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Choosing a lifestyle? Reflection of consumer extrinsic product preferences and views on important wine characteristics in Germany

Antje Risius, Björn-Ole Klann, Stephan G.H. Meyerding*

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Abstract

Wine is a product, in which heterogeneous facets are marketed abundantly. Quality selections like origin, ratings, sustainable productions are (increasingly) important to the sector. Little is known about how and when the common quality scale interferes with other quality attributes and how lifestyle factors determine changing preferences. Hence, the study investigates which attributes are preferred by consumers and how they attach to lifestyle and consumption habits. The consumer survey ($N = 962$) itself used a direct (questionnaire) and an indirect rating technique (choice experiment) to elicit preferences for selective attributes for wine and the attachment to a wine-related lifestyle. Most important factors in the wine-related lifestyle approach were used to describe different consumer segments derived from latent class analysis based on choice preference. Latent class unveiled five different consumer segments. With regard to the importance of other extrinsic attributes (e.g. organic production) growing societal demand for ethical consumption, ‘organic’, ‘medals and awards’ seem not to (yet) be of high relevance for the product wine. The geographical site of production is a quality attribution of high importance to consumers. Nonetheless the largest consumer segment found, was considered to specifically look for further information. It seems of relevance to understand information-seekers behavior better and the nature of information, they would like to get.

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Keywords: Wine-related lifestyle; Wine quality; Conjoint analysis; Consumer marketing; Wine preference

1. Introduction

In nowadays, wine is one of the most heterogeneous products on the food market (Lockshin and Hall, 2003). This not only holds true to the marketing of the established quality scheme in Germany and Austria (‘Prädikatsweine’), but also with regard to brands, stories, trust and renown-producers (Bernetti et al., 2006; Lockshin and Corsi, 2012; Oczkowski, 2001; Perrouy, d’Hauteville and Lockshin, 2006). The grape orientated quality scale that has been worked on since 1971 (Deutsches Weininstitut, 2015) and is backed up by law and enforced by state agencies (Diaz-Bone, 2005). This system focuses on the grape quality. Special requirements apply for

the premium wines (‘Prädikatsweine’) (Deutsches Weininstitut, 2015). This classification system, started to be established in markets in the 80ies, succeeded to place value and high acceptance to a differentiated quality regarding grape varieties and taste – so to say ‘chemical properties’ of the wine. This approach reversed a development of the sector towards low, but abundant quality and gave reason to base a marketing differentiated in selective quality attributions.

The selection of a wine with simultaneous consideration of a multitude of attributes requires knowledge on the consumer side. However, only a few consumers have this knowledge of wine. In particular, food retailers do not create a remedy for this knowledge deficit, since wine is purchased completely anonymously (Petzoldt et al., 2007). Regarding the selection of groceries, consumers with comparatively low product knowledge or little experience with the product in particular, pay more attention to extrinsic characteristics (e.g., price, origin). These characteristics are used as an indication of the

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quality of intrinsic attributes such as taste. In terms of wine, empirical research has revealed that the most important key information consumers determine during the decision-making process for the purchase is the origin and price of a wine. Country-specific differences apply to this knowledge (Petzoldt et al., 2007). Considering market numbers, wine is bought predominantly in food retail stores without professional advice. Moreso, consumers tend to reinforce extrinsic features rather than assessing the intrinsic quality of the product (Lockshin and Corsi, 2012). This is especially true nowadays, since sustainable product attributes like ethical production or organic production are getting more and more relevant to society (Valor et al., 2014; Lockshin and Corsi, 2012; Zander and Hamm, 2010).

As such, different extrinsic quality regimes have been established. One alternative quality classification system is more related to the ‘terroir’ concept, which has its origin in France and uses the AOC (*appellation d’origine contrôlée*: protected designation of origin) classification system. Some winemakers united to found the VDP *Verband deutscher Prädikatsweingüter*: Association of German Premium Wineries) to establish their own quality system. This system focuses on local production including soil and the microclimate of the vineyard, as well as on the craftsmanship of the winemaker (Rössel and Beckert, 2013). The wine’s region of origin has a high impact on the purchase decision when the consumer has a considerable wine knowledge (Bernetti et al., 2006; Perrouy, d’Hauteville and Lockshin, 2006). Nonetheless, climate change challenges the wine production as it changes production regions according to the production site. Moreso lifestyle changes and societal demand for ethical question pose the question, of whether extrinsic sustainable quality attributions are of higher importance than the ‘terroir’ or/and the quality oriented classification system.

