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COUNTRY-OF-ORIGIN EFFECTS ON PRODUCT EVALUATION AND CONSUMER PERCEPTIONS

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Abstract:
In product and service sales, both global and local, it is important to be familiar with the impact of product's origin and country image formation process. The complex problems of determining the impacts of product origin are presented through the prism the empirical research of meat product impact on the consumer sensorical evaluation of other meat properties. The aim of the research was to determine consumer perceptions of meat product regarding its origin and a potential impact of its origin on the sensorical evaluation of other meat properties. Data was collected during the experiment. The participants were consumers of meat product. By testing the correlation model with multiple analysis of variance for repeated measures it was determined that there was a statistically significant correlation between the factors. The research represents a deeper investigation of impact of country-of-origin (COO) on consumer perceptions. The research results support manufacturers and marketing managers in understanding the role of COO in the domestic and international high-volume mass market.

Keywords: consumer behaviour, country-of-origin (COO), knowledge, marketing, market research, experiment, meat product, Slovenia

1. LITERATURE REVIEW

The COO is generally considered as an extrinsic product cue (Bilkey and Nes 1982, Hong and Wyer 1989, Cordell 1992). Consumers are known to develop stereotypical beliefs about products originating from particular countries and about the attributes of such products. Therefore the COO image has the power to arouse importers' and consumers' belief about products attributes and to influence evaluations of products and brands (Yasin *et al*. 2007).

The most important in the light of marketing praxis is to understand a reflection of COO in consumer buying behaviour. Still, some previous studies prove that COO influences consumer perceptions of product properties or product groups, consumer preferences and consumer behaviour in buying decision process. At the same time results of previous studies show that a known COO is the key factor in consumer buying decision process for consumables (Becker *et al.*, 2000; Sismanoglou, 2011; Aral *et a.l* 2013, Vukasovič, 2014).

Based on the published researches and the literature reviews it was determined that impacts of COO were studied in the five most important directions:

- The most researched topic was an image of a certain country from a foreign consumer's point of view (lives in another country);
- The second largest research topic was ethnocentrism and relationship between domestic and imported products as well as the importance of a threat that successful countries represent in a local environment;
- A smaller proportion of the studies (10%) discussed the product country image, based on consumer perceptions and beliefs;
- Even smaller proportion of the empirical studies discussed an impact of a product's origin in relation with the factors like brand and price;
- The smallest proportion of the studies dealt with the importance of national images in inter-organizational branch buying-decisions.

A research dealt with the impact of COO on product evaluation has taken three approaches from the current marketing literature. The latter are single-cue studies, multi-cue studies and conjoint (trade-off) analysis. In recent years, a fourth approach is emerging, namely environmental analysis, which links consumer product perception and/or evaluation of an impact and/or influence of a selected number of environmental factors. In single-cue COO studies, when evaluating a product a consumer bases his/her decision on both intrinsic (i.e. taste, shelf life, design) and extrinsic (i.e. price, brand name, service) cues. Those researchers who used multi-cues, on the other hand, designed their studies in such a way that COO is one of the factors amongst a variety of influences a consumer considers when making a selection and ultimate purchasing decision. To overcome the shortcomings of the first two groups of COO studies, a third group of researchers proposed usage of a conjoint (trade-off) analysis where a researcher tries to measure how much do consumers value the respective product attributes. The last mentioned research approach-environmental analysis looks at the impact of various environmental factors on consumers and/or on company decision makers. To this end, the conjoint research of COO is more behavioural oriented whereas the environmental analysis is more related to environmental impact on consumer decision making (Kaynak *et al.* 2000).

2. RESEARCH DESIGN

2.1. Methodology, data collection and sample

The basic aim of the research was to determine consumer perceptions of meat product regarding its COO and to determine whether a known COO influences the sensory evaluation of other meat properties. A review of the existing literature and detailed research field – studying and analyzing the connections between product COO and product sensory evaluation – arouse the basic research question: how is meat product perceived by consumers regarding its COO?

The basic hypothesis in the research was that, generally, a known COO of meat product results in better sensorical scores of its properties, respectively.

Five hundred persons were included in the research carried out at the central location of Slovenia's capital, Ljubljana. The participant were consumers of meat products and were randomly divided into two groups of same size (N1=250, N2=250). A structure of the sample consisting of participants was orderly regarding gender and age. The whole sample as well as each defined group had the same orderly structure. There were no age restrictions for the study, although all consumers were adults and most of them aged between 20 and 55 years. We tried to balance the number of males and females in both two groups: 50% of the consumers were males and 50% females (Table 1).

