Changes in generations' grocery purchasing behavior during COVID-19

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Abstract

This study investigates the changes in grocery purchasing behavior during the COVID-19 pandemic restrictions among different generations in Denmark. Although grocery shopping remains the same for most consumers, about 24% consumers bought more under COVID-19. About 17% consumers have bought more online. Online grocery shopping exhibit different patterns among generations. As compared to the proportion of groceries purchase at their primary store before COVID-19, about 18% bought more while 10% bought less, and the rest remained the same. However, there is no difference between generations neither grocery expenditure at their primary store nor expected expenditure. Consumers, especially baby boomers, believe that it is important for groceries stores to follow the COVID-19 restrictions. With respect to purchase of specific grocery products, consumers bought more groceries such as hand sanitizer, baking products, ready-meals or fast food, as well as snacks and cakes. Consumption on self-mixed candy and alcohol appear to drop for many consumers. The results also suggested that that there were statistically significant differences in consumption changes between generations for various grocery products. The results of this research have implications for grocery stores' future marketing.

Key words: *consumer behavior, impact of Covid-19, grocery purchasing, generation marketing, Denmark*

1. Introduction and Objectives

Denmark was among the first European countries to introduce lockdown and restriction measures to fight COVID-19 pandemic. This had led to a surge in e-commerce (Nets, 2022). One in four Danish households have purchased groceries online since the widespread outbreak of the COVID-19 virus (Nets, 2022). The changes of consumers' grocery purchase behavior have thus influenced the retail landscape. The purpose of this study is to highlight consumers' grocery shopping patterns catalyzed by COVID-19 in Denmark. We then compare and identify differences between generations with respect to changes in grocery purchasing. Finally, whether consumers' grocery shopping behavior will return to pre-COVID-19 "norms" is also investigated.

Our research differs from previous studies in consumer behavior and COVID-19 in that we provide nuanced understanding in differences between generations. The concept of generation marketing has caught more and more marketing practitioners' attention (Chaney et al., 2017). Given that the similarities in expectation, experiences, lifestyles and social value, there is a need for improving understanding of every generation's consumption behavior (Chaney et al., 2017). Thus, results of this study provide knowledge for retailers in differentiating marketing strategies for generations.

2. Research Question

To analyze consumers' grocery shopping behavior during COVID-19, the following research questions are raised in this study.

1. How have grocery shopping behaviour changed?
   - Do consumers buy more grocery products in their primary store?
   - Do consumers' attitudes towards grocery stores' capability of observing COVID-19 restrictions differ among generations (Baby boomers, Generation X, Generation Y and Generation Z)?
   - Do consumers expect to spend more for groceries after COVID-19?

2. Which product categories did consumers shop more during COVID-19?

3. How do the above differ in relation to generations (Baby boomers, Generation X, Generation Y and Generation Z)?

3. Literature Review

After the outbreak of COVID-19 pandemic, researchers around the world have tried to understand the influence of COVID-19 on society. Due to different instruments were introduced in different countries such as social distancing, face mask, and use of hand-sanitizer for grocery shopping, there are significant changes in consumers' grocery purchase behavior especially where they buy, what they buy and how they buy (Baker et al., 2020; Eriksson & Stenius, 2020; Kirk & Rifkin, 2020; Martin-Neuninger & Ruby, 2020). For instance, the introduction of COVID-19 instruments and restrictions such as social distancing has reduced the personal interaction with retail staff, consumers tended to shop quickly in stores to minimize time in contact with others (Martin-Neuninger & Ruby, 2020). Besides, there was also an increase in food products that are suited for home cooking (Gerritsen et al., 2020). According to Eriksson and Stenius (2020), consumers reactions can be grouped into six categories. For example, some consumers adopted panic purchase, some consumers went online, some consumers buy differently than before the pandemic because of changing in cooking behavior, some consumers paid more attention about grocery's physical environment, some consumers were careless to the COVID-19 measurements and restrictions when shopping at the grocery stores, and some consumers were looking for new services from grocery stores. Chenarides et al. (2021) found that consumers tended to drop shopping in store and going online or pick-up services during the beginning of COVID-19. Little has been changed with respect to food consumption patterns but changes occurred in few food products categories (Chenarides et al., 2021). Ben Hassen et al. (2020) observed that a surge in online grocery shopping in Qatar during the beginning of COVID-19. Moreover, consumers in Qatar were demanding more healthier diet and domestic food products(Ben Hassen et al., 2020). Richards and Rickard (2020) noted that the demand for fresh fruit and vegetables became more robust after COVID-19.

Researchers have found that the infection and its associated consequences differ largely between different age groups (O'Driscoll et al., 2021). Thus, it is plausible to hypothesize that there are also significant changes in groceries purchasing between different generations.

