WHO ARE ONLINE GROCERY SHOPPERS?

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Abstract: *The acceleration of the digitalisation of grocery shopping is an important trend that shows that this way of sourcing groceries is increasingly accepted by customers. Uncovering, understanding, and describing the differences between online grocery shoppers is interesting from a scientific point of view and a practical one. Correctly targeting a specific customer segment increases the very effectiveness of marketing communication by spending the cost of communicating with those correctly targeted customers that are valuable to the company. Therefore, this paper explores the behaviour of customers when shopping online and tries to find similarities in this behaviour. The aim of the paper is to generate customer segments of online grocery shoppers that provide a more comprehensive insight by reflecting on their shopping behaviour, personality traits and characteristics, loyalty, overall satisfaction with online grocery shopping in the current retailer, and frequency of social media usage. An online questionnaire survey was conducted with a panel of respondents from the IPSOS research agency to obtain primary data. Data were analysed using factor and cluster analysis. These analyses resulted in the creation of a segmentation that identified five main segments of online grocery shoppers. The constructed combined segmentation divides shoppers into five segments: quality-oriented shoppers (18.9%), influential utilitarians (21.7%), loyal traditionalists (16.4%), satisfied conditional loyalists (14.9%), and movable eco-sympathizers (28.1%). Then these category types are characterised in terms of their most salient characteristics. The results of this study show the variables that influence customers in their decision-making process. Outcomes increase knowledge about online grocery shopping behaviour, motives, and purchase requirements. These are also beneficial for grocery retailers for better targeting or fostering loyalty.*

Introduction

Given the rate of growth in online grocery shopping revenues, retailers and manufacturers need to understand how consumers behave when shopping online (Anesbury et al., 2016). Thus, categorising customers into groups according to typical elements of their customer behaviour is important both in terms of increasing knowledge about customer behaviour from a scientific perspective and in the development of, for example, companies' marketing strategies. In fact, by dividing customers according to an appropriate segmentation, a company can divide its market into several suitable segments in which customers have similar characteristics and needs and which it is effective to target.

This paper focuses on the domain of customer segmentation and specifically on the field of online grocery shopping, which has been one of the fastest-growing online categories in recent years around the world. This dynamic development has been compounded by the acceleration of online grocery shopping due to the COVID-19 disease pandemic. For example, the US online grocery market was estimated to generate sales worth about 28.68 billion USD in 2019 but was forecast to generate 59.5 billion USD by 2023 (Statista, 2021). Globally, then the Food Industry Association estimates that online grocery sales will increase to 143 billion USD by 2025, which will represent 30% of all omnichannel food and beverage spending (FMI, 2020). However, the first estimate for 2025 was made by Nielsen, which estimated that online food sales will grow to 100 billion USD by 2025 (Nielsen IQ, 2021). Of course, with the original estimate, it was not yet possible to include the impact of the COVID-19 pandemic in the prediction. These two estimates only confirm that there has indeed been an acceleration of online grocery shopping, which has only amplified the dynamic development of this mode of shopping that has been seen in recent years.

Existing previous studies have tended to focus on the differences between consumers' motivations for online and brick-and-mortar grocery shopping (Geuens et al., 2003; Roberts et al., 2003; Rohm & Swaminathan, 2004). Harris et al., 2017 found that the choice of whether to shop online or in a brick-and-mortar store may not be based on the perceived advantages of one channel over the other, but also on the perceived advantages of the other channel with a desire to avoid the greater disadvantages of the alternative. Furthermore, they found that these perceptions vary between different groups of consumers. Recent studies have already focused on creating a segmentation of online grocery shoppers in terms of behavioural and psychological aspects (Conlin & Labban, 2019; Gunawan et al., 2018; Harris et al., 2017; Hasanzade et al., 2018; Jara et al., 2018). Brand et al. (2020) even incorporate insights from behavioural models (Theory of Reasoned Action and Theory of Planned Behaviour), whose significant development is the Technology Acceptance Model (TAM) into their research on online grocery shopping behaviour, and base their segmentation on attitudes, norms, perceptions, and beliefs.

This paper also explores the use of TAM findings to extend the field of research on customer behaviour from this perspective, which is still little explored. Four variables (visibility, subjective norm, utilitarian purchase motive, and trust) were selected as strong variables across the TAM models examined. In addition, a new variable factor was created that focuses on the total value of online grocery shopping to the customer themselves, as an important concept that has not yet been applied in this domain. For this reason, exploratory factor analysis was first performed. Due to the specificity of online grocery shopping, other possible variables that could influence the resulting clusters were added. These variables are age, gender, frequency of online grocery shopping, net monthly income, number of household members, frequency of social networking, overall satisfaction, and loyalty. Therefore, the resulting segmentation develops insights into other dimensions of the possible influence of the selected variables. The aim of the paper is to generate customer segments of online grocery shoppers that provide a more comprehensive insight by reflecting on their shopping behaviour, personality traits and characteristics, loyalty, overall satisfaction with online grocery shopping in the current retailer and frequency of social media use. The following section of the paper presents the theoretical background and presents the relevant literature on customer typologies and variables that affect online grocery shopping. The next section is devoted to a description of the data collection, sample characteristics, and the selected method of analysis. The interpretation of cluster analysis is presented in the result section. The core findings are discussed in the following section. Finally, the main results of the research and practice are presented.

1. Literature Review

Research oriented on customer behaviour often results in the establishment of customer typologies. In recent years, the popularity of typologies emphasising attributes of buying behaviour and buying patterns has grown along with the increasing fragmentation of society, making traditional demographic segmentation less and less applicable (Keegan, 2009). Typologies help marketers identify the types of segment to focus on or, conversely, to avoid (Szmigin & Piacentini, 2018). The benefit of typology is its usefulness as a template for developing new

products or services or the ability to create appropriately targeted advertisements for existing products (Keegan, 2009).

By analysing papers from the Web of Science database, eight typologies were found in the study domain. A total of 219 papers were examined for keyword matching. These typologies are briefly presented in Tab. 1, in which the development of these typologies is specified in more detail. In the field of online grocery shopping, it was found that authors from different countries on several continents were involved in the formation of the typologies, indicating a worldwide interest in obtaining a suitable typology that could sort the view of these customers according to their similar characteristics.

Before the first typology was created, a first-customer segment was defined based on a literature search. This segment was called "ideal customers" because it is based on research that focuses on online marketers' perceptions of their ideal customers. The ideal customer segment (Morganosky & Cude, 2000) represents a group of busy suburban families with dual incomes (Ingram, 1999), high incomes, and at least one child (Kirsner, 1999). However, other research has found that online grocery shoppers are more diverse than marketers thought, and research has led to a variety of typologies in this area.

