to handle in Spain, sophistication in France, and natural in the U.S.

The FPITs are supposed to reflect supply side of the food markets, and if so, a certain degree of uniformity in the intensity of their occurrence is not surprising. One of the possible reasons is the international food corporations innovativeness driving many worldwide consumers trends. Yet, the supply side of the food markets cannot be completely mismatched with its demand side, so the occurrence of the FPITs in various countries is likely to be influenced by some specific factors related to consumer preferences and incomes. Cross-country differences in the consumer preferences might result from cultural diversity and are difficult to measure. Also, explaining the way they may impact occurrence of the FPITs would be rather speculative. More probably, part of the observed variation in the intensity of the FPITs' occurrence should stem from differences in the levels of consumer incomes. Validity of such assumption is much easier to test as consumer incomes can be fairly well approximated by selected economic indicators. In this paper GNI per capita (PPP, current international \$) is used. Its average levels in the analysed countries for the period 2013-2014 are shown in figure 3.

Figure 3. The GNI per capita levels (\$) in the analysed countries in 2013-2014



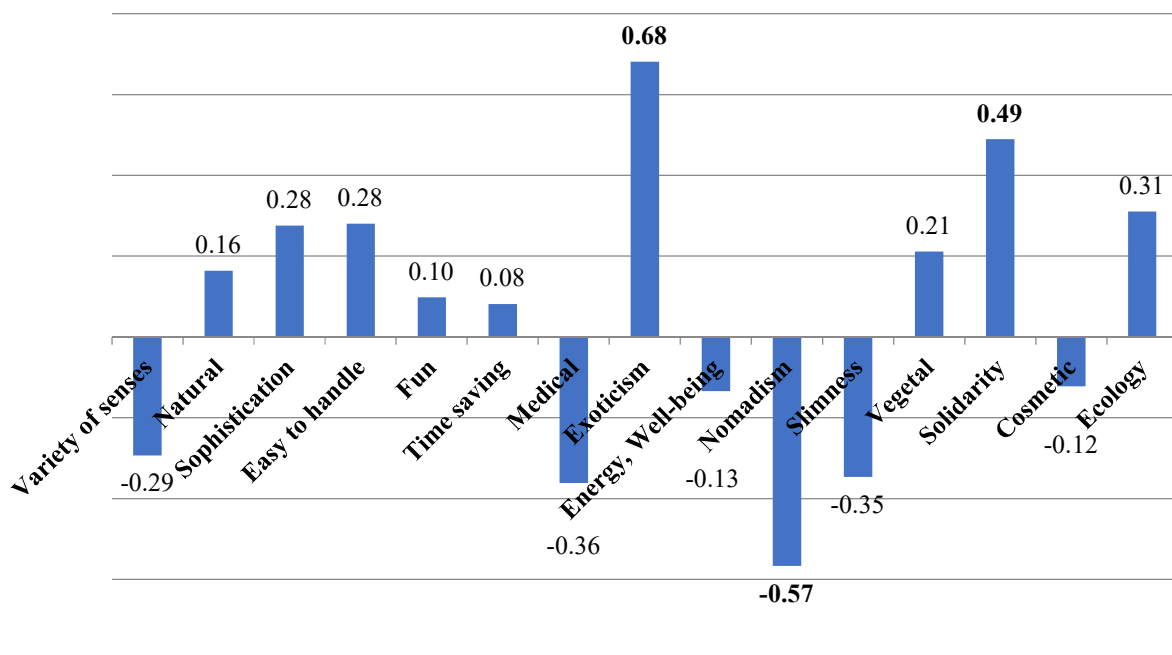
Source: Authors' own elaboration based on: World Bank, 2016.

It has to be pointed out that in all analysed countries apart from China the per capita GNI levels were above the world average, which in 2015 amounted to \$15011. In five of them, namely, Germany, the Netherlands, Switzerland, Canada, and the U.S the GNI per capita exceeded \$40 thousand. In Spain, France, Italy, the UK, and Japan it was in the range of \$30-40 thousand. In the rest of the countries, i.e. Poland, Brazil, Mexico, and China it was below \$30 thousand. So, the dispersion of the GNI per capita levels in the set of the analysed countries seems to be high enough to look for its connectedness with the intensity of the FPITs' occurrence.