4. Method

Data was collected from university students' social media connections. A self-administrated questionnaire was distributed via a survey link on the e-learning platform for the course "advanced quantitative analysis". Students enrolled in the course were asked to share the link with their social media connections. The target population of the survey is household-member most often responsible for doing grocery shopping. A sample size of 1338 respondents with usable questionnaire were received after closing the survey.

Table A1 in Appendix presents the socio-economic profile of the sample. The sample is biased towards female respondents with higher education and currently living in the region of Southern Denmark. The bias in gender can be attributed to the fact that female respondents contribute mostly for doing their households' grocery shopping. Other bias in education level, generations and region of residence can be attributed to the fact that links to our questionnaire were distributed by university students on their social media sites

5. Findings

We start by outlining consumers' grocery purchasing under COVID-19. As shown in Table 1, most consumers spent almost the same as before COVID-19, and only one in four spent more than before COVID-19. On average, Generation X, Y and Z have spent a bit more in grocery shopping than before COVID-19, see Figure A2. Interestingly, about two-third consumers have not bought groceries online. Among those who bought online, approximately half of them bought less than 10% groceries online, and only a few respondents bought nearly all groceries online. As compared to online grocery shopping before COVID-19, there is no change for 71% of consumers while 18% bought more and 10% bought less. With respect to the difference between generation in terms of online grocery buying, a Kruskal-Wallis ANOVA indicated that there were statistically significant differences in changes of online grocery shopping for baby boomers (*mean rank =639*), Generation X(*mean rank =681*), Generation Y (*mean rank =725*), and Generation Z (*mean rank =637*), H(corrected for ties) = 20.82, df =3, N=1338, p<.001, Cohen's f = .86. Table 2b also shows that Generation Y was the highest in percent who bought groceries online while Generation Z was the lowest in percent.

Table 1. Descriptive statistics on grocery shopping under COVID-19

	N	%
Your current spending at the grocery store as compared to that before COVID-19		
Much less	8	0.6
Less	152	11.4
The same	850	63.5
More	321	24.0
Much more	7	0.5
Percentage of groceries bought online under COVID-19		
0% (have not bought groceries online)	909	67.9
1 - 10 %	220	16.4
11 - 20 %	53	4.0
21 - 30 %	46	3.4
31 - 40 %	20	1.5
41 - 50 %	22	1.6
51 - 60 %	20	1.5
61 - 70 %	12	0.9
71 - 80 %	18	1.3
81 - 90 %	7	0.5
91 - 100% (Nearly all groceries are bought online)	11	0.8
Your current online grocery shopping as compared to that before COVID-19		
Much less	56	4.2
Less	19	1.4
The same	1030	77.0
More	182	13.6
Much more	51	3.8
Percentage of groceries bought from primary grocery store online under COVID-19		
Less than 50%	192	14.3
51-60%	155	11.6
61-70%	237	17.7
71-80%	338	25.3
81-90%	311	23.2
91-100%	105	7.8
Your current grocery shopping from primary grocery store as compared to that before COVID-19		
Much less	17	1.3

Less	115	8.6
The same	961	71.8
More	231	17.3
Much more	14	1.0

Table 2: Online grocery shopping between generations

2a. Percentage of groceries bought online

in %	Baby boomers	Generation X	Generation Y	Generation Z
0% (have not bought groceries online)	62.6	62.2	57.3	80.2
1 - 10 %	20.6	17.8	21.5	11.1
11 - 20 %	4.5	5.1	4.6	2.6
21 - 30 %	3.9	4.6	3.6	2.4
31 - 50 %	2.6	1.6	1.0	1.4
51 - 90 %	3.9	6.5	7.2	1.0
91 - 100% (Nearly all groceries are bought online)	0.6	0.3	2.3	0.4

2b. Changes of groceries bought online as compared to before COVID-19

in %	Baby boomers	Generation X	Generation Y	Generation Z
Much less	6.5	4.9	2.6	4.0
Less	4.5	1.1	0.7	1.2
The same	71.6	74.6	72.6	83.0
More	14.8	14.%	18.6	9.5
Much more	2.6	4.9	5.5	2.4

Retail store loyalty is important for retail management. Table 1 also indicates that over half of respondents bought more than 70% of groceries from their primary store. As compared to the groceries purchase at primary store before COVID-19, about 18% bought more while 10% bought less, and the rest remained the same. Kruskal-Wallis ANOVA was used to compare generation's current expenditure as well as expected expenditure after COVID-19 at primary grocery, results show that there was no difference between generations.

Table A2 shows consumers attitudes towards grocery store's capability of handling COVID-19 restrictions. Baby boomers believed that it is more important for grocery stores to follow the COVID-19 restrictions than other generations.