This paper aims to analyze the importance of other extrinsic attributes (e.g. organic production) against the well-established quality classification system based on grape variety and sensory attributes of taste as well as the local place of production (‘terroir’) in reflection of changing societal demands and consumption habits for wine.

2. Methods

To segment German wine market consumers, the study applied a choice-based conjoint analysis and clustered consumers by similar preferences using a latent class analysis. To describe the segments, the wine-related-lifestyle approach (Bruwer et al., 2002) was used. The following describes the methodological design and describes how the survey has been conducted.

Design of the empirical experimental approach ‘*The wine-related lifestyle approach*’ is an instrument introduced by Bruwer et al. (2002). The questions and attributes are based on the food-related lifestyle approach from Grunert et al. (1997). It links consumer’s lifestyle features, based on values for life, to product selections and consumption of wine (Grunert et al., 1997). The 80-item questionnaire measures five lifestyle

dimensions to probe information on desired quality or attributes, ways of shopping, wine consumption situation, wine drinking rituals, and desired consequences of wine consumption. All items are rated on a seven-point Likert-type scale, ranging from ‘totally disagree’ to ‘totally agree’ (Bruwer and Li, 2017). The 80 items (statements) were adjusted and translated to fit the German wine market. The original scale was reduced to 60 items: statements concerning place of consumption and other questions concerning membership of a wine club were removed.

Preferences for wine attributes were assessed both directly and indirectly. Directly, both, consumers, were asked to rate 14 different attributes of a wine on a seven-point Likert-type scale (1 = not important at all; 7 = very important). The attributes were based on previous studies (Barber and Almanza, 2006; Mueller et al., 2010; Rocchi, 2006; Sáenz-Navajas et al., 2013). The reason for using this approach was to investigate if the results might differ from those seen in the choice experiment: choice experiments might be less biased by socially desirable behavior in answering (Lusk and Schroeder, 2004; Meyerding, 2016; Meyerding and Merz, 2018). Also, the participants were directly asked about their willingness to pay (WTP) for a bottle of German wine for four different occasions: WTP for good quality; WTP for an unknown occasion; WTP for a business occasion; and WTP for a celebrity occasion. Special occasions are considered because both groups of participants, consumers and wine producers, might tend to spend more on wine for social events like birthdays, weddings, family celebrations, and other important occasions (Thiene et al., 2013).

The final part of the survey was a choice-based conjoint analysis (‘choice experiment’). In this indirect survey technique, participants were asked to choose from a set of product alternatives as if they were choosing in a supermarket (ref. to Fig. 1). Every product is a combination of product features from a defined set of attributes (Desarbo et al., 1995). Hence, this indirect survey techniques allows the indirect, nonetheless systematic, measurement of preferences as a reflection of the direct ratings described above. In this study this included the measurement of preferences for the attributes Brand, Origin, Sweetness, Price, Awards, Quality Level, Grape variety and Production quality (ref to Table 1). As such consumers could select one out of a given set of wine with selected product attributes or a No-Buy-Option. We have chosen five different brands which represent a variety of prices and quality levels in the German wine market. By using conditional pricing for each brand, we aimed to ensure realistic price levels. The brand Rotkäppchen is one of the most famous in Germany when it comes to sparkling wine; the company also produces different kinds of wine. We selected this particular brand, which has a reputation as a relatively low priced robust wine with a medium quality, because consumers directly recognize the brand when looking at its logo. They might have the perception of a relatively good price-performance ratio, even if the performance is rather low. At the other end of the spectrum, Robert Weil is a premium wine producer with a vineyard with the highest seal in terms of quality in Germany (VDP).


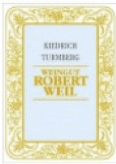



Hersteller					
Herkunft	Rheinhessen	Rheingau	Pfalz	Württemberg	Nahe
Rebsorte	Dornfelder (Rot)	Riesling (Weiß)	Silvaner (Weiß)	Spätburgunder (Rot)	Protugieser Weißherbst (Rosé)
Prämierung	-	AWC Gold	AWC Bronze	-	DLG Gold
Qualität	Qualitätswein	VDP.Erste Lage	Auslese	VDP.Gutwein	Kabinett
Geschmacksrichtung	Halbtrocken	Trocken	Trocken	Trocken	Halbtrocken
Preis in Euro	3	18,75	10	4	5,25
Ökologischer Weinbau	Nein	Ja	Ja	Nein	Nein
	Select	Select	Select	Select	Select

Fig. 1. Choice set of the online survey.