The two oldest typologies of online grocery shoppers were first developed in parallel in 1998 (Morganosky & Cude, 2000). The typology, co-authored by the "Consumer Direct Cooperative", specified five segments based on customers' attitudes toward time, shopping, and technology (Kutz, 1998). The first segment is for "physical shopping avoiders" who do not

Tab. 1:	Typology of online grocery shoppers according to major studies	
Author	**Data collection techniques (countries)**	**Typology**
Morganosky and Cude (2000)	Literary review	1) Customers out of necessity, avoiding physical purchases, focusing on new technologies, time-pressed, and responsible customers 2) "Hi-tech baby boomers" and older customers
Seitz et al. (2017)	Face-to-face questionnaire and online questionnaire (n = 412; Germany)	Working mothers, young professionals and "Silversurfers"
Harris et al. (2017)	Four focus groups and questionnaire, (n = 871; UK)	Converted, focused on gaining an advantage and timid customers
Jara et al. (2018)	Questionnaire (n = 479; France)	Utilitarian customers (25–34 years), overall satisfied customers (35–44 years), customers who expect the same value as in a brick-and-mortar store (45–55 years)
Hasanzade et al. (2018)	Online questionnaire (n = 249; Germany)	Ethically motivated customers (53.8%), price-oriented customers (12%), price and quality-oriented customers (34.2%)
Gunawan et al. (2018)	Questionnaire (n = 200; Indonesia)	Pioneers, socialisers, achievers and traditionalists
Conlin and Labban (2019)	Questionnaire (n = 14,807; USA)	High and low involvement grocery shoppers
Brand et al. (2020)	Online questionnaire (n = 2,032; Great Britain, Northern Ireland)	Intensive urbanites, online omnivores, uncaring multitude, willing but struggling, resisting and responsible

Source: own

like to go to the store to buy food. The second segment is "necessity shoppers", who are characterised by constraints that prevent or make it difficult for them to go to the store. The third segment is the "new technology shoppers", who are young and comfortable with technology. The "time-pressed" segment is a group of customers who are not sensitive to price changes and are happy to pay extra for extra time. The last segment is the "responsible customers", who get some unspecified value of their own by purchasing. This research has shown that each group of potential online grocery shoppers cuts across all income and education levels, age groups, and geographic locations.

Another typology was developed based on focus groups with customers who had previous experience with online grocery shopping. This typology identified two segments (Park et al., 1998). The first segment, called "hi-tech baby boomers", is defined as customers who shop from the convenience of home or because of the novelty of the service, often using a computer. The second segment, "older shoppers," has lower incomes and often live alone, shop online for groceries because of their health conditions, and prefer to order groceries by phone rather than online using a computer. In contrast to the previous typology, there is an identified difference between the segments based on demographic factors. This finding is supported by Morganosky and Cude (2000), who found differences among online grocery shoppers in terms of age, income attainment, and reasons for purchase (convenience, time saving, and physical effort saving).

The third typology defined by demographic factors identified three groups of customers that are homogeneous by a positive relationship with online shopping and heterogeneous just based on demographic factors (Seitz et al., 2017). The first group is working mothers, defined as women working part-time or full-time, with at least one child. Compared to the previous group, the group of young professionals is bounded by age as customers up to 39 years old with average wages or higher who do not have children. The third group is the "Silversurfers", its name is meant to suggest older customers, this group was defined as customers over 65.

Similarly, in subsequent typologies, some use of demographic factors for typology can be observed, but attention began to focus more on psychological and behavioural factors, with

demographic factors slowly fading into the background.

A typology based on customer behaviour towards online grocery shopping divides customers into converted, benefit-focused, and fearful. Although converted shoppers in this typology are motivated by the expected benefits of easy and convenient shopping and the time-saving nature of online shopping, benefit-focused shoppers represent impulsive shoppers who often buy groceries online only once, and the timid group is even characterised by apathy towards grocery shopping in general. The choice of the form of grocery shopping of timid shoppers is mainly determined by the desire to escape the disadvantages of online shopping, while at the same time, they do not have a strong habit of shopping in traditional stores. These shoppers are apathetic about their choice of a shopping channel and are more likely to choose according to the current situation. The contribution of this typology is the focus not only on the online shopping area but also on the offline environment, which allowed the evaluation of the factors that influence customer behaviour related to the perception of grocery shopping in traditional brick-and-mortar retail chains. (Harris et al., 2017)

Another typology in this area is defined only for click-and-collect purchases and identifies three groups of customers based on age and behavioural factors. These groups include utilitarian customers, overall satisfied customers and customers expecting the same value as in a brick-and-mortar store. Utilitarian customers are characterised by an age range of 25 to 34 years and their need is functionality (convenient website, pick-up stations). The second group is made up of customers between 35 and 44 years old who are generally satisfied with the e-tailer and the most important for them are relational (relationship with employees) and experiential (through the web) factors. The last group is customers in the 45 to 55 age range who have the same expectations of the online retailer as offline retailers, and the most important factors for them are the stations designated for pick-up, the relationship with staff, and the service reflecting the same components as the physical store (Jara et al., 2018).

Another group focused on the area of environmentalism and perceptions of price and quality in forming the typology. The results of the study in this area were used to create

a typology containing three segments, namely ethically motivated customers, price-oriented customers, and customers oriented towards price and quality at the same time (Hasanzade et al., 2018). The brand area was not neglected either, and a typology containing four customer groups (pioneers, socialisers, achievers and traditionalists) was created based on perceptions of brand preference, purchase convenience, and purchase intention (Gunawan et al., 2018). This typology compares customer groups to the life cycle of technology adoption, with pioneers having similar characteristics to innovators, socialisers having similar characteristics to early adopters, achievers having characteristics in common with an early majority, and traditionalists having characteristics in common with a late majority. A simple typology classifies customers into high- and low-engagement customers, with low-involvement customers being the opposite of the former group. High-engagement customers tend to be younger customers who like to browse the web to find products, seek advice from others on social media, and feel that the products they purchase are fully satisfying (Conlin & Labban, 2019).

A typology based on the findings of the TPB (theory of planned behaviour) and the TAM (technology acceptance model) identified five segments. The first is intensive urbanites who tend to be the most positive about online shopping overall. The next segment is online omnivores who tend to embrace the instrumental benefits of online shopping, but they tend not to be overly pressed for time or in hurry, and find it easier to identify a suitable delivery time or plan to shop online in advance. The uncaring multitude tends to be the least socially and environmentally responsible out of all the clusters. The next segment of willing buds who are struggling are very conscious, pressed for time, and doing things efficiently is important to them. The last segment is resisting and responsible. They tend to be highly sceptical of the instrumental benefits of online shopping, which they find somewhat emotionally and cognitively challenging. According to the content of the explanatory variables, this typology is based on psychographic segmentation (Brand et al., 2020).

Each of the above typologies attempts to categorise online grocery shoppers according to different factors. There has been a shift from demographic factors to behavioural or psychological factors, but certain demographic elements (especially age categories) are still present in the most recent typologies.

1.1 Choice of Variable Factors that Influence Customers When Buying Groceries Online

Research on online grocery shopping behaviour has revealed differences from online shopping behaviour in general (Arce-Urriza & Cebollada, 2013; Hand et al., 2009; Hansen, 2008). These differences manifest themselves in identified situational factors, purchase motives, impulse purchases, and environmental issues, due to the specificity of grocery shopping transferred to the online environment. In the context of a technology acceptance model for online grocery shopping, several variables have been tested to influence customer behaviour, namely subjective norm, visibility, perceived risk, entertainment, perceived time pressure, perceived convenience, perceptions of offline retailers, positive past experiences, situational factors, and social influence (Driediger & Bhatiasevi, 2019; Kurnia & Chien, 2003; Wolf, 2012). This paper focuses on four variable factors (visibility, subjective norm, utilitarian purchase motive, and trust) that are used in TAM models that examine online grocery shopping and one variable factor that focuses on the total value of online grocery shopping to the customer themselves, as an important concept that has not yet been applied in this domain. In this research, total consumer value is a variable that determines the extent to which the value-added, which consists of the customer's subjective perception of import services, assortment, and environmentalism, influences their perceived usefulness of online grocery shopping and their intention to buy groceries online.

