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AGE AND PERIOD EFFECTS ON TIME PATTERS IN HUNGARY

Time and free time is becoming more and more valuable in the consumer's life. The changings in the consumer's life due to time pressure make it necessary to discover new trends in consumption in favour of the marketing strategy. Qualitative and quantitative methods of the cohort analysis were used to find relation between age, cohort and period regarding time patterns. The two techniques are supplementary methods and they have to be used together to notice the changes. It is necessary to use other quantitative, statistical methods regarding the cohort model to study the different effects of the variables (age, cohort and period) in consumption issues.

1. INTRODUCTION

The rapidly growing number of older consumers and globalization of consumer markets present an increasing need to understand consumer behavior across age groups and changing habits. Popular justifications for understanding these issues are the modern sedentary life, the growing number of fast-food outlets and restaurants and technological changes.

Consumer are busing in their leisure time, they want to do more with their free time. The increased time pressure makes consumer more flexible and mobile in their leisure time and they want to do more with the free time. Cooking is today a new found interest between the household activities (WWW.KELLOGS.CO.UK, 2008).

By using the age cohort as a basic unit of analysis, the study seeks an increased understanding of the influence of age cohort membership on consumer behavior among age groups.

The purpose of this study is to compare Hungarian attitudes towards food consumption regarding time for the periods 1996 and 2007.

Sub problem
1. Determine attitude to food consumption regarding time for ages 30-39
2. Determine attitude to food consumption regarding time for ages 40-49
3. Determine attitude to food consumption regarding time for ages 50-59
4. Determine attitude to food consumption regarding time for ages 60-69
5. Determine attitude to food consumption regarding time for ages 70-79
6. Determine statistical significant differences in attitudes for age groups

Assumptions
1. The survey procedures were relatively consistent across surveys; thus instrumentation error should be minimal.
2. The variables from both surveys were identical; thus ensuring scalar equivalence.
3. The interview method had a negligible impact on the values of the preference data.
4. The variables were in the same ranking.
5. Cohorts are based on the age.
6. There is no seasonal bias in the data since it was conducted in longer time intervals.

Hypotheses
   H0: There are no differences between age groups regarding importance of time.
   H1: There are differences between age groups regarding importance of time.

2. LITERATURE REVIEW

The changing age distribution of the population has had dramatic effects on society and marketing particular. Many marketers are reacting to the aging population in the world so in Hungary are reacting many businesses to the sheer size of the cohort as a reason for changing products and services. Companies need to understand changes in demographics in order to target the older adult consumers in effective ways (PENNINGTON-GRAY, 2003).

Aging of the population has an economic impact that businesses of all size must monitor and respond to with new strategies (BALAZS, 2004).

Due to the hectic lives of consumers the eat and drink on the go is increasing. According to a report by Datamonitor consumers across Europe and the US are also increasingly skipping meals, particularly breakfast and lunch due to work habits and hectic lifestyles (WWW.READYMEALSINFO.COM, 2008).

Due to a growing perception amongst consumers in Europe and the US that they are time-pressured, leisure time is increasingly being seen as a luxury product. Time pressured and stressed consumers are increasingly eating and drinking while traveling to free up more free time (WWW.READYMEALSINFO.COM,

2008).

The term cohort is defined as "the delineated population who experienced the same significant life event with a given period of time" (GLENN, 1977). As SCHEWE (2000) noted cohorts are groups of individuals who are born during the same time period and have pass through similar events during their early adulthood. These moments influence lifelong their values, preferences, attitudes and buying behavior. In the Hungarian literature, no studies exist that conducted generational cohorts. Therefore this study is limited to examine only two effects (age and period) out of three.

A number of different basic approaches and techniques have been mentioned by REYNOLDS (1981). These ranges from the approach without statistical test (visual inspection or "eyeball" approach) through the triad method developed by Palmore to operating with dummy variables was published by Mason (REYNOLDS, 1981).

Cohort analysis is a group of methods designed to determine cohort, age, and period effects. The basic problem in cohort analysis is that a formal linear dependency exists between each of the operational measures of the three independent variables (age, cohort, period) (RENTZ et al, 1983).