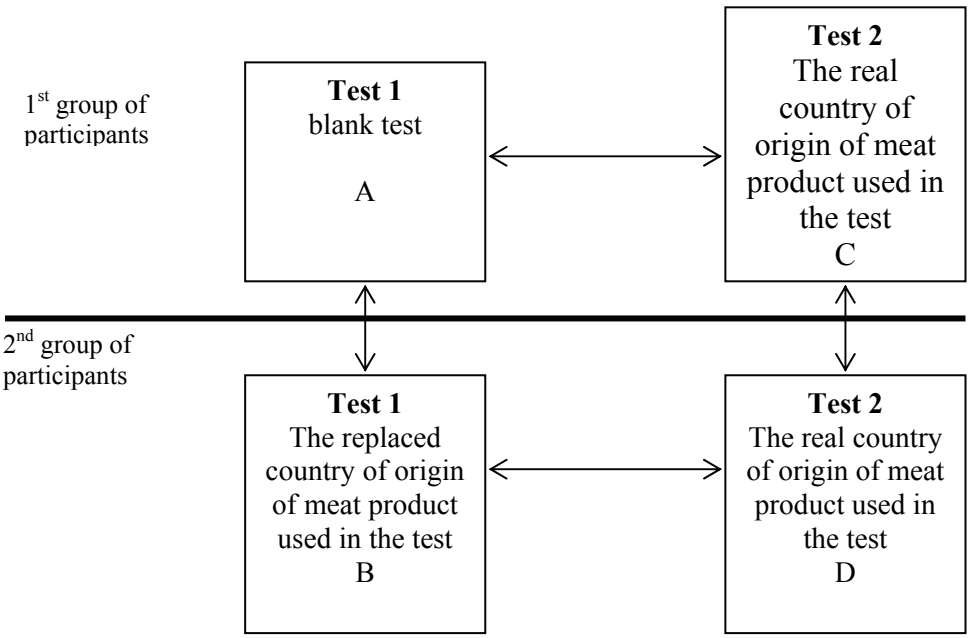
Table 1: The sample structure regarding gender

gender * group of participants					
			Group of participants		Total
			The 1st group	The 2nd group	
Gender	Male	Number	125	125	250
	Female	Number	125	125	250
Total		Number	250	250	500

Data was collected during the experiment. The established problem solving was exploratory. A question bank was selected for "a priori" measurement of various scores for meat product properties. The participants evaluated the selected properties by using a five level scale. The questions were answered anonymously.

Two different conditions were taken into account in the described groups of the participants, which is presented in Figure 1.

Figure 1: The groups of participants in the tests and comparison between the tests



In all the tests three meat types from various countries (Slovenia, Italia, Germany) were tasted and evaluated by a range of questions.

A multiple analysis of variance (ANOVA) was used to analyze the data of repeated measurements, which is the main statistical tool for accepting or rejecting research hypotheses (Frewer e*t al*. 2001). It was determined that the analysis of variance is a statistical analysis frequently used in researches dealing with consumables (Jones *et al.* 2008). In the experiment nine dependable variables (meat product properties) were observed together with three independable variables (group, meat type and test type). A central problem that needed to be solved was a simultaneous comparison of differences in undependable variables. Namely the differences could also be compared in each undependable variable separately (e.g. differences of dependable variables among meat types, regardless of a group

and a test). By that important information of possible interaction between two undependable variables would be missed. The ninth question was about a general evaluation (score) of meat. The question included all previous eight questions regarding meat quality.

The first method we thought of was analysis of variance. Roughly this is a method used to determine a probability that differences between arithmetic means of dependent variables ofn several experimental groups are caused by sampling errors only. In other words a variance of the results within the observed groups (the independent variable) is compared with a variance between the groups. A within-groups variance is called unexplained variance and as a rule it should not be greater than a between-groups variance (the latter reflects effects between groups). In order to carry out the mentioned analysis the results of dependent variables must be normally distributed, covariance matrices between groups must be equal and there should be linearity and multicollinearity between dependable variables. One of the requirements of the experiment that was met was the use of the Latin squares table and rotation of the questions and conditions in the market research slang. The Latin square designs consist of blocking of experimental units into rows and columns, so that each treatment appears once in a row and once in a column. The blocking by rows and columns is effective for controlling the variability among the experimental units (Gacula and Singh 1984). The Latin squares technique is used in social and behavioural research, where the effect of successive stimuli presentation in repeated measurements is nullified. In order to correctly carry out the analysis of variance a minimum of 20 people in each cell is requested. In the presented models there were 31 people in each cell. This was the last requirement for the correct data analysis that was met. The described technique does not enable the correct analysis of the whole experiment, because the second test was the same for both groups of participants. This is why the difference analysis was first divided into two equal, independent parts regarding the group of participants. By that the testing of the main hypothesis regarding the impact of meat origin on evaluation of other meat properties was assured.