Visibility has a positive impact on the attitude of potential customers towards online grocery shopping. This factor has been defined as a situation where the more frequently potential adopters/customers encounter online grocery shopping used by others, the more likely they are to have positive attitudes toward purchasing by themselves (Kurnia & Chien, 2003).

The subjective norm arose in an extension of the TAM model, with Venkatesh and Davis (2000) working with the theoretical concept that the subjective norm affects perceived utility (in our case, the utility of buying groceries online). Furthermore, they also suggested that the subjective norm also influences the intention to

use the system (to buy groceries online through a website/app). This direct effect of subjective norms on the intention to buy groceries online is because, in some situations, one may behave in a way that is inconsistent with the perceived usefulness of this behaviour. Driediger and Bhatiasevi (2019) explain the subjective norm in the context of online grocery shopping as a situation where customers will buy groceries online if they feel that influential people in their environment think that shopping in this way is good.

The utilitarian shopping motive has a significant impact on the attractiveness of the online shopping channel to potential customers and remains one of the key drivers of channel preference (primarily through money saving, assortment orientation, and convenience) (Cervellon et al., 2015). Consistent with this finding, price-oriented research has found that price influences product choice, but has a limited impact on product category or quantity purchases (Wan et al., 2017). Online grocery shoppers shop with a specific purchase goal in mind, which corresponds to a more utilitarian purchase motive, and therefore this type of purchase motive was selected for research. Furthermore, within the utilitarian motive, it was found that if customers create a shopping list when shopping for groceries online, they will purchase slightly or significantly fewer items and spend slightly less money compared to the control group (who do not have a shopping list; Davydenko & Peetz, 2020).

Trust is a set of specific beliefs about the trustworthiness of a vendor, service provider, or website, and comes in two beliefs, such as a sense of trust and security about online transactions and a sense of trustworthiness about a particular vendor (Ingham et al., 2015). In the context of online grocery shopping, the individual behavioural intention of online grocery shoppers can be explained by the trust that using a website to buy groceries is useful in their personal life and the trust that using a website to order groceries online is easy.

2. Material and Methods

The purpose of the current research was to take the appropriate steps to create a combined segmentation of online grocery shoppers in the Czech Republic. Cluster analysis was used to create a segmentation of online grocery shoppers based on the clustering of similar online grocery shoppers into homogeneous groups that are mutually heterogeneous. In market segmentation, high correlations were first eliminated using factor analysis and then cluster analysis was used to find the segments. An online panel of respondents from the IPSOS research agency was used for data collection.

2.1 Participants and Procedure

Given that the chosen agency for primary data collection is certified and that control mechanisms are used to guarantee data quality, which is currently beyond the standards of SIMAR and ESOMAR, there is a presumption that the logical control conditions have been met. However, a logic check was performed on the question related to the specific retailer from which respondents order their online grocery purchases, where if respondents did not select the answer, they were excluded from subsequent testing. In total, 146 respondents were eliminated as a result of the logic check.

The "missing value analysis" and "straight lining" functions in IBM SPSS were used to detect nonsampling errors in the primary data. Using the "missing value analysis", 10 missing values were found. These missing values were replaced using the "replace missing values" function by inserting the median value of the responses to the question. Using the "straight lining" function, the scaled responses of 21 questions were analysed for factor reduction by exploratory factor analysis. Frequency analysis revealed that a total of 22 respondents answered these questions with a single response option. Since the survey also included reverse variant questions to determine the relevance of each response, these 22 respondents were excluded from further examination.

For subsequent data testing using the selected mathematical-statistical methods, a sample size of 773 respondents was determined by a data cleaning process. The characteristics of the respondents are presented in Tab. 2.

All respondents are residents of the Czech Republic due to their place of residence (respective region), who filled out the questionnaire. The age range of the respondents is 18 to 65 years. The frequency of online grocery shopping ranges from less frequently to several times a month.

2.2 Cluster Analysis Procedure

Since the subject of the study is individual customers, the *k*-means method was used, since

Tab. 2: Respondents' characteristics

Conceptual domain	Segmentation variable	Categories	Sample (N = 773)	Sample (%)
Demographic	Gender	Male	373	48.3
		Female	400	51.7
	Age (years)	18–24	95	12.3
		25–34	193	25.6
		35–44	175	22.6
		45–54	157	20.3
		55–65	153	19.8
	Number of household members (persons)	1	51	6.6
		2	210	27.2
		3	246	31.8
		4	177	22.9
		5 and more	89	11.5
Geographical	Size of place of residence (inhabitants)	Up to 1,000	113	14.6
		From 1,001 to 5,000	157	20.3
		From 5,001 to 20,000	127	16.4
		From 20,001 to 100,000	169	21.9
		More than 100,000	207	26.8
Socio-economic	Net monthly household income (USD)	Up to 699	51	6.6
		699 to 932	49	6.3
		933 to 1,398	140	18.1
		1,399 to 1,864	178	23.0
		1,865 to 2,330	164	21.2
		2,331 to 2,796	81	10.5
		2,797 to 3,262	55	7.1
		More than 3,262	55	7.1
Behavioural	Buying behaviour	Several times a month	153	19.8
		Several times a quarter	153	19.8
		Several times a year	170	22.0
		Less frequently	297	38.4

Source: own (based on primary data)

this method is used to identify the types according to their attitudes. However, a hierarchical method was first performed without determining the group affiliation to identify the appropriate number of clusters based on the dendrogram analysis [Appendix: Fig. A1; for a higher resolution of the figure, see the online version of the article)]. When developing a cluster analysis using the hierarchical method, the researcher must determine the appropriate clustering method, identify the type of data to be used for clustering, and determine the distance measurement method for that type of data. For the data in this research, Ward's method was selected because it is considered the best suitable method for cluster analysis.

The following segmentation variables were selected for the cluster analysis: age range,

gender, frequency of online grocery shopping, number of household members, amount of net monthly income, frequency of use of social media, overall satisfaction with the retailer (measured by a question on the level of overall satisfaction with the retailer from which they buy their groceries online), loyalty (measured by a question examining the probability of switching to a competitor), and variable factors identified in the factor analysis followed by the analysis of specific variables in each factor assigned to a specific cluster. Since the variables used for cluster analysis testing should not be of different types, all variables were treated as lower-order variables, that is, as nominal data. According to this type of data, the distance measurement method was then determined as the "squared Euclidean distance", and the data were standardised (standard deviation) regarding the different scales of each variable. Subsequently, profiling was performed based on the statistical significance of the segmentation variables under study, the variable factors and the mode of the variables, according to the clustering of similar online grocery shoppers into homogeneous groups that are heterogeneous to each other.

