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WHO ARE THE SHOWROOMERS? SOCIO- DEMOGRAPHIC FACTORS BEHIND THE SHOWROOMING BEHAVIOR ON MOBILE DEVICES

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Abstract This quantitative study focuses on socio-demographic variables and their associations with different forms of showrooming behavior. The purpose of this study is to find which consumer groups based on age, gender, and income level are demographically the most probable showroomers, and how much each of these variables explain showrooming. The data used is a structured online survey from 1,028 Finnish omnichannel consumers aged between 18 and 75 years. We compare the means of demographic groups' shares on different aspects of showrooming, and then use partial least squares structural equation modeling with confirmatory factor analysis to see how much each of the variables explain showrooming. The findings show that showrooming behavior is explained most by age, and that the most probable showroomers are younger consumers, higher income consumers and female consumers. The findings also show that finding information and better prices for the products are the most typical forms of showrooming.

Keywords:
showrooming,
omnichannel,
consumer
behavior,
mobile
shopping,
socio-
demographics.

1 Introduction

In today's omnichannel shopping environment, where the seamless usage of all the networked channels is possible (Rigby, 2011; Verhoef et al., 2015; Srinivasan et al., 2016), using mobile devices for shopping has become popular among many consumer groups. With the emergence of these mobile channels, cross-channel behavior has been increasing (Xu et al. 2014; Srinivasan et al. 2016). This means, for example, the use of one channel for information search and another channel for purchasing the product. Showrooming, i.e. the visiting of offline stores before purchasing online, and/or using the mobile channel while visiting offline stores, is one form of cross-channel behavior. It can thus be considered as a part of omnichannel consumer behavior, where consumers integrate the use of various channels of consumption (Rigby 2011; Verhoef et al., 2015). Although different forms of cross-channel behavior have been studied during the past decades, including, for example, webrooming (Kleinlercher et al., 2020), showrooming has not gained much attention from earlier studies. For example, Burns et al. (2019) call for future research on how demographic factors affect the probability to engage in showrooming behavior.

Thus, in this study, we aim to contribute to this call for further research with an aim to describe and compare different demographic consumer groups' probabilities in engaging in showrooming behavior. We also inspect the prevalence of different forms of showrooming behavior, thus providing a more nuanced insight on different consumer groups' different behaviors. In the pursuit for this aim, we use quantitative survey data from Finnish consumers collected in 2021. The consumers are reviewed based on their age, gender and income. Our contribution to the omnichannel literature increases the understanding of the associations of demographic factors with showrooming behavior and its different forms. Additionally, the results will help business management to notice the preferences and tendencies of different consumer groups in showrooming behavior.

In the second section, we first introduce the key concepts and theories related to this study. In the third section of our paper, we introduce our research data and methods. Next, in the fourth section, we test our hypothesis and analyze the results of this. Finally, we conclude with the fifth section by providing conclusions and further research suggestions having emerged from our study.

2 Showrooming in an Omnichannel Context

2.1 The Concept of Showrooming

Showrooming means "a practice whereby consumers visit a brick-and-mortar retail store to (1) evaluate products/services first-hand and (2) use mobile technology while in-store to compare products for potential purchase via any number of channels" (Rapp et al., 2015). In other words, in showrooming, a consumer gathers information offline but purchases the product online, with a physical store serving as a showroom for online products (Mehra et al., 2013; Brynjolfsson et al., 2013). According to statistics, 57 % of respondents living in the USA and the UK have engaged in showrooming (JRNI, 2019), and 21% of Finnish people, 50% of Swedish people and 43 % of Norwegian people showroomed during the year 2018 (Statista, 2019).