Table 3 displays the consumption changes in different product categories. Most consumers have in bought the same for many grocery products. However, consumption for five product categories exhibit obvious changes. On the one hand, about 76% of consumers bought more hand sanitizer, about 22% of consumers bought more baking products and ready-meals or fast food, and 36% of consumers bought more snacks and cakes. On the other hand, about 40% of consumers bought less self-mixed candy and one-third bought less alcohol.

Table 3. Consumption changes in different product categories as compared to before COVID19

(in %, N=1338)	Much less	Less	The same	More	Much more
Frozen vegetables	2.56	5.89	82.18	8.83	0.54
Canned products	1.46	4.37	86.50	7.29	0.38
Fresh fish/meat	1.77	6.30	82.01	9.30	0.61
Frozen fish meat	4.82	6.36	85.12	3.18	0.52
Hand sanitizer	0.65	1.30	21.70	**48.34**	**28.02**
Wrapped fruit/vegetables	1.40	3.58	82.74	10.96	1.32
Loose (unpackaged) packaged fruits/vegetables	3.24	8.35	77.95	10.01	0.45
Danish produced products	0.30	1.81	88.56	8.58	0.75
Frozen ready meals	7.18	11.26	70.58	10.19	0.78
Baking products	2.67	5.65	68.52	**21.04**	**2.12**
Self-mixed candy	**21.77**	**18.47**	47.88	10.18	1.70
Snacks and cakes	2.63	7.75	54.10	**32.20**	**3.31**
Alcohol	**14.18**	**18.97**	49.92	14.58	2.35
Ready meals or fast food	5.51	12.92	59.84	**20.00**	**1.73**
Health products	2.44	4.78	83.82	8.09	0.88
Fresh goods from butcher/delicacy	2.78	7.07	75.51	13.72	0.93

Results from Kruskal-Wallis ANOVA (see Table A3) indicated that there were statistically significant differences in consumption changes between generations for various grocery products. These products categories are frozen vegetables, canned products, fresh fish, or red meat, loose (unpackaged) fruits/vegetables, Danish produced goods, frozen ready meals, self-mix candy, snacks and cakes, alcohol, ready meals, or fast food. There is no difference between generations for the rest of grocery products investigated. Figure A3 depicts the consumption changes for different grocery products.

6. Discussion & Limitations

The changes in culinary behavior from this research such as increasing in baking products and ready-meal are in line with the findings from Ronto et al. (2021). However, results such as less candy and alcohol consumption differ from Cummings et al. (2021).

As COVID-19 is a novel health threat, an individual may likely change their eating and drinking behavior when experiencing threat. Results of this research revealed nuanced understanding the changes between generations. These differences are particularly obvious in several grocery products. For example, Baby boomers consumed more Danish produced products as well as alcohol than Generation Z. Generation Z consumed more snacks and cakes, frozen vegetables, and canned products than Baby boomers. The changes of consumption patterns can be attributed to the lifestyle of different generations.

Due to the non-probability sampling in this study, the generality of the results can be weak. Nevertheless, it provides knowledge for grocery store manager in designing marketing strategies for different generational cohorts.

7. Conclusion

COVID19 has changed consumers grocery behavior in Denmark in different ways. Although grocery shopping remains the same for most consumers, about 24% consumers bought more under COVID-19. About 17% consumers have bought more online. Online grocery shopping exhibit different patterns among generations. As compared to the groceries purchase at primary store before COVID-19, about 18% bought more while 10% bought less, and the rest remained the same. However, there is no difference between generations neither grocery expenditure at their primary store nor expected expenditure. Consumers especially baby boomers believe that it is important for groceries stores to follow the COVID-19 restrictions. Consumers bought more groceries such as hand sanitizer, baking products, ready-meals or fast food, as well as snacks and cakes. Consumption on self-mixed candy and alcohol appear to drop for many consumers. The results also suggested that that there were statistically significant differences in consumption changes between generations for various grocery products.

8. Further Research and managerial implications

COVID-19 pandemic had several waves since 2020. 2022 became a new “norm” of COVID-19. Further research can be extended to how consumers grocery behavior has been changed under the new “norm”. The results of this research provide knowledge for grocery stores that can be used for adjusting their marketing campaign to target generations.