1. Relationships between the intensity of occurrence FPITs and the income levels in the analysed countries

In figure 4 values of correlation coefficients calculated for the intensity of the FPITs' occurrence and the GNI per capita levels in the analysed countries are presented.

Figure 4. Correlations between the FPITs' occurrence and the GNI per capita levels



Note: Results statistically significant at $\alpha \leq 0.1$ marked in bold.

Source: Authors' own elaboration.

TRENDS IN FOOD PRODUCT INNOVATIONS
AND THE LEVEL OF ECONOMIC DEVELOPMENT

As it can be noticed 9 coefficients have positive signs and 6 negative ones. Ignoring statistical significance one can claim that the higher income of a country is, the more intensively some of the FPITs occur. This refers to exoticism, solidarity, ecology, easy to handle, sophistication, vegetal, natural, fun, and time saving. On the contrary, such FPITs as nomadism, medical, slimness, variety of senses, energy and well-being, as well as cosmetic seem to be relatively less occurring when a country income increases. The highest absolute values of correlation coefficients were obtained for the exoticism, nomadism, and solidarity trends, while the lowest for the time saving, fun and cosmetic trends. Of course, these results cannot be plausibly interpreted without statistical significance taken into account¹. Unfortunately, only for 3 FPITs, i.e. exoticism, nomadism and solidarity, the relationships were found to be statistically significant (table 3)².

Table 2. The regression estimates for the FPITs' occurrence and the GNI levels

FPIT name	Constant (β_0)	GNI (β_1)	R ² coefficient
Variety of senses	76.10* (39.73)	-4.06 (3.82)	0.09
Natural	-6.33 (29.12)	1.61 (2.80)	0.03
Sophistication	-13.72 (27.60)	2.63 (2.65)	0.08
Easy to handle	-8.84 (18.43)	1.79 (1.77)	0.08
Fun	-0.80 (11.94)	0.39 (1.15)	0.01
Time saving	0.54 (12.13)	0.33 (1.16)	0.01
Medical	43.05 (23.74)	-3.06 (2.28)	0.13
Exoticism	-20.01** (6.94)	2.15*** (0.67)	0.46
Energy, well-being	4.96 (6.85)	-0.31 (0.66)	0.02
Nomadism	9.18** (3.23)	-0.74** (0.31)	0.32
Slimness	20.88 (12.24)	-1.50 (1.18)	0.12
Vegetal	-2.18 (4.50)	0.32 (0.43)	0.04
Solidarity	-3.97* (2.27)	0.42* (0.22)	0.24
Cosmetic	3.60 (6.99)	-0.29 (0.67)	0.01
Ecology	-2.46 (2.72)	0.30 (0.26)	0.10

Note: ***, **, * statistically significant at $\alpha \leq 0.01$, 0.05 and 0.1, respectively; standard errors are in brackets.

Source: Authors' own elaboration.

¹ It should be noted that the number of the analysed countries constitutes rather a small size sample.

² In the regression equation only the constant value appeared statistically significant what suggests that a certain share of the variety of senses trend occurs in any country no matter of its GNI per capita level.

Based on the obtained results it can be expected that if the GNI per capita grows by 1 p.p., intensity of occurrence of the exoticism trend and the solidarity trend increases by 2.15 p.p. and 0.42 p.p., respectively, while in the case of the nomadism trend decreases by 0.74 p.p. The R^2 values indicate that the differences in GNI per capita level explain 46% of the variability in intensity of the occurrence of the exoticism trend. The respective R^2 values for the solidarity and the nomadism trends are lower, but they still exhibit a relatively high degree of explanation of variability in the intensity of their occurrence by the cross-country differences in the GNI per capita as the only variable considered.

5. Discussion and conclusion

More generally, assuming the FPITs are somehow compatible with consumer preferences, results of the analysis allow to argue that in countries where the level of economic development is higher the consumers more often look for food products, which they perceive as exotic, or providing opportunities to express their solidarity with certain values. At the same time, they are less interested in food products attributes typical for the nomadism trend symbolised by easiness of eating regardless conditions. Consequently, all this indicates prospective market opportunities in the food sectors along with the progress in economic development of countries.