The prior research on showrooming has concentrated mainly on asking *why* consumers are showrooming; what are the drivers for engaging in it (Rapp et al., 2015; Daunt & Harris, 2017; Gensler et al., 2017). Commonly researched customer-led drivers for showrooming include, for example, perceived risk, uncertainty, and consumer involvement (Sahu et al., 2021; Balakrishnan et al., 2014). The results, thereby, suggest that the drivers behind showrooming are more complex than just the desire for lower prices in online stores (Gensler et al., 2017). In addition to these drivers, the literature on showrooming has also emphasized the challenges that offline retailers face due to this phenomenon (Fassnacht et al., 2019). According to Rapp et al. (2015), showrooming leads to offline retailers facing "*severe consequences*", since the shoppers who are going cross-channel are often noted being irrespective of the change of retailer (Grewal et al., 2016). In addition to the potential sales losses, showrooming has also been shown to negatively influence salesperson self-efficacy and performance (Rapp et al., 2015). Therefore, it becomes important to know *who* the most probable showroomers are demographically.

2.2 Demographic Factors Affecting Showrooming Behavior: Age, Gender, and Income

Age. The prior research on age and showrooming has considered age mainly as a control variable. Dahana et al. (2018) found that showrooming frequency was affected negatively by age. Consequently, they found that younger people engaged in showrooming more often than older people. However, their hypothesis of age affecting showrooming probability was not supported. Also, when studying cross-channel free-riding in general, Heitz-Spahn (2013) found that age did not affect the likelihood in these phenomena. However, consistent with Dahana et al.'s (2018) showrooming frequency results, Donnelly and Scaff (2013) found that young adults engage in showrooming more than any other age group. Young showroomers are also suggested to be more driven by mobile and to purchase more via mobile than older showroomers (Schneider & Zielke, 2020). The association of age and the utilization of mobile technologies can also be affected by potential generational differences, which divide consumers into those who have grown up with such technologies and those who have not (Prensky, 2001a; Prensky, 2001b; Fischer et al., 2017). Gilleard et al. (2015) and Madden (2010) have used 50 years' age as a threshold in comparing the use of mobile technologies of younger and older people. Based on the above, we hypothesize:

H1: The older the consumer, the less there is showrooming behavior.

Gender. The effect of gender on showrooming has not been studied extensively. Dahana et al. (2018) did not find gender having a statistically significant effect on showrooming. With the wider omnichannel perspective, no statistically significant relationship between gender and cross-channel free-riding (Heitz-Spahn, 2013) nor gender and multi-channel shopping (Jo et al., 2020) has been found. In spite of behavior, when surveying the attitudes towards showrooming, Burns et al. (2019) found that men regarded showrooming as more ethical than did women. Consistently, Schneider and Zielke (2020) found that women showroomers are more loyal than men showroomers, and stick more with one retailer when switching from an offline to an online channel. However, in omnichannel fashion shopping women were found to belong more often to the category of omnichannel shopping enthusiasts and men to the category of omnichannel reluctants (Mosquera et al., 2019). Thus, we hypothesize that:

H2: Women showroom more than men.

Income. Similarly with showrooming and age, investigating showrooming and income has generated both statistically significant and not significant results. In the US study by Gallup (2013), 40% of the respondents with lower incomes reported having showroomed at least once, while the percentage climbed to 53% for those with higher incomes. This would suggest that consumers with higher incomes showroom more than those with lower incomes. Similarly, Schneider and Zielke (2020) found that respondents with lower incomes engaged less in showrooming behavior and, when doing so, they preferred online purchasing with stationary devices over mobile purchasing. Lower income adults are also generally suggested to be less likely to utilize internet technologies (Kutner et al., 2006; Schmeida & McNeal, 2007). On the other hand, Jo et al. (2020) found no statistically significant relationship with multichannel shopping and annual income. The contradictory results on whether income has a positive or statistically not significant effect make this hypothesis worth testing. Accordingly, we hypothesize that:

H3: The higher the income, the more consumers showroom.