A Latin square table was used for rotating the questions. Variables representing separate questions were scored by 1-5 scale where 1 means the least desirable property and 5 represents the most desirable property. The first nine questions were asked in all the tests. The last three questions (packaging, trade mark in manufacturer) were answered in the test where the meat of known origin was tested.

The independent variables were derived from the following facts:

- the sample of 500 persons was randomly divided into 2 more detailed groups (regarding gender and age). Each group was exposed to different stimuli;
- in all the tests the participants tested three types of meat;
- each group of participants participated in two different tests

Three independent variables were derived from the stated above:
1st variable a GROUP of participants – two groups;
2nd variable a TYPE OF MEAT – three types;
3rd variable a TYPE OF TEST – two tests.

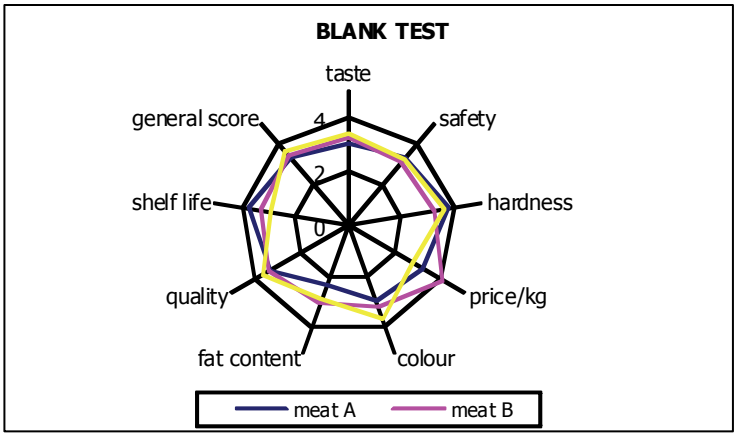
Within the second and the third independent variables the results for dependent variables were obtained from the same participants. A combination of the conditions in the first and the second group were the same for all five hundred participants. There was an experimental model for the repeated measurements for the second (meat type) and the third (test type) independent variables.

3. RESULTS AND DISCUSSION

3.1. Descriptive statistics

Changes of average evaluation of separate properties and similarities of the scores regarding meat type are presented in Figures 2, 3 and 4.

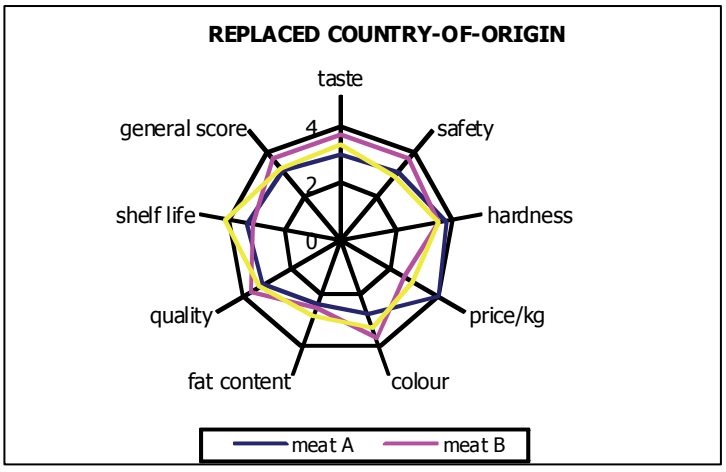
Figure 2: The average score for separate properties of meat product (blank test)



Note:
Group 1, test 1 (blank test):
A - the Italian meat product
B - the German meat product
C - the Slovenian meat product

In the blank test it was determined (Figure 2) that the average score for the meat type C (from Slovenia) is generally the highest or very high respectively.