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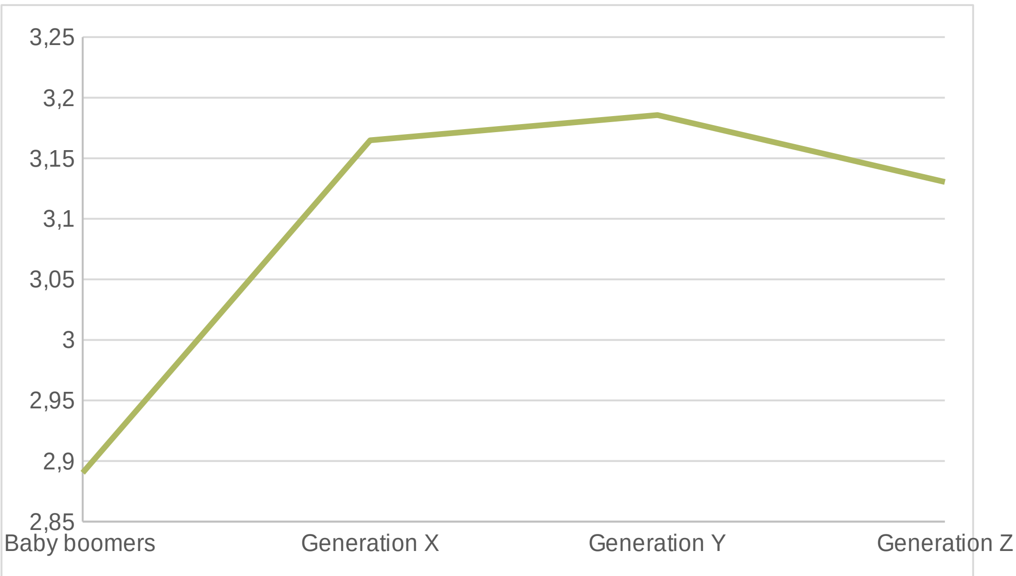
Appendix

Table A1. Socio-economic profile of the sample

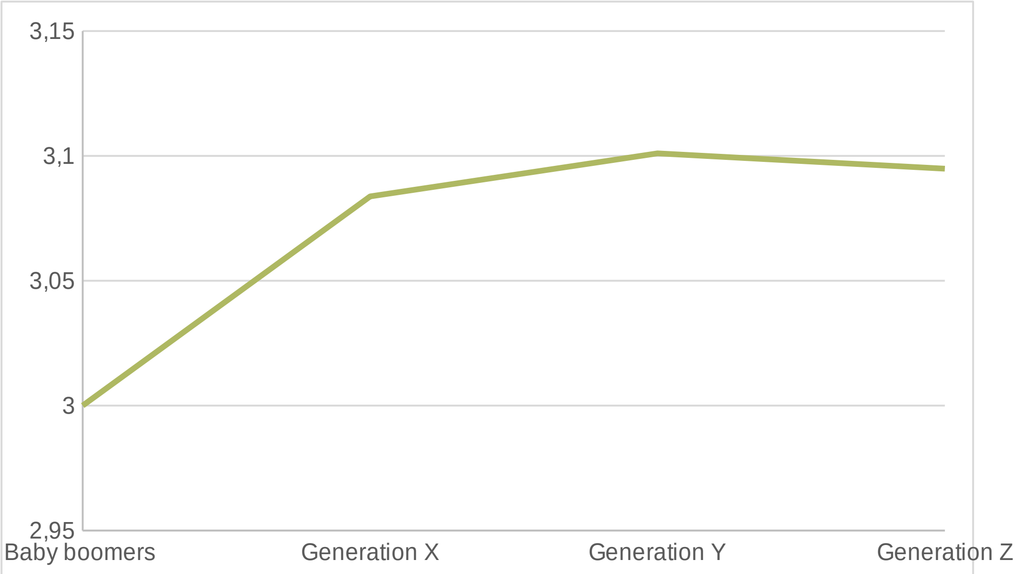
	N	%
Gender		
Male	391	29.2
Female	947	70.8
Generation		
Baby boomers	155	11.6
Generation X	370	27.7
Generation Y	307	22.9
Generation Z	506	37.8
Education level		
Ground school	16	1.2
Secondary or vocational school	306	22.9
Short-cycle higher education (less than 3 years)	216	16.1
Medium-cycle higher education (3-4 years)	475	35.5
Short-cycle higher education (5 years or more)	315	23.5
Other	10	0.7
Region of residence		
Capital Region	251	18.8
Region Zealand	198	14.8
Region of Southern Denmark	697	52.1
Central Denmark Region	144	10.8
Region of Northern Denmark	48	3.6

Figure A1. Mean comparison of grocery expenditure between generations



Note: The value of Y-axis is the mean. The higher the value the more consumers spent on groceries and vice versa, "3" means the same amount.

Figure A2. Changes in expenditure in the primary grocery stores between generations



Note: The value of Y-axis is the mean. The higher the value the more consumers spent on groceries and vice versa, “3” means the same amount.

Table A2. Attitudes towards grocery stores’ capability of observing COVID-19 restrictions.