3 Methodology

3.1 Sample and Data Collection

Using a structured online survey, we collected data from 1,028 Finnish omnichannel consumers aged between 18 and 75 years. The respondents were selected from a large panel with random sampling. The criteria for selecting the respondents were that they had visited both the online and brick-and-mortar store of the same retailer. The response rate of the invited panelists was 36%. Non-response bias was assessed by comparing the sample to the gender and age distributions of the Finnish adult population. The sample was found representative of the adult population in Finland with respect to gender and age, and the distribution of the other socio-demographic variables was in line with the demographics of the Finnish population. Thus, it can be considered as representative (OSF, 2021a; OSF, 2021b).

3.2 Measurements and Data Analysis

The respondents of the survey rated three statements measuring showrooming behavior with a 7-point standard Likert scale (ranging from 1=strongly disagree to 7=strongly agree). Respondent were also allowed to not give a rating or leave the questions about their background information unanswered. The statements were: “I often use mobile devices to find more information about products in the store”, “I use mobile devices to find better prices for products online”, and “I use mobile devices to look for information about products while still in the store”. We adopted this established scale from Li et al. (2018), which is consistent with the definition of showrooming by Rapp et al. (2015). The scale was made to fit in the context of this research. Age and annual personal taxable income were measured as ordinal variables with six age and income groups, whereas gender was measures as a binomial variable. These were all used as predictors for showrooming behavior.

Next, we first use Welch’s analysis of variance (ANOVA) and independent samples t-tests to examine the differences in the mean ratings of the aforementioned three statements between men and women and across the six age and income groups. If statistically significant differences were found in Welch’s ANOVA, the pairwise differences between the age or income groups were examined in more detail by using the Games-Howell post-hoc tests. After that, we use partial least squares structural equation modeling (PLS-SEM) conducted with the SmartPLS 3.2.7 software (Ringle et al., 2015) to examine how these socio-demographic variables together explain showroom behavior.

4 Results

4.1 Mean Comparisons

Generally, the respondents moderately agreed with the statements “I often use mobile devices to find more information about products in the store” (mean 5.00), and “I use mobile devices to find better prices for products online” (mean 4.93). However, the respondents were rather indifferent with the statement “I use mobile devices to look for information about products while still in the store” (mean 4.15). We report the results of the mean comparisons by age groups, gender, and income groups below.

Age. In terms of age, the results of Welch’s ANOVA (Table 1) indicated that the respondents had statistically significant differences across age groups in the use of mobile devices to find more information about products in the store ($F(5, 332.905)=19.600^{***}$), in the use of mobile devices to find better prices for products online ($F(5, 333.505)=20.678^{***}$), and in the use mobile devices to look for information about products while still in the store ($F(5, 336.378)=39.549^{***}$). However, the post-hoc tests indicated that these differences mainly existed only between the respondents aged under 50 years and 50 years or over, with the former group agreeing more and the latter group agreeing less with the statements. Thus, in our further analyses in Section 4.2, we focus only on the differences between these two age groups. This is also consistent with prior literature, in which the age threshold of 50 years has been used, for example, when studying the differences in the use of mobile technologies between younger and older people (Gilleard et al., 2015; Madden, 2010).

Table 1: Age and showrooming behavior

	Age	N	Mean	SD
I often use mobile devices to find more information about products in the store. $F(5, 332.905)=19.600^{***}$	18–29 y.	191	5.70	1.49
	30–39 y.	213	5.42	1.45
	40–49 y.	194	5.28	1.58
	50–59 y.	196	4.36	2.04
	60–69 y.	179	4.40	2.11
	≥ 70 y.	53	4.15	2.09
I use mobile devices to find better prices for products online. $F(5, 333.505)=20.678^{***}$	18–29 y.	191	5.66	1.40
	30–39 y.	212	5.34	1.49
	40–49 y.	194	5.22	1.62
	50–59 y.	198	4.38	2.09
	60–69 y.	179	4.25	2.16
	≥ 70 y.	53	3.98	2.05
I use mobile devices to look for information about products while still in the store. $F(5, 336.378)=39.549^{***}$	18–29 y.	188	5.11	1.65
	30–39 y.	212	4.88	1.75
	40–49 y.	193	4.40	1.77
	50–59 y.	197	3.46	1.97
	60–69 y.	178	3.04	1.92
	≥ 70 y.	53	3.13	1.97