His wine has a high price but the products are known for their excellent quality among connoisseurs (Wiegelmann, 2017). The next wine producer, Lukas Kesselring, is an ambitious winemaker from Palatinate, which is one of the most important wine regions in Germany. He values not only quality but also organic products. His wines can be purchased in wine retail stores or other grocery shops with a good selection. The products' prices vary between five and ten euros per bottle, which is a moderate price for a high-quality wine

(Wiegelmann, 2017). The Zimmermann Graeff & Müller Weinkellerei: Genossenschaft buys grapes from many different regions and winemakers with the goal of producing an extremely cheap wine for discount stores and their price-sensitive customers. In return, the quality is relatively low compared to the other products in the sample (Sautter et al., 2017). Finally, the Lemberger Land Genossenschaft is an association that highly values quality. Thus, this producer offers wine with a better quality in the price range of four to eight euros per bottle (Sautter et al., 2017). Overall, we set a base price for each brand with a variation of ± 25 percent.

Table 1
Attributes and their Levels used in the CBCA.

Attribute	Attribute levels	Attribute	Attribute levels
Brand	Rotkäppchen	Awards	AWC bronze
	Robert Weil		AWC gold
	Lukas Kesselring		DLG gold
	Zimmermann-Graeff & Müller		None
	Weinkellerei		
Origin	Lembergerland Kellerei	Quality Level	VDP.Gutwein
	Palatinate		VDP.Erste Lage
	Rheinhessen		Auslese
	Rheingau		Qualitätswein
	Württemberg		Kabinett
Sweetness	Nahe	Grape variety	Silvaner (white)
	Dry		Spätburgunder (red)
	Medium dry		Riesling (white)
	Sweet		Dornfelder (red)
Price	Lower price	Production quality	Protugieser Weißherbst (rosé)
	Average price		Organic
	Higher price		Non-organic

By choosing different levels for each attribute, we attempted to offer a wide range of the products available on the market. The combination of these attributes and their different levels resulted in 45,000 different choice sets. Of these, ten choice sets were arbitral chosen based on a d-efficient design structure established by the software Sawtooth 9.5.2. In each of the choice sets, each respondent was asked to evaluate which wine they would buy based on the five product profiles (example in Fig. 1).

By analyzing the respondents' choice for this selective set of choice sets, it is possible to draw inferences concerning preferences for attributes and use the estimated preference structure to evaluate scenarios of interest (Hensher et al., 1998). Within the analysis, respondents' choices are converted into 'utilities' for each level of attributes by using multinomial logit regression (Louviere et al., 2010). The main goal of a CBCA is to identify a product's key attributes.

We only used German wines in our choice experiment because one focus of this survey was on the different

Table 2
Measure of sample accuracy according to Kaiser-Meyer-Olkin.

Test	Acceptable result	Actual result	Status
KMO measure of sampling adequacy	>0.6	0,9	Acceptable
Bartlett-test of sphericity	p < 0.05	0,0	Acceptable
	Degrees of freedom	1770,0	
	Approximate χ^2	20338,3	

(extrinsic) quality levels that only apply to wines produced and sold in Germany. We intended to select wines with different features that have a high or low market share and from various subcategories to examine the attributes used by the consumer in the selection process.

2.1. Data analysis

The following section describes the data processing with regard to the wine-related lifestyle measurement, at first, and with regard to choice experiment and latent class analysis in the later.

In order to reduce the WRL measurement to most relevant factors, we conducted an exploratory factor analysis. First, we checked the data by performing the general acceptance test. For that, we have chosen the Kaiser-Meyer-Olkin measure of sampling adequacy and the Bartlett’s test of sphericity. Table 2 shows the results of the test, which indicate that the data are suitable for factor analysis. The goal of factor analysis is to reduce the number of items by finding correlations between them and abstracting a smaller number of factors. Because there are no predefined dimensions, explorative factor analysis was chosen (Wedel and Kamakura, 2000).