	Mean (S.D.)	Baby boomers	Generation X	Generation Y	Generation Z
Other customers respect the store's Covid-19 restrictions	3.31(1.08)	3.70 (0.96)	3.38(1.02)	3.156(1.14)	3.22 (1.09)
I feel safe during purchasing despite Covid-19	3.31(1.10)	3.71(0.93)	3.44(1.04)	3.16(1.14)	3.16(1.13)
The store follows the Covid-19 restrictions well (e.g. hand sanitizer, plastic gloves and distance requirements etc.)	3.54 (1.04)	3.98(0.87)	3.65(0.99)	3.39(1.06)	3.41 (1.07)
It is possible to use hand sanitizers at the entrance	3.43 (1.84)	3.87(0.97)	3.64(1.12)	3.32(1.22)	3.21(1.21)
It is possible to shop without getting too close to other customers	3.13 (1.00)	3.51(0.91)	3.14(0.91)	3.03(1.06)	3.06(1.02)

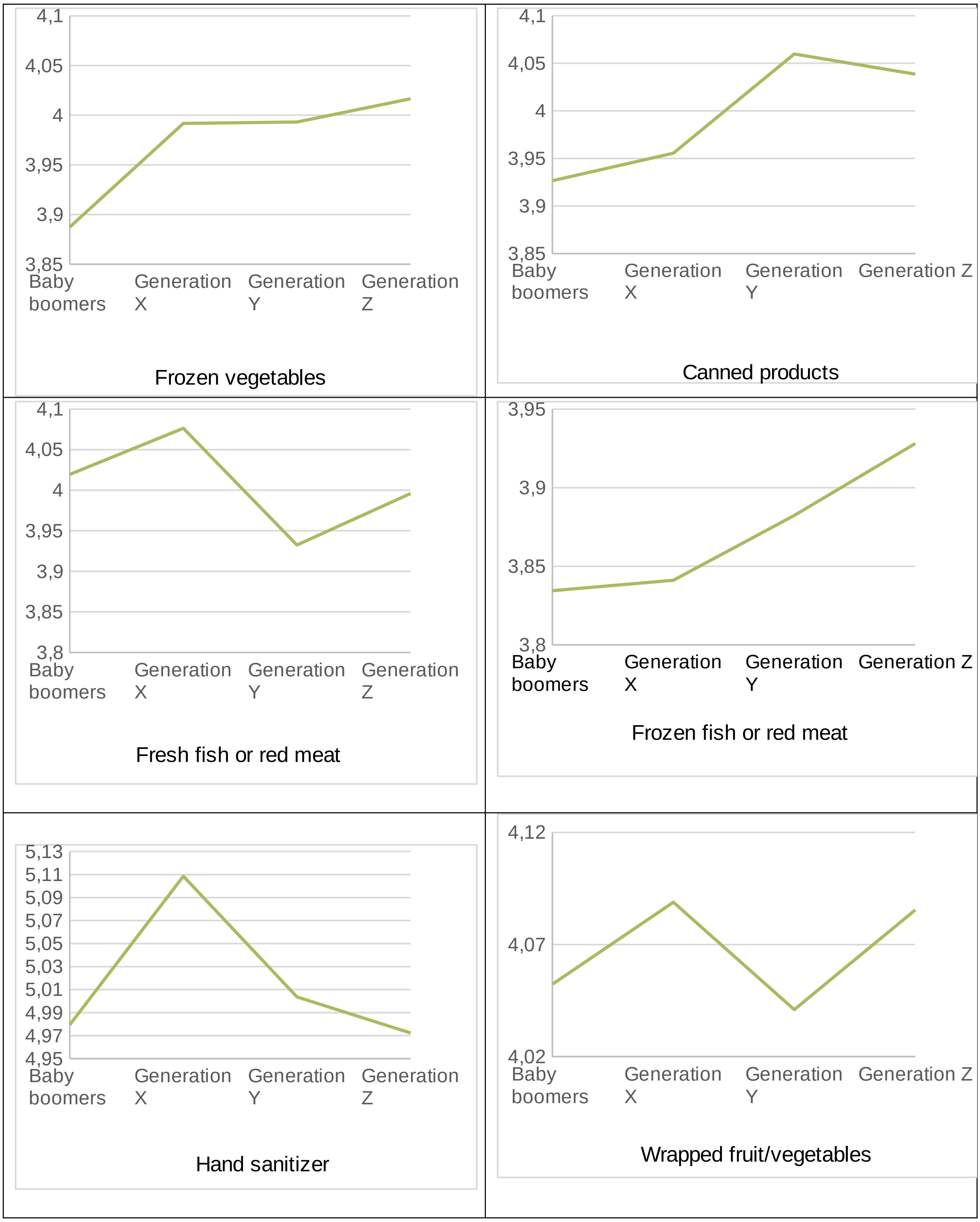
Note: Items are measured using five-point interval scale with “1= absolutely not important” and “5=extreme important”.