Several interesting observations can also be made regarding shifts in importance of the axes comprising the FPITs, which seem to take place together with countries economic development. First of all, increasing shares of the solidarity and ecology trends indicates that the ethics axis gains importance. This is happening mainly at the cost of physical axis as the slimness, cosmetic, as well as energy and well-being trends become less represented. Furthermore, there seem to be changes appearing within the pleasure, health and convenience axes too. Instead of food products embodying easiness of eating regardless conditions, consumers prefer time-saving and easy to handle ones. Also, the way of looking at the health attributes evolves, as ingredients benefiting health are no longer so strongly desired. Rather products, which improve and don't harm health, or have a positive influence on health because of being based on plants are preferred. Finally, it is worth mentioning that the variety of senses trend, which is currently the most intensively occurring FPIT worldwide, seems to be weakening as food product innovations, which are more eye-

catching, providing fun, sophisticated, but most of all exotic – even if more expensive – increasingly attract attention of the consumers in higher income countries.

A broader question is, why in higher income countries food product innovations become more connected with the ethics and less with the physical trend. To answer this question, not only incomes but also other key underlying factors driving this phenomenon should be taken into account such as consumer megatrends, which influence producer trends by creating new rules of functioning for food producers (Shaw, 2009, cited in Zalega, 2013: 4). The consumer megatrends shaping also food consumption include: gerontologization of society, rejuvenating society, luxurization of consumption, lifestyle design, distanced (conscious) consumption, lazy (convenient) consumption, increasing mobility of people, centralization of consumption, information society or cybernetic consumerism (resulting from social media, virtual consumption and multitasking), experience marketing, and avatarization of consumption (Zalega, 2013: 12-18). Megatrends are induced by social, economic, political and technological changes, which occur in the developed countries and then emerge in other countries when they reach a certain levels of economic development. Most of them are connected with the change from the industrial to the post-industrial era characterised with an increasing role of knowledge and creativity, as well as with an empowerment of employees (Naisbitt 1982, cited in Zalega, 2013: 12).

Particularly, because of rapid development of information technologies, new products are disseminated in a much faster way and last shorter on the market. Simultaneously, the information technologies affect market structures. New business are mostly global start-ups, boundaries of traditional branches are no longer relevant, sectors undergo recomposition, entry barriers disappear, transactional costs decrease, and there are more opportunities to reach new segments and markets, e.g. thanks to consumers outsourcing as the core of so-called global brain (Mróz, 2014: 18).

It needs to be kept in mind, that in the recent several years the consumer trends have been profoundly influenced by the 2007-2008 global financial crisis. Since then, for many consumers buying things has no longer been in the centre of human activity. Some households due to money shortages and uncertain economic situation had to limit consumption. Consequently, an importance of discounters, a role of private labels, and demand for some services like repairing or distance learning increased, while the new ways of selling like short-term sales spaces (so called pop-up stores), new professions like advisors on reducing consumption and budget managers as well as

new, simpler and environmentally friendly packaging emerged. Besides, the hierarchy of products has changed, e.g. relaxing beverages replaced the energetic ones, and producers, also the local ones, finally began to respond to the slow food movement needs (Mróz, 2014: 16).

Changes in the consumer trends should be observed with particular attention paid to (Drucker, 2002: 29-34):

- unexpected occurrences, which include not only new opportunities, but also new challenges, e.g. when it turns out, that market is no longer segmented by income groups, but by new lifestyles;
- incongruities between expectations and results, e.g. when real costs come from not doing work;
- process needs, e.g. free media thanks to advertising;
- industry and market changes, which are usually neglected by the existing companies, so newcomers can benefit for a long period of time;
- demographic changes, reactions to which can be planned much earlier than they occur;
- changes in the consumer behaviour, e.g. in the attitude towards health;
- new knowledge requiring careful analysis of user needs and capabilities before product innovations are introduced into the markets.

In this context, food innovators must look, ask and listen using simultaneously their analytical and creative abilities (Drucker, 2002: 35). According to Nielsen (2014: 25) what matters the most is the compatibility between a demand driven focus, and a discipline regarding organization and decision making. However, such microeconomic approach should be reconciled with macroeconomic perspective, especially in terms of economic development of countries and related levels of the consumer incomes. The analysed intensity of occurrence of the FPITs in selected countries shows its connectedness with the GNI per capita levels. This refers especially to the nomadism, exoticism and solidarity trends. So, in the higher income countries consumers are more eager to try new, different tastes and recipes from abroad, as well as through their purchasing decisions are willing to support disadvantaged people, or want to avoid harming the human rights. Also, they seem to be less interested in easiness of eating regardless conditions. Hence, it can be surmised that the level of economic development determines the kind of food innovations and related quality of food consumption. This also means that after reaching a certain threshold income,

demand for the food quantity consumed becomes substituted with demand for food quality attributes. Such phenomenon clearly conforms to Engel's law.