Determining number of factors. We used Kaiser’s criterion (Kaiser, 1958) to determine factors with a eigenvalue greater than 1.0. In total, eleven factors were identified. Ledesma and Valero-Mora (2007) suggest the use of Horn’s parallel analysis (PA) instead of Kaiser’s criterion because the latter tends to over-extract the number of factors (Ledesma and Valero-Mora, 2007). Horn’s PA compares the shown

Table 3
Description factors of the wine-related-lifestyle.

Factor	Description	Eigenvalue	Individual %	Cumulative %
Factor 1	Savor and looking for new experience	12,62	21,03	21,03
Factor 2	Wine knowledge and connoisseur tendencies	4,10	6,83	27,86
Factor 3	Information procurement for the purchase	3,40	5,67	33,54
Factor 4	Purchase decisions	2,60	4,33	37,87
Factor 5	Reason for wine consumption	1,66	2,77	40,64
Factor 6	Price consciousness	1,44	2,40	43,04

Table 4
Model selection for latent class segmentation.

Classes	Log-likelihood	AIC	CAIC	BIC	Average max. membership
2	–20060,65	40227,29	40674,94	40621,94	0,96
3	–19314,10	38788,21	39463,90	39383,90	0,95
4	–18832,72	37879,44	38783,18	38676,18	0,94
5	– 18360,70	36989,39	38121,18	37987,18	0,94
6	–18016,43	36354,86	37714,70	37553,70	0,93
7	–17812,33	36000,66	37588,54	37400,54	0,92
8	–17670,59	35771,19	37587,12	37372,12	0,92

eigenvalues with those from randomly generated data from a Monte Carlo-based simulation. Applying this technique resulted in six factors identified and shown in Table 3.

Determining descriptors of the factors. For determining the factors, a varimax normalized factor loading method was used. Every item was given a value for each factor. A high value predicts membership of the item to a factor. Table 7 shows the six factors. The six factors explained 43.04 percent of the variance of the data. The mean values, standard deviations, and factor loadings of all items are presented in Appendix 1.

Latent class (LC) models are techniques for investigating unobservable classes that differ in the utility attached to particular product attributes between the classes but are more similar within (Kamakura and Russell, 1989). The software Lighthouse Studio 9.5.2, which was used in the present study, predicts part-worth utilities for every attribute level and assigns each respondent a probability of membership for each of the latent classes (Sawtooth, 2004). The LC model is based on the random utility framework with the following function:

$$U_{ni/c} = \beta_c X_{in} + \epsilon_{ni/c}$$

As such, the utility of the n_{th} respondent is estimated for a particular class c from selecting an alternative i from the available five choice options. S is a linear combination of attributes of the part-worth’s β_c , and an error term. X_{ni} is depicting the choice-specific product attributes. Heterogeneity is captured by different latent classes, so each class c gets its own utility parameter vector β_c . It is assumed that the errors ϵ_{ni} are IID and follow a Type I distribution. That provides them with the probabilistic response function (Mueller et al., 2010):

$$\pi_{ni/c}(i) = e^{\lambda c(\beta_c X_{in})} / \sum_{j \in S} e^{\lambda c(\beta_c X_{jn})}$$

Other authors found that results of a latent class analysis are preferable to segmenting solutions in the case of a choice experiment (Desarbo et al., 1995; Moore et al., 1998).

To date, there are no distinct statistical information criteria by which to decide over the number of latent segments. In the present study, a multiple criteria approach was chosen, using the Akaike information criterion (AIC, Akaike, 1987), the consistent Akaike criterion (CAIC, Bozdogan, 1987), and the Bayesian information criterion (BIC, Schwarz, 1978), in order to achieve the optimal number of segments (Nylund et al., 2007). Nylund et al. (2007) suggest that BIC and CAIC are superior to the AIC when it comes to choosing the most appropriate number of segments. Nevertheless, it is not only statistical information that should be taken in account. Other decision factors are interpretability and group size are also of considerable importance (Sawtooth, 2004). We used BIC and CAIC with the known limitations to make our decision.

As can be seen in Table 4, the CAIC and the BIC decrease until class 5 and then stay fairly consistent at higher class numbers. Hence the relative gain in information of more consumer segments over increased predictive power gets smaller. Thus, we committed to the five-group solution.