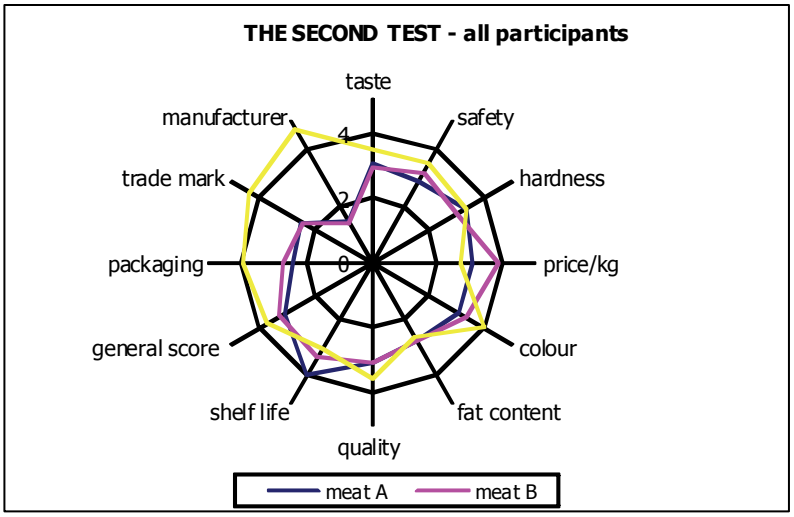
Figure 3: The average score for separate properties of meat product (the test with the replaced COO)



Note:
Group 2, test 1 (the replaced COO):
A – the German meat product
B – the Slovenian meat product
C – the Italian meat product

In the test with the replaced COO the participants scored meat B, which was German, but was labelled with a Slovenian trade mark of a Slovenian manufacturer (the replaced country-or-origin), very high. It was determined that the trade mark positively influence the meat perception. The participants evaluated the tasted and scented meat properties higher, when the latter were labelled with a Slovenian brand and as of Slovenian origin (Figure 3).

Figure 4: The average evaluation in the both groups of participants



Note:

Group 1, test 2 (the real origin):
A – the Italian meat product
B – the German meat product
C – the Slovenian meat product

Group 2, test 2 (the real origin):
A – the Italian meat product
B – the German meat product
C – the Slovenian meat product

Figure 4 shows the average evaluation in the second test for the both groups of participants (N=62), where meat of the known origin was evaluated. The results undoubtedly show that the Slovenian meat was evaluated much higher than the other two meat types. The high scores came from knowing the manufacturer.

3.2. Determination of differences in packaging and trade mark

First, we were interested in whether the participants differently (statistically significant) answered the questions when asked about different meat types. It was determined that the lower trust limit for Slovenian meat (meat type C) is much higher than the upper trust limit for the the other two meat types. Thus in those two questions the Slovenian meat was highly probable scored much higher than the the other two meat types. This finding could be confirmed by t-test for differences between arithmetic means of even samples (the repeated measurements) (Table 2).

Table 2: T-test for differences between the arithmetic means of even samples (the repeated measurements)

	t	df	Sig. (2-tailed)
packaging – test 2, meat C - packaging – test 2, meat B	7,85	61	0,00**
packaging – test 2, meat C - packaging – test 2, meat A	12,02	61	0,00**
packaging – test 2, meat A - packaging – test 2, meat B	-2,81	61	0,01**
trade mark - test 2, meat C - trade mark – test 2, meat B	14,96	61	0,00**
trade mark – test 2, meat C - trade mark – test 2, meat A	12,94	61	0,00**
trade mark – test 2, meat A - trade mark – test 2, meat B	0,43	61	**0,67**

Note: ** - statistically significant at the 1% level

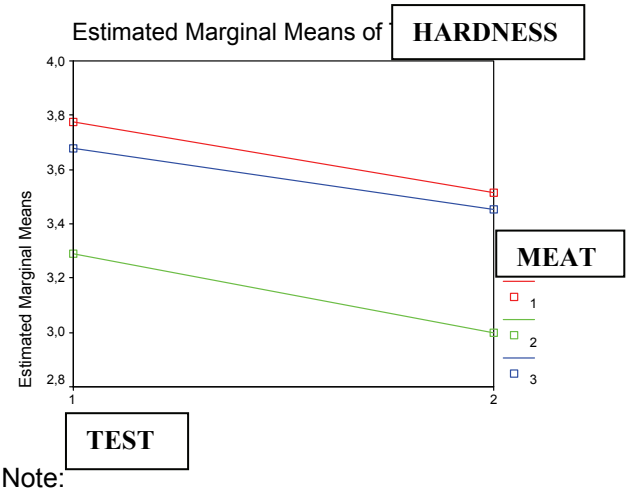
Statistically significant differences between the arithmetic means were found for all comparisons between different meat types, except for the last pair A-B. This comparison actually showed that the scores for the variables packaging in trade mark could possibly be close together. It was determined that the participants evaluated the variables packaging and trade mark for the Slovenian meat statistically significantly higher than for the other two meat product types of foreign origin.