Notes: ns=non-significant, *= $p<0.05$, **= $p<0.01$, ***= $p<0.001$

Gender. In terms of gender, the results of Welch's t-tests (Table 2) indicated that the respondents had statistically significant differences between men and women in the use of mobile devices to find more information about products in the store ($t(1,015.119)=4.428^{***}$) and in the use of mobile devices to find better prices for products online ($t(1,017.444)=3.142^{**}$) but not in the use mobile devices to look for information about products while still in the store ($t(1,014.929)=1.461^{ns}$). In the case of using mobile devices to find more information about products in the store and using mobile devices to find better prices for products online, women agreed more with the statements than men.

Table 2: Gender and showrooming behavior

	Gender	N	Mean	SD
<i>I often use mobile devices to find more information about products in the store.</i> $t(1,015.119)=4.428^{***}$	Male	496	4.74	1.84
	Female	526	5.24	1.82
<i>I use mobile devices to find better prices for products online.</i> $t(1,017.444)=3.142^{**}$	Male	496	4.74	1.86
	Female	527	5.11	1.86
<i>I use mobile devices to look for information about products while still in the store.</i> $t(1,014.929)=1.461^{ns}$	Male	497	4.05	1.94
	Female	520	4.24	2.04

Notes: ns=non-significant, $*=p<0.05$, $**=p<0.01$, $***=p<0.001$

Table 3: Income and showrooming behavior

	Income	N	Mean	SD
<i>I often use mobile devices to find more information about products in the store.</i> $F(5, 358.955)=1.620^{ns}$	< 10 k€	87	4.84	1.99
	10 k€ – < 20 k€	218	4.77	1.97
	20 k€ – < 30 k€	180	5.17	1.74
	30 k€ – < 40 k€	169	5.18	1.74
	40k€ – < 50 k€	130	5.18	1.79
	≥ 50 k€	107	5.14	1.69
<i>I use mobile devices to find better prices for products online.</i> $F(5, 359.338)=1.448^{ns}$	< 10 k€	87	4.62	2.00
	10 k€ – < 20 k€	218	4.76	1.95
	20 k€ – < 30 k€	180	5.09	1.87
	30 k€– < 40 k€	168	5.01	1.84
	40 k€ – < 50 k€	130	5.03	1.77

	≥ 50 k€	107	5.15	1.74
<i>I use mobile devices to look for information about products while still in the store.</i> F(5, 352.867)=2.491*	< 10 k	84	4.14	2.08
	10 k€ – < 20 k€	218	3.81	2.03
	20 k€ – < 30 k€	180	4.16	1.90
	30 k€– < 40 k€	167	4.35	2.01
	40 k€ – < 50 k€	129	4.35	2.05
	≥ 50 k€	106	4.50	1.85

Notes: ns=non-significant, *= $p < 0.05$, **= $p < 0.01$, ***= $p < 0.001$

Income. In terms of income, the results of Welch’s ANOVA (Table 3) indicated that the respondents had statistically significant differences across income groups only in the use mobile devices to look for information about products while still in the store ($F(5, 352.867)=2.491^*$) but not in the use of mobile devices to find more information about products in the store ($F(5, 358.955)=1.620^{ns}$) or in the use of mobile devices to find better prices for products online ($F(5, 359.338)=1.448^{ns}$). In the case of using mobile devices to look for information about products while still in the store, the differences seemed to exist mainly between the respondents with an income of under 30,000 € and 30,000 € or over, with the former group agreeing less and the latter group agreeing more with the statement. Thus, in our further analyses in Section 4.2, we focus only on the differences between these two income groups. This is also consistent with the average Finnish annual personal taxable income, which is about 30,000 € (OSF, 2018), as well as with the prior study by Jensen et al. (2010), which investigated lower income adults’ utilization of internet technologies.