3. Results

The first part of the research results is aimed at discovering the factors that influence customers when purchasing groceries online. To identify the factors, a reduction of 21 variables was performed that reflect the study area. To validate the suitability of the collected data, the primary data were tested using the Keiser-Meyer Olkin (KMO) and Bartlett's test (Tab. 3), and the result of the KMO test meets the recommended values [KMO ≥ 0.5 according to Charry et al. (2016)] and Bartlett's test is statistically significant (<0.05).

Using the principal-axis factoring method and direct oblivion rotation, five latent factors were identified based on the method to explain a sufficient percentage of variability in the population. Of the original 21 variables, three variables (T1, T2, T5) were eliminated due to low factor loadings on each factor. T1 was formulated as follows: I believe that the food purchased through the website will be of good quality and fresh no matter which online retailer I purchase from (company brand). T2 was formulated as: I am more confident when buying food online with retailers I already know in offline environments (such as the Tesco chain). T5 was formulated as follows: I am concerned about securing the privacy of my personal information when purchasing food online.

For clarity, variables with factor loadings below 0.3 were extracted from the structural matrix and individual variables were ranked according to the factor sequence. The resulting factors and factor loadings for each variable are shown in Tab. 4. Tab. 4 lists the main details of the formulated statements as variables for a clearer interpretation of the results of the exploratory factor analysis.

Exploratory factor analysis revealed that 18 of the original variables collapsed into five factors. Except for the fourth factor, which is saturated with only two items, all other factors found are saturated with four items. The results of the exploratory part of the factor analysis are then used as one of the inputs in the cluster analysis.

3.1 Segmentation of Online Grocery Shoppers

This part of the paper is already devoted to determining the appropriate segmentation of customers who buy groceries online in the Czech Republic. Cluster analysis of selected

Tab. 3: **KMO and Bartlett´s test results**

Test type	Measured values
KMO	0.950
Bartlett's test – Approx. Chi-squared	21,093.837
Bartlett's test – df	666.000
Bartlett's test – Sig.	0.000

Source: own

Tab. 4: Observed factor loadings after oblique rotation of "Oblimin"

	Variables	Utilitarian purchase motive	Visibility	Subjective norm	Trust	Total consumer value
				Factors		
U3	Peace of mind to choose and study product information	0.719				
U2	Planning of purchases and the ability to reuse a saved shopping list	0.712				
U4	The thoughtfulness of the purchase	0.709				
U1	Shopping with a goal in mind	0.639				
V4	They have been intrigued by various online grocery shopping specials they have seen or heard about in different media		0.711			
V1	They have seen advertising to buy groceries online		0.441			
V2	They have seen others buy groceries online		0.386			
V3	They have seen someone have groceries bought online delivered to their home		0.307			
S1	A mindset of friends and acquaintances about online grocery shopping			0.717		
S2	A mindset of my family members about online grocery shopping			0.704		
S4	Positive testimonials on online grocery shopping			0.474		
S3	Positive testimonials from bloggers or celebrities			0.468		
T3	The assumption is that the retailer selects the highest quality and freshest grocery				0.879	
T4	Security of online payment privacy				0.839	
H3	Buying private label chains online					0.805
H2	Ability to purchase specialty groceries					0.775
H1	Ability to import ordered groceries to your home or provide a click-and-collect service					0.530
H4	Replacement of plastic bags with a more environmentally friendly option					0.572

Source: own

Tab. 5: Number of clusters and frequencies of their objects

Clusters	Frequency of objects	Percentage (%)
1	146	18.9
2	168	21.7
3	127	16.4
4	115	14.9
5	217	28.1

Source: own

Tab. 6: Final output of the cluster analysis

Variables	Clusters				
	1	2	3	4	5
Age category	1	2	3	3	2
Gender	0	1	0	1	1
Frequency of online grocery shopping (OGS)	2	1	2	2	1
Net monthly income	3	2	4	2	5
Number of members in the household	2	2	2	1	2
Frequency of use of social networks (SN)	0	0	3	1	0
Overall satisfaction	4	5	4	5	4
Loyalty	4	5	4	6	5
Visibility	−0.59784	0.56652	−0.17518	0.10482	0.01061
Total consumer value	−0.94666	0.52028	−0.11603	0.27703	0.15522
Subjective norm	−0.76463	0.40783	−0.19096	0.03563	0.29159
Utilitarian purchase motive	−0.83004	0.43911	−0.07818	0.33185	0.08839
Trust	0.10308	−0.56551	0.00226	0.04849	0.34144
Specific factor variables	Modus				
V1	–	4	–	–	4
V2	–	5	–	5	5
V3	–	5	–	5	6
V4	–	4	–	5	5
H1	–	4	–	5	6
H2	–	5	–	5	4
H3	–	5	–	5	4
H4	–	5	–	5	6
S1	–	5	–	–	5
S2	–	4	–	5	4
S3	–	5	–	–	4
S4	–	4	–	–	5
U1	–	5	–	5	6
U2	–	5	–	5	5
U3	–	5	–	6	5
U4	–	5	–	5	5
T3	5	–	5	5	5
T4	4	–	4	5	5

Source: own

Note: Age category (years) – 1: 25–34, 2: 35–44, 3: 45–54; Gender – 0: men, 1: women; Frequency of OGS – 1: several times a quarter, 2: several times a year; Net monthly income – 2: USD 933–1,398, 3: USD 1,399–1,864; 4: USD 1,865–2,330; 5: USD 2,331–2,796; Number of members in the household – 1: 2 household members, 2: 3 household members; Frequency of use of SN – 0: several times a day, 1: once a day, 3: less often than a few times a week; Overall satisfaction and loyalty – 4: rather agree, 5: agree; Loyalty – 4: rather disagree; 5: disagree; 6: strongly disagree; Specific factor variables – 4: rather agree, 5: agree, 6: strongly agree.

segmentation variables and the resulting statistically significant variables identified by factor analysis were used to create this segmentation. By dendrogram analysis, five clusters were determined for further investigation. Tab. 5 shows the frequency and percentage of objects in each identified cluster, with the highest number of objects examined falling into the fifth cluster.

Tab. 6 specifies the specific segmentation variables that define each cluster. The factors identified from the factor analysis were added to the cluster analysis. Subsequently, the factors were examined for a deeper analysis by each variable, according to how the factor relates to each cluster.

Each cluster is specific in terms of most of its variables, which, in addition, defines it based on the observed modus of specific variables for the identified factors. Except for clusters 1 and 3, each cluster contains different numbers of variables from the observed factors of factors explaining the nature of the cluster.

3.2 Interpretation of Clusters for Segmentation Determination

Based on the examination of each cluster, the following interpretation and naming of the clusters were performed. The clusters' names were chosen to represent best the nature and character of the clusters found. The emphasis in the interpretation and profiling of the clusters was placed on the characteristics of the particular cluster and how the particular cluster differed from each other. To interpret the clusters, it was necessary to investigate the individual clusters, their variables, and the variables of the variables that fall into specific clusters and then name them.