The basic form of cohort analysis (GLENN, 1977) is constructed so that the interval between any two periods of measurement corresponds to the age class intervals. In the standard cohort table the consumption of cohorts over time can be followed by reading diagonally down to the right (RENTZ et al.,1983). This study uses the standard cohort table.

3. MATERIALS AND METHODS

Cohort analysis should be viewed as a method of research, not a statistical technique (REYNOLDS, 1981). The interpretation of the tables is not straightforward. The analysis is performed by looking for patterns in the data.

This study employs different techniques of cohort analysis. The analysis of variance procedure was use to test for statistical difference between means of the responses to the time-related variables across subgroups. Post hoc tests were performed to reveal differences between the age groups. The "eyeball" approach is also performed without statistical tests to examine the time patterns in Hungary.

The age groups were designated the following: 1st – 30-39; 2nd – 40-49; 3rd – 50-59; 4th – 60-69; 5th –70-79.

4. DATA SET

Data for the study are taken from two Hungarian surveys conducted 12 years apart. The surveys were conducted by the Marketing Institute at SZIE University in 1996 and 2007. Sample sizes were 1002 and 1061 respectively (Table 1).

The variables from both surveys were identical; thus ensuring scalar equivalence. The assumption was made that the interview method had negligible impact on the values of the preference data. Four measures of time attitude were analyzed: "to save time it is worth to eating in a restaurant"; "to save time it is worth buying semi-finished goods"; "eating takes away time from other activities"; "to save time it is worth shopping occasionally in larger amounts".

Respondents were asked to rate each variable on a five-point Likert scale ranging from 1 to 5 completely agree.

The overall highest mean in 1996 (4.052) was for the statement 'to save time is worth to do shopping occasionally and larger amounts'. In 2007 the same variables possessed a mean score of 3.600. The second overall highest mean score in 1996 (2.673) was for the statement 'to save time it is worth to buy semi-finished goods' but in 2007 it was the statement 'to save time it is worth to eat in a restaurant' with a mean of 2.707. The 'eating takes away time from other activity' was ranked third in 1996 with an overall mean score of 2.313 and 'to save time it is worth to eat in a restaurant' was ranked fourth in1996 an overall mean score of 1.876. In 2007 the third and the four statements were 'to save time it is worth to buy semi-finished goods' with a mean score of 2.696 and 'eating takes away time from other activity' with a mean score of 2.614.

Table 1

Time statements in this study

Survey question	1996	2007
A3-2	To save time it is worth eating in a restaurant	To save time it is worth eating in a restaurant
A3-11	To save time it is worth buying semi-finished goods	To save time it is worth buying semi-finished goods
A3-12	Eating takes away time from other activities	Eating takes away time from other activities
A3-15	To save time it is worth shopping occasionally in larger amounts	To save time it is worth shopping occasionally in larger amounts

5. RESULTS

Period and time-related variables

The t-test procedure was performed to test for statistical differences in means across the two periods. Three of the four were significantly different at the 99% confident interval (Table 2).

T-test result for period and time –related variable

	1996 Mean	2007 Mean	Diff.	Sig.
A3-2	1.876	2.707	0.832	0.000
A3-11	2.673	2.696	0.023	0.929
A3-12	2.313	2.614	0.302	0.000
A3-15	4.052	3.600	-0.452	0.000

The insignificant variable "to save time it is worth to buy semi-finished goods" was rated as 'neither agree nor disagree'. The time-related variable "to save time it is worth eating in a restaurant" showed a meaningful positive difference between the two periods showed a significant increase over time. The other variable 'to save time is worth to do shopping occasionally and larger amounts' was the only variable which was scored most likely to agree (4.052) but during the period it was the only to decrease.

Age and time-related variables

This study supports the premise that there are differences between age groups in terms of time patterns. The examination of age and the four time-related variables was performed in both years.

A one-way ANOVA was used to test for significant differences in the mean for each group. Duncan's ranges were then used to identify which group means differed from the others. The results of the statistical tests are presented in the Table 3.

In 1996, only two statements were significant difference between the age groups: "to save time it is worth eating in a restaurant" and "to save time it is worth buying semi-finished goods".