4.2 Results

Our study was exploratory in a broad sense, as it tested the effects of several new relationships, and the variables were not normally distributed. In such cases, factor indeterminacy makes covariance-based Structural Equation Modeling (SEM) unsuitable for prediction purposes, and Partial Least Square Structural Equation Modeling (PLS-SEM) is the recommended testing approach (Hair et al., 2017). Thus, our hypotheses were tested using PLS-SEM. The analyses and reporting the results were done according to the guidelines by Hair et al. (2017). For instance, in the model estimation, we used mode A as the indicator weighting mode of the constructs, path weighting as the weighting scheme, and +1 as the initial weights, while the statistical significance of the model estimates was tested by using bootstrapping with 500 subsamples and individual sign changes. As the threshold

for statistical significance, we used $p < 0.05$. The missing values were replaced by means.

4.2.1 Measurement Model

The data were analyzed using partial least squares confirmatory factor analysis. In general, measures for showrooming behavior (mean=4.69, SD=1.90) showed high internal reliability. The evaluation of the showrooming behavior showed acceptable reliability and validity as the standardized factor loadings were all either equal to or larger than 0.87. Composite reliability (Fornell & Larcker, 1981) was above 0.91, and Cronbach's alpha was 0.86, which were both larger than the recommended cut-off value of 0.70 (Nunnally & Bernstein, 1994). Discriminant validity was achieved by using the Fornell–Larcker (1981) criterion and testing the heterotrait-monotrait (HTMT) ratio. HTMT ratios were below the cut-off value of 0.90 (Hair et al., 2022). To summarize, the evaluation of the reflective construct met the commonly set criteria. The conceptual model accounted for 15% of the variance in showrooming behavior.

4.2.2 Structural Model

As hypothesized (H1), a negative effect of age on showrooming behavior ($\beta = -0.36$; $p < 0.001$) was supported by the data (Table 4). In contrast to the hypothesized positive association between male gender and showrooming, the data supported a positive effect of female gender on showrooming behavior ($\beta = 0.07$; $p < 0.05$), thus rejecting H2. With respect to H3, the data supported a positive effect of income on showrooming behavior ($\beta = .08$; $p < 0.01$).

Table 4: Path Coefficients on Customer Showrooming

DV	IV	Hyp.	β	p-value	R ²
Customer showrooming	Age (<i>18–49 y.</i> = 0; $\geq 50 y.$ = 1)	H1	-0.36	***	0.15
	Gender (<i>male</i> = 0; <i>female</i> = 1)	H2	0.07	*	
	Income (< 30 k€ = 0; ≥ 30 k€ = 1)	H3	0.08	**	

Notes: ns=non-significant, *= $p < 0.05$, **= $p < 0.01$, ***= $p < 0.001$

5 Discussion and Managerial Implications

This study focused on socio-demographic variables and their associations with different forms of showrooming behavior. In so doing, it offers new information on typical showroomers that has been called for in prior research (Burns et al., 2019). Based on survey data from 1,028 Finnish consumers, we studied the associations of age, gender and income with showrooming behavior (Rapp et al., 2015) by using Welch's ANOVA and t-tests as well as PLS-SEM.

Based on our results, younger, female, and higher income consumers are more eager to showroom. Of these three variables, age had the strongest association with showrooming behavior. The result of younger consumers showrooming more is consistent with the results of Dahana et al. (2018) as well as Donnelly and Scaff (2013) and contradictory with the cross-channel free-riding study of Heitz-Spahn (2013). Our results particularly support Schneider and Zielke's (2020) finding that younger people are the most mobile-driven consumers, because our results suggest that the use of mobile channels for showrooming while still being in the store is especially dependent on age. Older respondents were the only respondent group in the whole research that, on average, reported not to showroom while still being in-store. We think that younger consumers tend to showroom and utilize mobile channel everywhere because they are more familiar with using these channels in consumption and everyday life, as Jo et al. (2020) formulate. People aged 50 years or over, i.e. those who were born before 1970, in turn, have already been middle-aged and formed their habits as a consumer before the widespread presence of smartphones enabling the use of mobile channels in shopping.