When deciding on the similarity of specific clusters identified with the factors under study, decisions were made based on the degree to which customers in that cluster can or cannot be defined by that factor. For these variables, only those who achieved positive agreement values on the scale (values of 4 – rather yes, 5 – yes, and 6 – definitely yes) were interpreted. Variables that reached negative values or "can not judge" values were not used to interpret each cluster. The value of the modus for the individual variables determines the strength of agreement with the variable that specifies the study group.

The set of named segments represents a newly defined segmentation of online grocery shoppers. The constructed segmentation divides online grocery shoppers into five type categories of quality-oriented shoppers (18.9%), influential utilitarians (21.7%), loyal traditionalists (16.4%), satisfied conditional loyalists (14.9%) and movable eco-sympathisers (28.1%).

This newly developed segmentation of online grocery shoppers defines the basic types of shoppers and compares them in terms of shopping behaviour, personality traits and characteristics, loyalty, overall satisfaction with online grocery shopping at a current retailer, and frequency of use of social media. Thus, given the variables under study, it is a combined segmentation. The identified segments are described in the following paragraphs.

Quality-Oriented Shoppers
These customers are predominantly men, aged between 25 and 34 years, who trust the online environment when buying groceries and most expect quality and fresh groceries to be delivered. For them, quality is the strongest element in assessing the overall value of online grocery shopping. This type of customer is the least influenced by the marketing communications of companies operating in this market.

Influential Utilitarians
These are predominantly women between the ages of 35 and 44 who are influenced by service visibility and subjective norms, which are associated with lower levels of loyalty. These women shop for groceries with a utilitarian shopping motive, i.e. they make purchases in a planned manner, with well-defined products to buy. Therefore, what they value most about online grocery shopping is the speed of the buying process, its thoughtfulness, ongoing pricing, the ability to plan for delivery, and the ability to use a repeat shopping list.

Loyal Traditionalists
This type of customer is characterised by their loyalty and trust in the current retailer from which they buy their groceries online, with a non-significant tendency to change this retailer. Loyal traditionalists tend to be men aged between 45 and 54 years with a higher income. Their consumption of internet content and use of social networking sites is low. They spend less time on social media than a few times a week.

Satisfied Conditional Loyalists
This type of customer is characterised by customers who are completely satisfied with their

current online grocery retailer, but their loyalty is the lowest of all the groups surveyed. If a new competitor were to enter the market, satisfied conditional loyalists would certainly change their current retailer. These are mainly women in the 45–54 age range who find greater peace of mind in choosing and studying product information as the biggest advantage of online grocery shopping.

Movable Eco-Sympathisers
These are women aged 35 to 44 years living in households with above-average incomes. They shop online for groceries several times a quarter and value the freshness and quality of food, the option to buy organic food and other speciality foods, and prefer not to use disposable plastic bags to complete their shopping. This is the largest group within this segmentation, which also responds positively to the marketing communications of retailers in this market.

4. Discussion

Compared to other typologies in this domain (Morganosky & Cude, 2000), the segmentation developed in this study is specific to a broader view of customer types. Variable factors based on the TAM theory (visibility, subjective norm, utilitarian purchase motive, and trust), socio-economic factors, frequency of shopping and use of social networks, loyalty, and overall satisfaction, as well as a completely new factor, named total consumer value, were used to determine it. Based on the results of exploratory factor analysis and cluster analysis on a sample of 773 Czech online grocery shoppers, five segments were profiled. These segments differ in size, socio-economic status, shopping preferences, and behaviour. Similar to Seitz et al. (2017) typology, the groups in this study are homogeneous based on positive attitudes toward online shopping and heterogeneous based on demographic factors. However, as in later typologies (Brand et al., 2020; Hasanzade et al., 2018; Jara et al., 2018), behavioural factors and psychological variables are also used in this study to create segments.

The largest customer segment in this study was interpreted according to its characteristics as movable eco-sympathizers. Their characteristics are similar to the resisting and responsible segment (Brand et al., 2020) in the sense that they are also environmentally responsible. However, in contrast to the resisting and responsible segment, movable eco-sympathisers cannot be said to be highly sceptical about the instrumental benefits (strongly negative score on positive attitudes) of online shopping, as they find freshness and quality of food to be positive benefits. They also differ in that the frequency of shopping is more frequent than that of the comparison segment. In addition, movable eco-sympathisers are very positive about retailers' marketing communication. They follow discount promotions and advertising for online grocery shopping.

The second largest segment is the influential utilitarians. This segment is similar to the utilitarian customers of Jara et al. (2018), but only in that they shop with a utilitarian motive. Jara et al. (2018) include customers between the ages of 25 and 34 in this segment, but our segment includes older customers, primarily women between the ages of 35 and 44. Another difference is that within our segment, these female customers are also found to be highly influenced by service visibility (noticing online grocery purchases and noticing the importation of groceries bought online), subjective norms (here mostly the sentiments of friends and acquaintances about OGS, positive feedback from bloggers or celebrities), and achieve lower levels of loyalty.

The third largest segment is quality-oriented shoppers. The results of our study show that quality-oriented shoppers are similar to Hasanzade et al.'s (2018) segment of customers oriented towards price and quality, but only in that the quality of the food purchased is important to the segment. Indeed, within our segment, customers cannot be said to be ethically inclined. Additionally, our study did not investigate whether the price level of products is important to these customers, as Hasanzade et al. (2018) did. Within our segment, what is important to customers is trusting the retailer to select the best quality and freshest food and to ensure the privacy of online payments.

Loyal traditionalists belong to a smaller customer segment. This segment is similar to Gunawan et al. (2018) in that it is also characterised by loyalty and trust in retailers/brands they are familiar with. The similarity is also seen here in those customers in these segments who do not feel the need to change and try something new. Furthermore, within our segment, these customers are characterised by low consumption of online content and the use of

social networks. They spend less time on social media than a few times a week. This dimension of marketing communication was not explored by Gunawan et al. (2018).

The smallest segment identified in this study is satisfied conditional loyalists. This segment is similar to the overall satisfied customers segment of Jara et al. (2018), in that these are customers who are generally quite satisfied with their current retailer. However, satisfied conditional loyalists add a dimension of loyalty in which loyalty is found to be conditional, and if a new retailer enters the market, there is a high probability that these customers will start buying from that retailer. Satisfied conditional loyalists see the biggest benefit of online grocery shopping as having more peace of mind when choosing and researching product information.

Managerial Implications

Online shoppers have key characteristics that marketing managers should consider in their marketing decisions. The key characteristics include the fact that online shoppers are more identified with social media, want everything now, are in control of their purchases, are fluid, and their opinion is heard (Ryan & Jones, 2009). A recent trend is a word of mouth (WOM), which is increasing due to social media, as many customers give their testimonials on products they have purchased. On the other hand, others decide to make a purchase based on the references of these customers who already have some experience buying the product (Bleier et al., 2018). Therefore, within our study domain, it is important for marketing managers to strategically choose the marketing communication tools that will best communicate with the identified customer segments. Movable eco-sympatizers, quality-oriented shoppers, influential utilitarians and loyal traditionalists are suitable segments to reach with marketing communications in terms of increased customer acquisition, frequency of online food purchases, income levels, and loyalty levels.