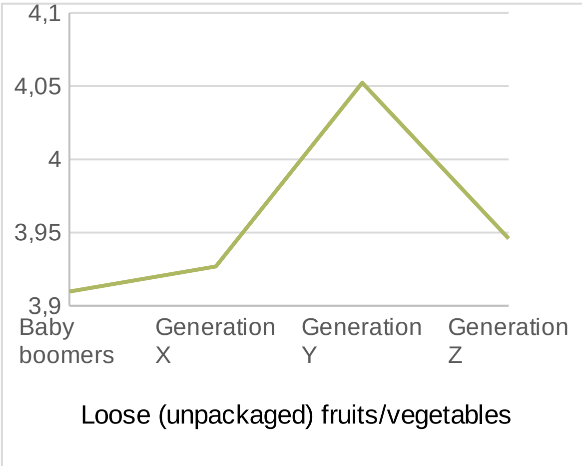
Table A3. Results from Kruskal-Wallis ANOVA

	Kruskal-Wallis H	Sig.
Frozen vegetables	10.58	0.01
Canned products	21.08	0.00
Fresh fish or red meat	11.29	0.01
Frozen fish or red meat	7.17	0.07
Hand sanitizer	6.48	0.09
Wrapped/bags of fruit/vegetables	2.38	0.50
Loose (unpackaged) fruits/vegetables	11.63	0.01
Danish produced goods	12.12	0.01
Frozen ready meals	8.35	0.04
Baking products	3.14	0.37
Self-mix candy	8.36	0.04
Snacks and cakes	19.74	0.00
Alcohol	67.67	0.00
Ready meals or fast food	9.00	0.03
Health products	5.20	0.16
Fresh goods from butcher/delicacy	6.41	0.09

Note: N=1338, df=3.

Figure A3. Mean comparison for consumption changes in different product categories between generations