When perceiving the association of gender, we found gender to affect showrooming behavior, despite gender's association with showrooming or multichannel shopping being statistically not significant in prior research (Dahana et al., 2018; Heitz-Spahn, 2013; Jo et al., 2020). Our results suggest that women showroom more than men. Although the result is consistent with women being omnichannel fashion shopping enthusiasts more often than men (Mosquera et al., 2019), the finding of women showrooming more is interesting. This is considering the prior findings where, compared to men, women perceived showrooming less ethical (Burns et al., 2019) and were more loyal showroomers (Schneider & Zielke, 2020). Although women showroomed otherwise more in our study, we found that while still in-store, women

did not showroom more than men. This is consistent with prior literature, for instance with Schneider and Zielke's (2020) finding that women are underrepresented in mobile-driven showrooming. Women's showrooming behavior could be explained, for example, by their risk minimizing propensity in online shopping (Liebermann & Stashevsky, 2002). Because of the contradictory results on gender's association and its significance on showrooming behavior in the omnichannel literature, different showrooming attitudes and styles of genders should be studied more in the future.

When it comes to income, our results of people with higher incomes showrooming more are consistent with prior research reporting similar results (Schneider & Zielke, 2020; Gallup, 2013). Our result of higher incomes' association with showrooming more while still in-store is especially consistent with Schneider and Zielke's (2020) finding on people earning more also using mobile channels more in showrooming. However, income's positive association with showrooming is contradictory with Jo et al. (2020), who found no relationship between multichannel shopping and annual income. The found positive association of income could be explained by people with higher income doing more high-involvement purchases. All in all, the combined effects of the demographic variables suggest that age is the most important antecedent of showrooming behavior, then annual income, and lastly gender. Thus, the most probable showroomers seem to be younger customers with higher income.

Our results provide useful information for retailers on recognizing the most probable showroomer groups. In brick-and-mortar retail stores, the salespersons and their advice provide important help to customers to finalize the purchase in the store, reducing their showrooming behavior (Rapp et al., 2015; Gensler et al., 2017; Fassnacht et al., 2019; Linzmajer et al., 2020). According to our results, the most probable customer groups to showroom are younger customers, higher income customers, and female customers. Thus, targeting the measures, such as quickly available sales advice, especially to these groups could help reducing offline stores' customers' showrooming behavior.

5.1 Limitations and Future Research

This study has certain limitations that leave opportunities for further research. Firstly, the respondents are from Finland, and thus the results cannot be generalized to other countries' contexts. Secondly, the established scale and statements of showrooming behavior (Li et al., 2018) include only mobile channels and do not include online channels. We point out that this can reduce the actual number of showroomers, since our results suggest that showrooming while still being in-store is less common than searching for information or lower prices afterwards, possibly via stationary devices. Thirdly, future research could analyze multiple age and income groups instead of two groups of this study. Finally, the nature of this study was quantitative, and we cannot analyze the motives and attitudes behind the respondents' behavior. Qualitative research is needed to explain these results in detail, especially the contradictive result of gender's effect. Also other combined effects, for example attitudes, skills and other online behavior and consumer behavior, could be researched in the future.

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Appendix 1: Data description of the respondents.

Gender	N	%
Male	497	48.5
Female	527	51.5
Age	N	%
18–49 years	595	58.1
50–75 years	429	41.9
Annual personal taxable income (€)	N	%
Under 20,000 €	304	34.3
20,000–39,999 €	349	39.3
40,000 € or over	234	26.4
Missing	137	–