When focusing on the attitudes of the individual segments towards the media types, it is possible to design appropriate tools for each selected segment that falls into both groups of communication channels. Within the personal communication channels, social channels (WOM and internet) and the non-personal communication channels, traditional mainstream media (TV and print) are proposed. Movable

eco-sympatizers generally perceive advertising positively, with word of mouth (WOM) being the most appropriate media type for them. Therefore, retailers who choose this customer segment as their target audience should try to encourage positive word of mouth about food purchases on their e-shop by amplifying WOM, for example, with appropriate sales promotion tools, viral campaigns, or referral programmes, rather than relying on organic WOM alone. In general, online advertising is a very suitable tool for this segment. To increase the knowledge of OGS among the movable eco-sympatizers segment, it is useful to use a demonstration of the useful benefits of online grocery shopping, information on the availability and price of imports, and information on food quality. To convince this segment to buy groceries online, simplicity, independence, freedom, modernity, convenience, security, and technology should be used as appropriate appeals in marketing communication.

Given the results of research in this field, quality-oriented shoppers can be defined as a group with a more negative perception of advertising in general, regardless of the type of media used. For this customer segment, the most relevant advertising to use is online and amplified WOM. However, the possibility of reaching this segment using the mentioned media types is very low, as most of these customers perceive these media types as inappropriate for online grocery advertising. In contrast, the segment of influential utilitarians is a very suitable target audience in terms of perception of marketing communication. This segment is characterised by highly positive evaluations of each media type. The most appropriate media type is WOM, followed by internet advertising, print advertising, and television advertising. For quality-oriented shoppers, it is appropriate to use information about food quality, price, and delivery availability in marketing communication in the knowledge phase and to use a demonstration of useful benefits, especially time savings, convenience, and ease of buying food online. To support the belief in buying food online, it should be most appropriate to use emotional appeals for marketing communication, namely simplicity, certainty, performance, independence, and convenience. If a retailer chooses influential utilitarians as an appropriate segment, it should use information on food quality and availability of delivery to increase

knowledge. It is appropriate to show the useful benefits of online grocery shopping. To encourage purchase, it is appropriate to use emotional appeals in advertising, with simplicity, certainty, performance, freedom, convenience, independence, productivity, and modernity as the most appropriate for this segment.

To attract the attention of loyal traditionalists, the most appropriate media type is WOM and advertising on the internet. Rather, retailers in this sector should not use TV and print advertising to attract attention in this segment. In the case of loyal traditionalists, it is recommended to increase the knowledge of the online grocery retailer by providing information on the quality of the food, the price of delivery, and its availability in specific locations. When the communication objective is oriented toward promoting online grocery shopping, it is appropriate to incorporate simplicity, freedom, convenience, performance, confidence, independence, and modernity from emotional appeals into the advertising message.

Conclusions

This paper identified and described the groups of customers who buy groceries online. Although many models have emerged dealing with customer behaviour, uncovering complex behaviour and describing it remains hidden. The mind of the customer is difficult to decipher not only because customers behave irrationally but also because different variables from motives, factors, and backgrounds enter into the decision-making process and influence the final product choice. Moreover, we must not forget that customers are also influenced by cognitive biases that they are not even aware of. However, it is possible to identify some important and significant variables that influence customers in their decision-making process and use them to segment customers. Different customer segments have been developed that differ from each other in that they make an effort to consider customers from different angles. While earlier typologies tended to focus on demographic factors, today, when creating typologies, researchers examine a more complex range of variables such as behaviour and try to describe each segment in terms of psychological factors (motivation, attitudes, customer personality). Furthermore, this research also uses insights from the technology acceptance model, where behavioural factors

that can influence the acceptance of online grocery shopping are examined. The area of online grocery shopping was chosen, in particular, because it differs from the purchasing behaviour of products sold over the internet, in general. This is mainly due to the specific characteristics of grocery products, which are perishable goods. For this reason, the trust between the customer and the retailer that groceries will be delivered in the required quality, with particular emphasis on freshness, is also a major important factor.

By interpreting the results of the cluster analysis, a combined segmentation was created dividing online grocery shoppers into five type categories. The most numerous category is movable eco-sympathizers, followed by influential utilitarians, quality-oriented shoppers, loyal traditionalists, and the least numerous group is satisfied conditional loyalists. Each segment represents a unique combination of self-assessment within the utilitarian purchase motive, influenced by the visibility of online grocery shopping, subjective norm, trust, and total consumer value.

The results of the study show that, in addition to which group according to demographic factors customers fall into, a combination of socio-economic and behavioural factors influence a customer's decision to buy groceries online. Research findings provide more information on online shopping and present new information on customer segments and their differences. These can be used in the dynamic online grocery market not only for effective targeting but also for appropriate customer relationship management and fostering customer loyalty.

However, this study also has limitations. Limitations of the study may include the fact that the cluster analysis was carried out with a final solution of five clusters, and the logical and size aspects of each cluster were evaluated to ensure that the results of the cluster analysis were as relevant as possible. The second limitation is that the study is cross-sectional and includes only selected factors that can influence online grocery shopping decisions. Furthermore, the study was conducted once and in a specific geographic area, so dynamic stability over time and applicability to other countries cannot be assessed. However, it may be a good basis to explore this issue for other geographic areas or to extend it to other relevant factors. The results presented in this paper offer the possibility of

further developing and refining the research with real customer data in collaboration with existing online grocery retailers to validate established segmentation and deepen the findings from other perspectives to make established segmentation as close as possible to actual behaviour.

Given that the study was designed at the beginning of the COVID-19 disease pandemic, we see the need to conduct more research in the future. This investigation should aim to find out whether, due to the increase in online grocery shopping as a result of the pandemic, there has been a change in the customer structure, which could mean the recording of a new customer segment.