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4
3,95
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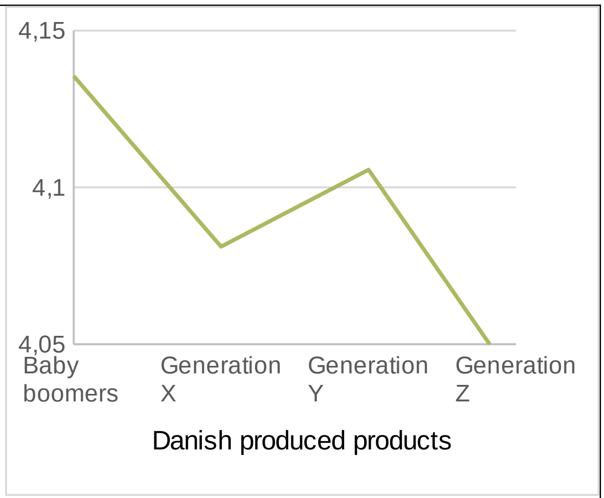
Baby boomers
Generation X
Generation Y
Generation Z
Loose (unpackaged) fruits/vegetables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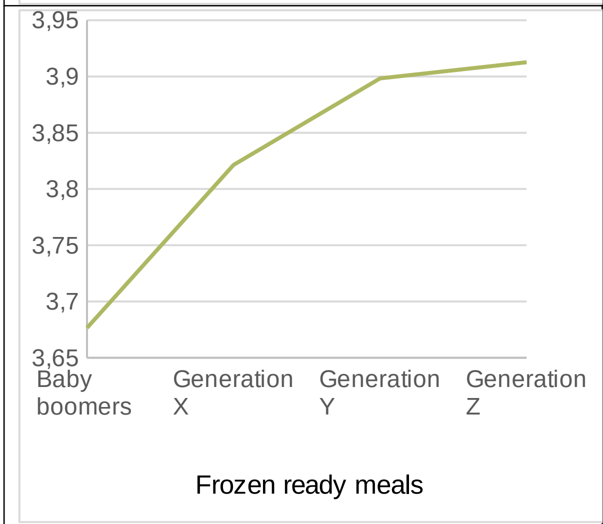
Generation X
Generation Y
Generation Z
Danish produced products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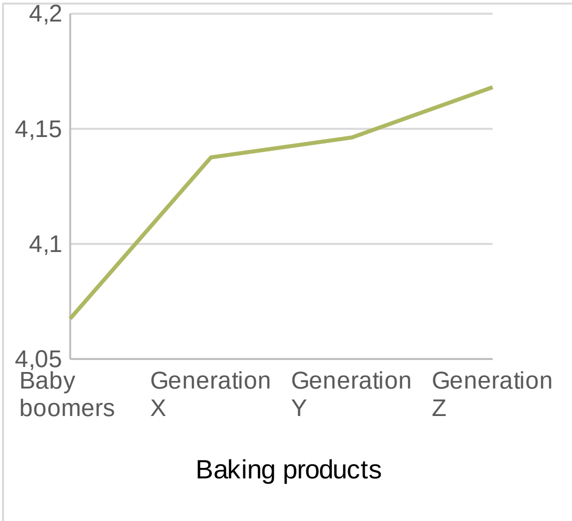
Generation Z
Frozen ready meals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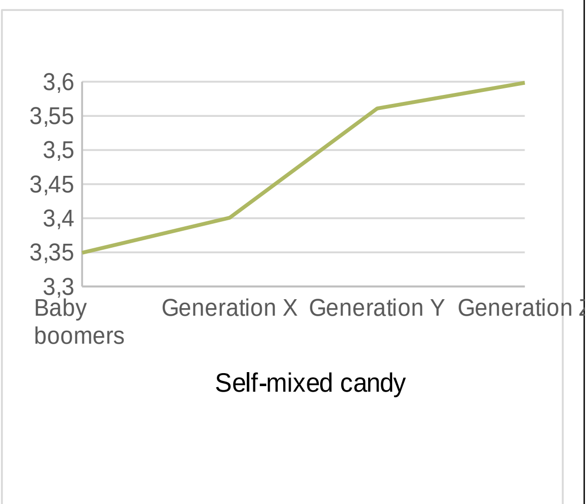
Baby boomers
Generation X
Generation Y
Generation Z
Baking products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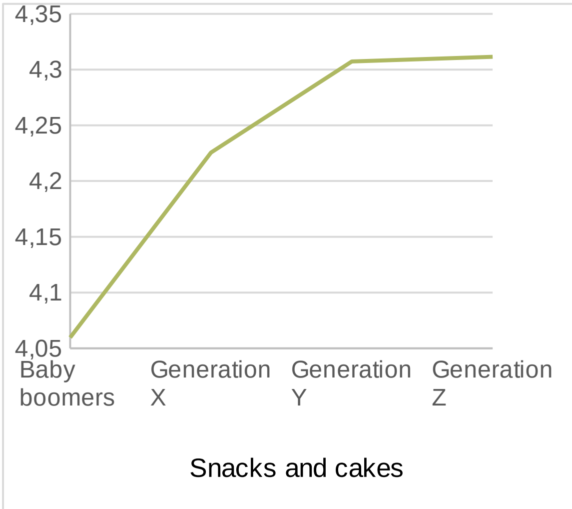
Baby boomers
Generation X
Generation Y
Self-mixed candy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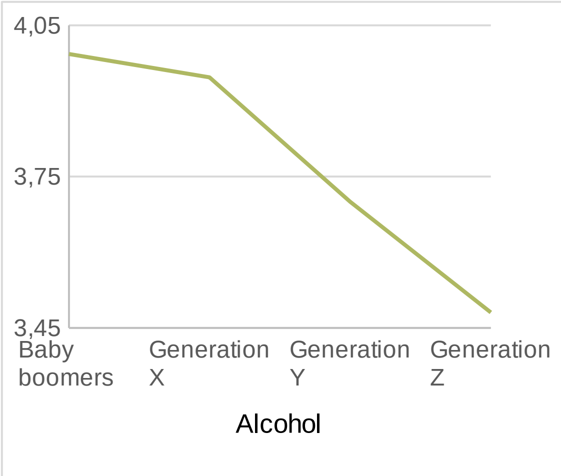
Generation Y
Generation Z
Snacks and cakes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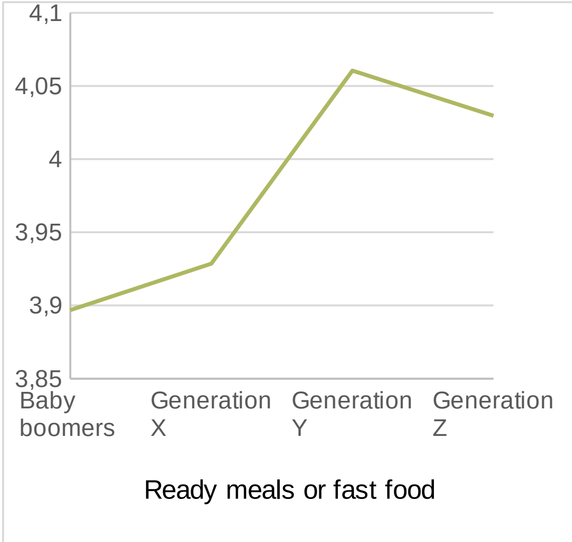
Generation X
Generation Y
Generation Z
Alcohol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3,9
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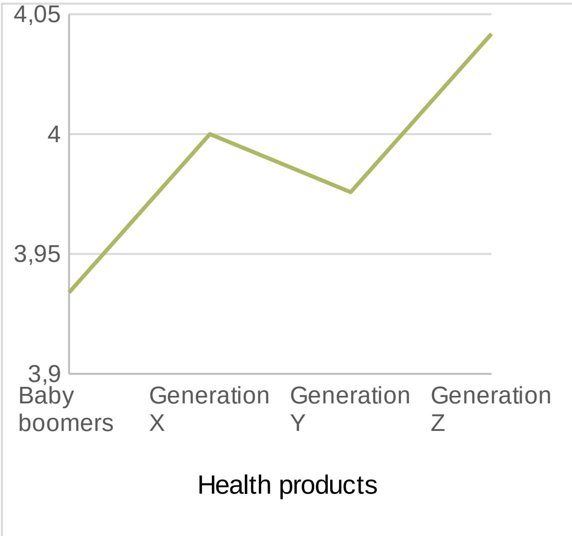
Baby boomers
Generation X
Generation Y
Generation Z
Ready meals or fast food