Future research in this area could be directed into occurrence FPITs in selected markets in relation to the dimensions of intercultural differences as discussed by Hofstede (2001). For instance, finding potential connections with the levels of power distance, individualism, masculinity, uncertainty avoidance, long term orientation, and indulgence in different countries would help explain differences in food product innovation trends across the world.

Literature

- Cambridge Dictionary. Available at: <http://dictionary.cambridge.org/dictionary/english/trend>. Accessed 27 July 2016.
- Cieślak, M. (2000). *Prognozowanie gospodarcze. Metody i zastosowania (Economic Forecasting. Methods and Applications)*. Warsaw: PWN.
- Drucker, P. (2002). The Discipline of Innovation. *Harvard Business Review* 2. Available at: <https://hbr.org/2002/08/the-discipline-of-innovation>. Accessed 27 July 2016.
- Hofstede, G., (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*. Thousand Oaks CA: Sage Publications.
- Mróz, B. (2014). *Nowe trendy konsumenckie. Implikacje dla strategii biznesowych firm (New Consumer Trends. Implications for Business Strategies)*. Toruń: XXV Ogólnopolski Zjazd Katedr Marketingu, Handlu i Konsumpcji (Polish National Convention of Marketing, Trade and Consumption Departments).
- Naisbitt, J. (1982). *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books.
- Nielsen (2014). *Nielsen Breakthrough Innovation Report – Europe Edition*. New York: Nielsen.
- Rabobank (2014). *Innovation and leadership to drive growth in global food and agribusiness*. Duisenberg: Rabobank. Available at: <https://www.rabobank.com/en/about-rabobank/background-stories/food-agribusiness/innovation-and-leadership-to-drive-growth-in-global-food-and-agribusiness.html>. Accessed 27 July 2016.
- Shaw, F. (2009). Uncertainty and the New Consumer. *Foresight* 4.
- Todaro, M.; Smith, S. (2011). *Economic Development*. Boston: Addison-Wesley.
- XTC World Innovation (2015). *World Innovation Panorama. Key facts, new trends, outstanding concepts in food innovation*. Paris: XTC World Innovation.
- Zalega, T. (2013). Nowe trendy i makrotrendy w zachowaniach konsumenckich gospodarstw domowych w XXI wieku (New Trends and Macrotrends in Consumer Behavior of Households in the 21st Century). *Konsumpcja i rozwój* 2(5): 3-21.

Trendy innowacyjne na rynkach dóbr żywnościowych a poziom rozwoju gospodarczego

Streszczenie

Istnienie zależności między konsumpcją rozpatrywaną zarówno w ujęciu ilościowym jak i jakościowym, a poziomem rozwoju gospodarczego wydaje się oczywiste. Ponadto, zarówno percepcja żywności jak i jej wybór zależą nie tylko od poziomu rozwoju gospodarczego, lecz są również silnie kształtowane przez innowacyjne działania producentów żywności konkurujących bardzo często o specjalistyczne niszowe rynki żywnościowe. Celem artykułu jest przeanalizowanie, jak obecne trendy w innowacjach dotyczących produktów żywnościowych związane są z poziomem rozwoju gospodarczego wybranych krajów świata. Analizę empiryczną przeprowadzono wykorzystując dane o 15 trendach innowacyjnych w zakresie produktów żywnościowych udostępnione przez XTC World Innovation Panorama oraz dane Banku Światowego o poziomie dochodu narodowego brutto. Pokazano, że poziom rozwoju gospodarczego determinuje rodzaj innowacji żywnościowych oraz związaną z tym jakość konsumpcji żywności. Po osiągnięciu pewnego progowego dochodu popyt na konsumowaną ilość żywności zaczyna być zastępowany przez popyt na jakościowe atrybuty żywności.

Słowa kluczowe: trendy innowacyjne, produkty żywnościowe, dochody.