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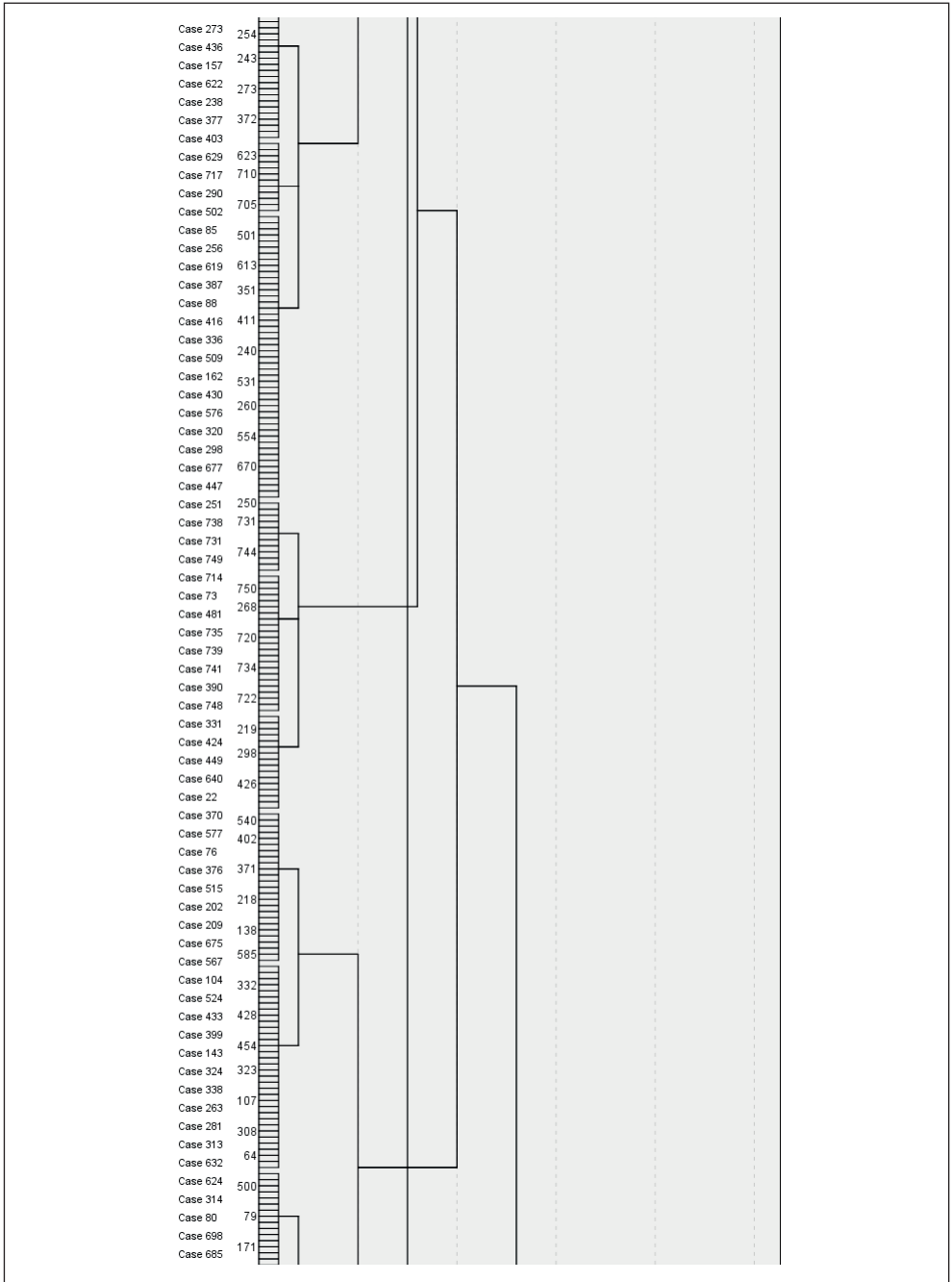Wolf, S. (2012). *E-grocery shopping in Germany.* AV Akademikervelag.

APPENDIX

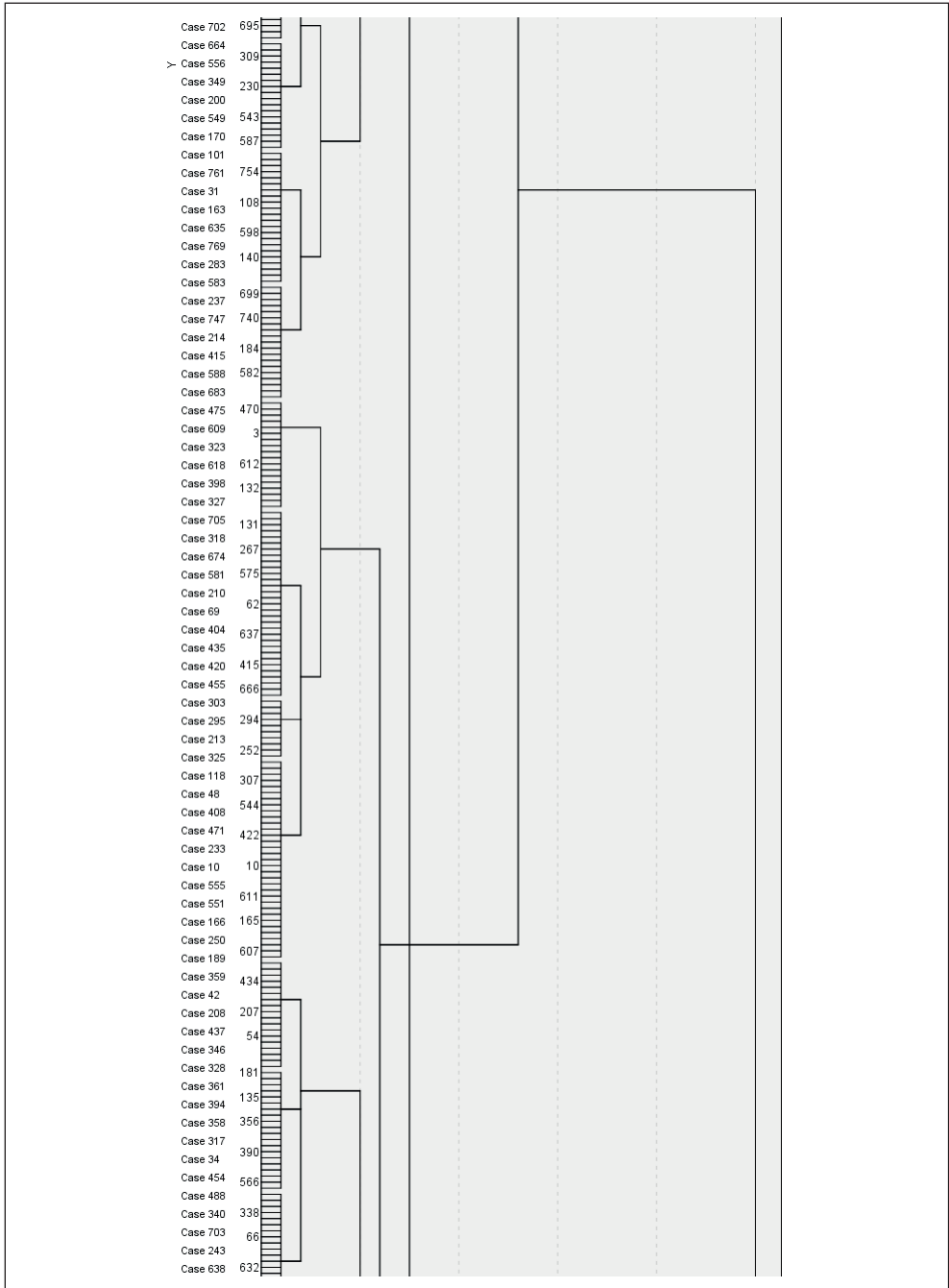**Fig. A1a:** Dendrogram using Ward Linkage (Rescaled Distance Cluster Combine)
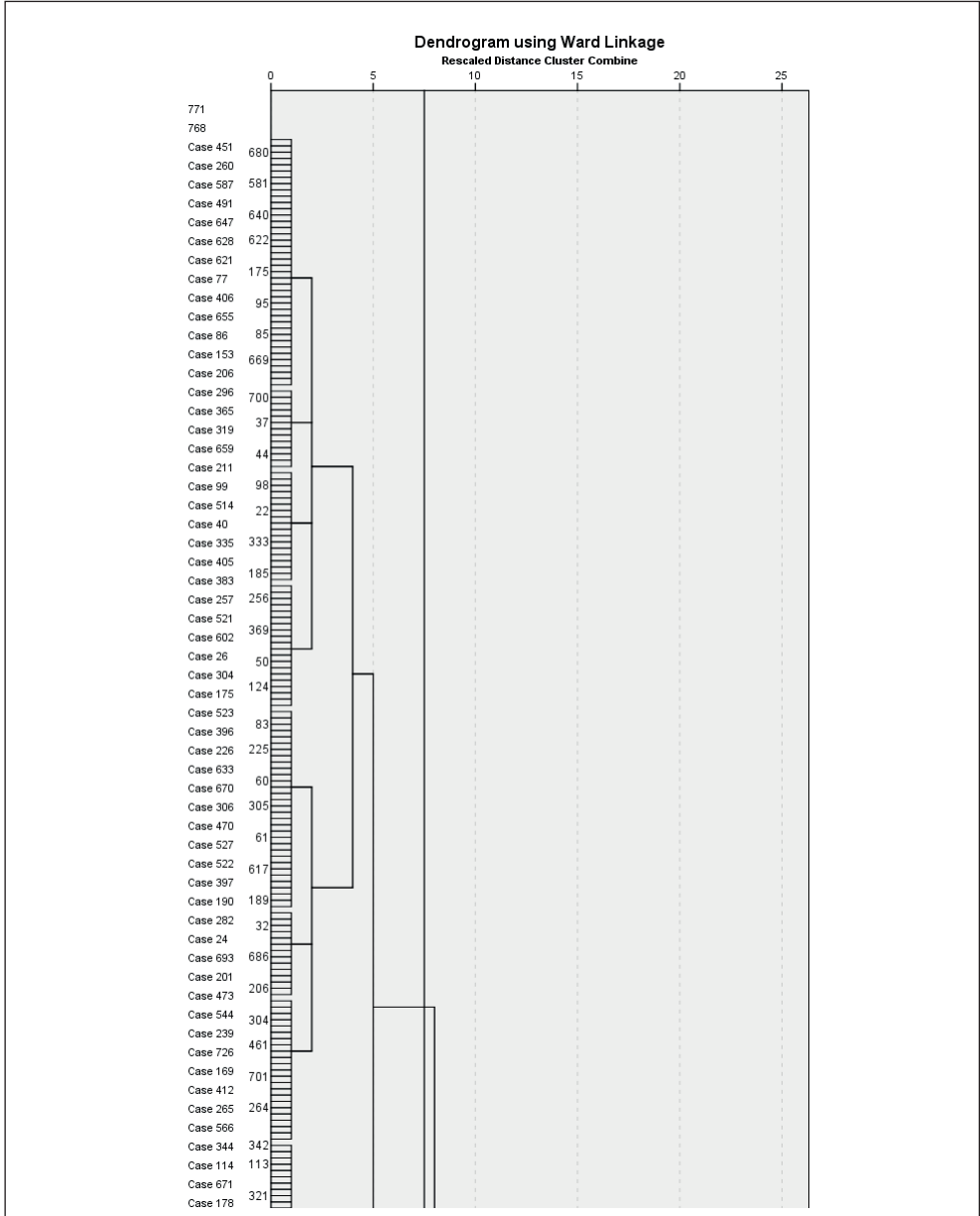
Source: own