4,05
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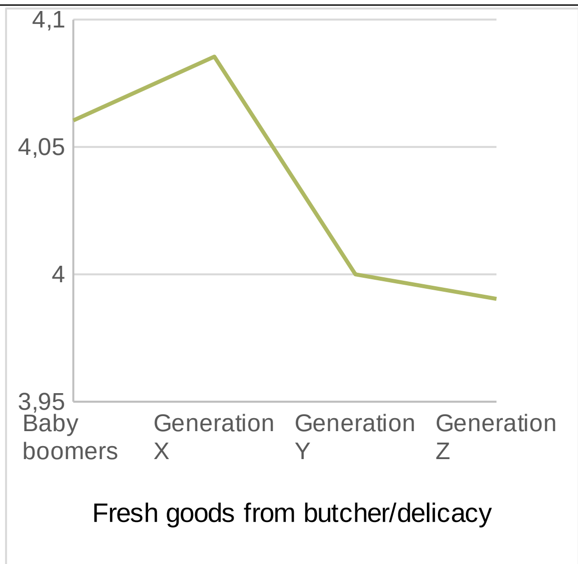
3,95
3,9
Baby boomers
Generation X
Generation Y
Generation Z
Health products


4,1
4,05
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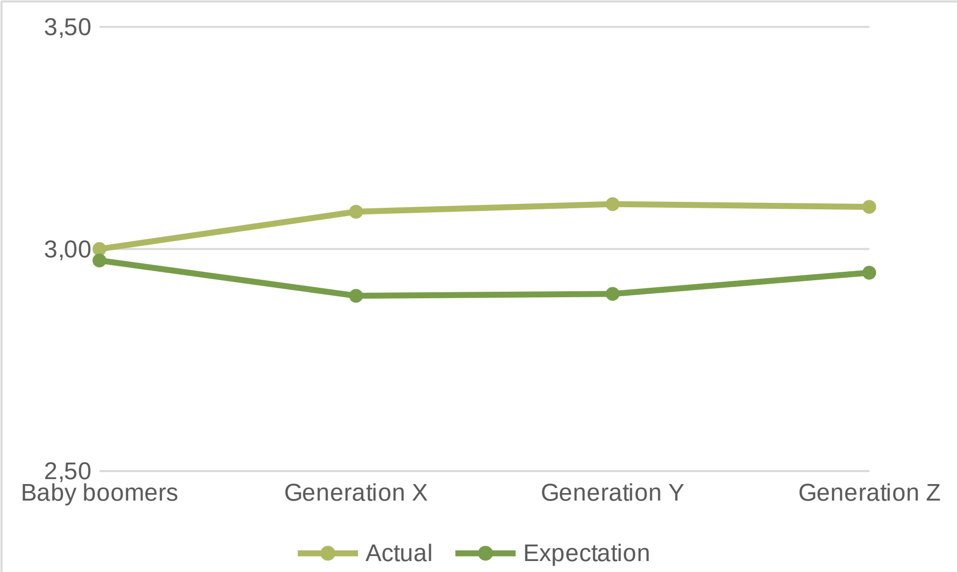
3,95
Baby boomers
Generation X
Generation Y
Generation Z
Fresh goods from butcher/delicacy

Figure A4. Mean comparison between generations on actual and expected expenditure on grocery at primary grocery store



Note: The value of Y-axis is the mean. The higher the value the more consumers spent on groceries and vice versa, 3 means the same amount.