The main research was:

- Knowing the COO of meat product generally influences the evaluation of meat product properties

The main hypothesis was tested by the results obtained by repeated measures MANOVA, separately for both the first and the second group of participants. In the first group of participants the meat of unknown origin was first tested and later in the second test we tested the meat of known COO. If there were differences between the tests, it can be said that the evaluation of other meat properties was influenced by COO. When all the dependant variables were included at the same time, there were no differences between the tests. The effect of COO did not have a significant influence on differences between the tests either. On the whole, there were no differences there. Each variable was separately checked and univariate testing was used to determine whether there were differences in scores between the tests. Which variable had significance level lower than 0.05 was checked for the variable TEST. The result was the variable hardness only. We wanted to determine a change in the average score for meat hardness between the two tests. Figure 5 shows that in the first test the participants evaluated meat to be softer than in the second one. Therefore COO negatively influenced evaluation of meat hardness.

Figure 5: Correlations between the arithmetic means of scores for dependent variable hardness



Note:

Group 1, test 1 (blank test):
1 (A) - the Italian meat product
2 (B) - the German meat product
3 (C) - the Slovenian meat product

Group 1, test 2 (the real origin):
1 (A) - the Italian meat product
2 (B) - the German meat product
3 (C) - the Slovenian meat product

The second group of participants first tested meat of the replaced COO and after that the meat of know origin. We were interested in the differences between the tests due to changes in COO. The differences were expected, since in the first test the meat type B was presented as Slovenian meat and later in the second test as German meat. In that case there was an interaction there – the impact of the meat type on the test type. A statistically significant interaction between meat and test is evident from the results presented in Table 3.

Table 3: The multivariate test – the second group of participants

Multivariate[c,d]

Within Subjects Effect		Value	F	Hypothesis df	Error df	Sig.
MEAT	Pillai's Trace	,812	4,615	16,000	108,000	,000
	Wilks' Lambda	,338	4,768[a]	16,000	106,000	,000
	Hotelling's Trace	1,513	4,917	16,000	104,000	,000
	Roy's Largest Root	1,114	7,517[b]	8,000	54,000	,000
TEST	Pillai's Trace	,437	2,229[a]	8,000	23,000	,063
	Wilks' Lambda	,563	2,229[a]	8,000	23,000	,063
	Hotelling's Trace	,775	2,229[a]	8,000	23,000	,063
	Roy's Largest Root	,775	2,229[a]	8,000	23,000	,063
MEAT * TEST	Pillai's Trace	1,020	7,019	16,000	108,000	,000
	ilks' Lambda	,233	7,090[a]	16,000	106,000	,000
	otelling's Trace	2,202	7,157	16,000	104,000	,000
	oy's Largest Root	1,460	9,855[b]	8,000	54,000	,000

a. *Exact statistic*

b. *The statistic is an upper bound on F that yields a lower bound on the significance level.*

c.

Design: Intercept
Within Subjects Design MEAT+TEST+MEAT*TEST

d. *Tests are based on averaged variables.*

To the main hypothesis confirmation we can add that generally COO influences the evaluation of some meat properties only in the first test it importantly influenced the evaluation of meat hardness. In the second test COO had an important impact on evaluation of variables taste, safety, price, colour, quality and shelf life, between two tests.

4. CONCLUSIONS

In the research a correlation model for COO and consumer perception were formed and empirically tested. By testing the correlation model with multiple analysis of variance for repeated measures it was determined that there was a statistically significant correlation between the factors. An influence of COO on other properties of meat product was determined as well. At the same time a positive perception and knowledge of trade-mark of a Slovenian manufacturer was determined, because information regarding the Slovenian manufacturer and Slovenian origin had an impact on higher scores for tested meat properties. The research results support manufacturers and marketing managers in understanding the role of COO in the domestic and international high-volume mass market.

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