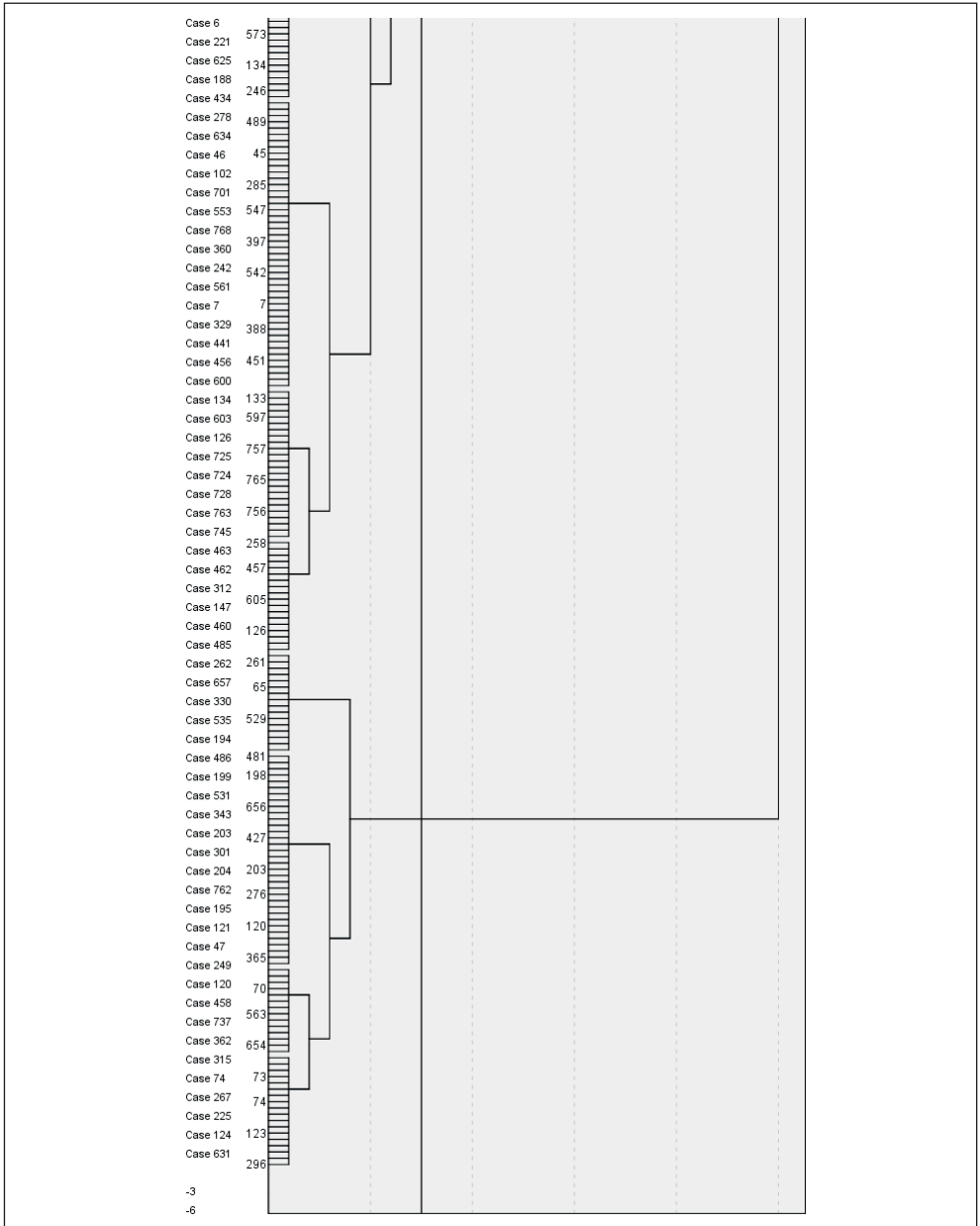**Fig. A1b:** Dendrogram using Ward Linkage (Rescaled Distance Cluster Combine)

Fig. A1c: Dendrogram using Ward Linkage (Rescaled Distance Cluster Combine)

Source: own

Fig. A1d: Dendrogram using Ward Linkage (Rescaled Distance Cluster Combine)

Source: own