For A3-2: 1st and 2nd age groups differ from the other age groups at the 95% confidence interval. Two subgroups were delineated: the first one included the 30-39 and 40-49 age groups and the second one included the rest. The younger consumers differ from the older one.

In the case of A3-11 (which was not significant by the t-test) it was able to make different subgroups. 1st and 2nd age groups differ from 4th and 5th age groups. The gap between the youngest and the oldest is notable. The 3rd age group (50-59) is between the two subgroups. The 3rd age group belongs to the youngest and to the oldest subgroup as well. More likely the consumers between 50-59 age are different from the other subgroups.

The differences between the highest and the lowest mean scores were not so meaningful than in the previous period. In 2007 were again the same statements significant different like in the year 1996.

Only by the statement A3-11 was the significant level less than

ANOVA result for age and time related variables in 1996

1996	30-39	40-49	50-59	60-69	70-79	All	Sig.	Diff.
A3-2	2.094	2.066	1.691	1.676	1.385	1.876	0.000	0.710
A3-11	2.925	2.852	2.593	2.351	2.250	2.673	0.000	0.675
A3-12	2.340	2.493	2.122	2.230	2.115	2.313	0.056	0.378
A3-15	3.950	4.140	3.984	4.095	4.038	4.052	0.381	0.190

ANOVA result for age and time related variables in 2007

2007	30-39	40-49	50-59	60-69	70-79	All	Sig.	Diff.
A3-2	2.940	2.904	2.563	2.559	2.467	2.706	0.004	0.473
A3-11	2.886	2.865	2.483	2.658	2.495	2.692	0.007	0.403
A3-12	2.761	2.673	2.695	2.379	2.570	2.624	0.067	0.382
A3-15	3.641	3.590	3.506	3.708	3.673	3.619	0.503	0.202

the 5% between the 1st (30-39 age) and the 3rd (50-59) age groups. At the 10% significant level were detected more differences between the age groups. These are the followings: by the A3-2 variable the 1st age group varies from 4th and 5th age groups and by the A3-11 variable the 2nd age group diverges from the 3rd age group.

Age effect for "to save time it is worth to eat in a restaurant"

The statement of "to save time it is worth to eat in a restaurant" gained importance over time (Table 4). Overall Hungarian more agreed the statement "to save time it is worth to eat in a restaurant" in 2007 than they did in 1996. All five age groups scored the statements the lowest in this category. The youngest were more likely

to agree (mean1996-mean2007: 2.094-2.940) with this statement than the older age groups (mean1996-mean2007:1.385-2.467). As one age were less likely to agree with the statement in both years.

When examining the change in importance within the age groups over time, it is interesting to note that 70-79 age group had the most drastic change in their agreeing of "to save time it is worth to eat in a restaurant". In fact the percentage changed remarkable in the case of older generation. This suggests a period effect is affecting older age groups at a greater rate than younger age groups (Table 5, Table 6, Table 7).

With the 'eyeball' approach delineates a strong period effect and a small but pretended effort of the age effect. After all period is the most important effect in contribution by this statement.

Table 5

Age by period for A3-2

A3-2	1996			2007			All	
	Mean	Std.	N	Mean	Std.	N	Mean	Std.
30-39	2.08	1.21	164	2.92	1.44	187	2.53	1.399
40-49	2.09	1.19	237	2.91	1.29	163	2.43	1.296
50-59	1.67	1.01	127	2.56	1.36	184	2.20	1.304
60-69	1.69	1.02	155	2.57	1.28	167	2.15	1.244
70-79	1.35	0.77	57	2.49	1.48	109	2.10	1.385
Total	1.88	1,13	740	2.71	1.38	810		

Table 6

Age by generation for A3-2

A3-2	new generation		young generation		middle generation		old generation		All	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
30-39	2.920	187	2.079	164					2.527	351
40-49	2.882	17	2.493	298	2.106	85			2.428	400
50-59			2.636	132	1.872	179			2.196	311
60-69					2.158	316	1.667	6	2.149	322
70-79					2.486	109	1.351	57	2.096	166
Total	2.917	204	2.411	594	2.129	689	1.381	63	2.310	1550

Table 7

Generation by period for A3-2

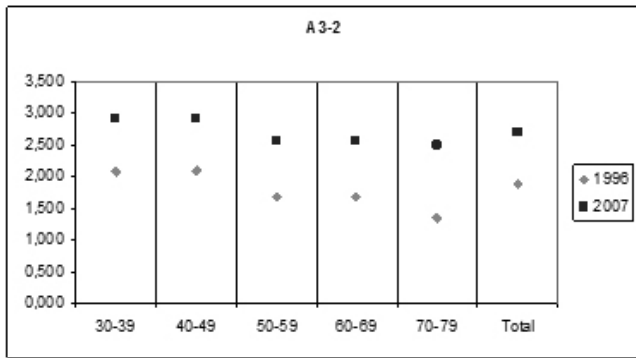| A3-2	1996			2007		
	Mean	Std.	N	Mean	Std.	N
old generation	1.380	0.810	63			
middle generation	1.780	1.080	361	2.510	1.360	328
young generation	2.080	1.190	316	2.780	1.340	278
new generation				2.920	1.420	204
Total	1.876	1.128	740	2.707	1.375	810

Fig. 1

Age by period for A3-2

Age effect and 'to save time it is worth to buy semi-finished goods'

In this fall there are strong similarities between all five age groups both of the periods.

This was the only statement where was no significant difference detected over time with t-test (Table 2). Thus no period effect could be delineated. But there were significant differences by the One-way ANOVA test between the age groups. It is interesting that in 1996 was no significant difference between the 3rd and other age groups and then in 2007 the only difference at less then

5% significant level was between the 1st and the 3rd age group.

In 1996 was the score difference between lowest and highest score more remarkable than in the next period. The biggest change was in the two older age groups (by the 5th: 0.245; by the 4th: 0.307).

With the eyeball approach can we see that here is an age group effect which was not been able to detect with statistical methods.

In 1996 as one age groups were less likely to agree with the statement but in the next period it was not so unambiguous.

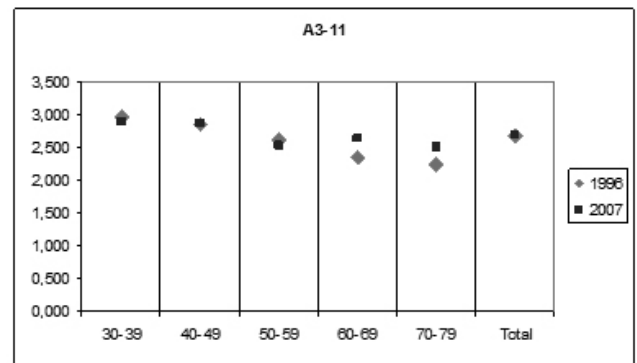These differences rejected either age or cohort effects.

Fig. 2

Age by period for A3-11

Table 8

Age by period for A3-11

A3-11	1996			2007		
	N	Mean	N	Mean	Diff	All
30-39	159	2.925	184	2.886	-0.039	2.904
40-49	229	2.852	156	2.865	0.014	2.857
50-59	123	2.593	174	2.483	-0.111	2.529
60-69	148	2.351	161	2.658	0.307	2.511
70-79	52	2.250	107	2.495	0.245	2.415
Total	711	2.675	782	2.692	0.017	2.684

6. CONCLUSION

In both years two from four were significantly different. Relationships were found for 'to save time it is worth to eat in a restaurant' and for 'to save time it is worth to buy semi-finished goods'.

A standard cohort model was used to assess the likely effect of age on the probability of time importance based on age cohort.

The findings of this analysis indicate that both the age and period of an individual significantly affect the probability of time

patterns.

The result of the t-test analysis indicate that the likely of 'to save time it is worth to eat in a restaurant' decreases with time (period effect) while the likely 'to save time it is worth to buy semi-finished goods' increases with age and birth year.

These findings can be utilized to help in the planning of service and marketing of future populations. However further studies with more detailed demographic are necessary.

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Jegyzetek ❧ Notes