2.2. Survey assessment

An online survey was conducted in November 2017 with 962 participating wine consumers. The survey was created using Lighthouse Studio 9.5.2 software from Sawtooth. At the

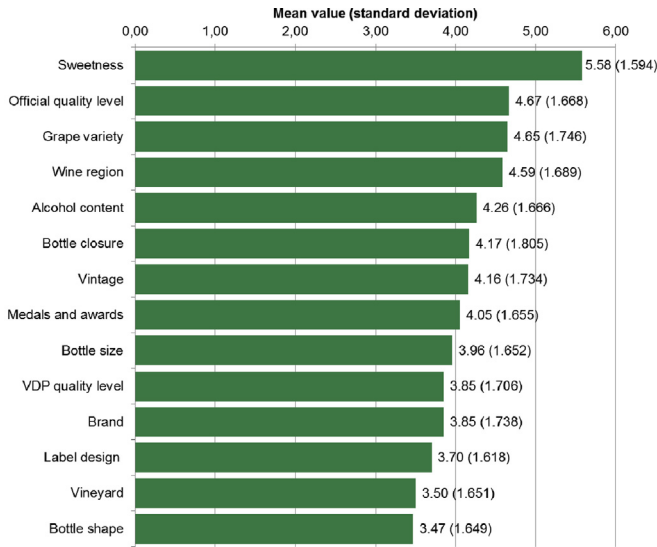
beginning, the participants were asked to provide some socioeconomic information and were screened for the wine consumption (only wine consumers were included). Then they were asked about their consumption habits. The participants were asked if they were a winemaker by profession. Consumers answered the wine-related lifestyle (WRL) items firstly. Following, the WRL statements were direct questions about wine preferences concerning color, sweetness, consumption occasions, and favorite country of origin, as well as the place of purchase and the frequency of visit. These data helped to underline the segments with a foundation of consumer information. After that, the participants were asked to rate (on a seven-point Likert-scale) their wine knowledge and their involvement level when buying wine. Following, their willingness-to-pay (WTP) for a bottle of German wine for different occasions was ascertained. The last part of the survey was the choice experiment (see experimental design above).

The recruitment took place via market research institute, which holds a respondent' panel. Quotes for sampling were set for gender, age, and gross household income. Age as an indicator delivers insights about purchasing and consumption habits that change at certain life stages (Hall, Binney, & Barry O'Mahony, 2004; Thach and Olsen, 2006). The quotes for the sampling were based on the latest numbers of the Federal Statistical Office in Germany (Statistisches Bundesamt, 2017).

Table 5
Sociodemographic characteristics of the consumer sample ($N = 962$).

Characteristics	Description	Frequency	Share (%) sample	Share (%) Germany*
Age (years)	16–19	37	3,7	4,8
	20–29	118	11,8	14,1
	30–39	147	14,6	14,5
	40–49	176	17,5	15,7
	50–59	176	17,5	18,7
	60–69	123	12,3	13,9
	70 +	227	22,6	18,9
Gender	Female	477	47,5	50,7
	Male	527	52,5	49,3
Income	<1,300€	158	15,7	18,2
	1,300€ - 2,600€	305	30,4	31,6
	2,600€ - 3,600€	209	20,8	19,4
	3,600€ - 5,000€	174	17,3	16,8
	>5,000€	158	15,7	14,0
Marital status	Single	316	31,5	24,4
	Married	492	49,0	61,2
	Divorced	121	12,1	8,2
	Widow/er	64	6,4	6,3
	Prefer not to say	11	1,1	n.A.
Persons in household	1	243	24,2	23,8
	2	459	45,7	38,1
	3	160	15,9	17,2
	4	106	10,6	15,6
	≥5	36	2,7	5,3
Education	Apprenticeship	339	33,8	47,2
	Technical college degree	296	29,5	7,8
	Technical college former GDR	34	3,4	1,0
	Bachelor's degree	69	6,9	1,9
	Master's degree	51	5,1	1,2
	Diploma	125	12,5	12,8
	Doctorate	29	2,9	1,2
No finished education level	61	6,1	26,9	

Note. * Reference: German Federal Statistical Office.



Note. Scale from 1 (not important at all) to 7 (very important). Consumers (N=962)

Fig. 2. Characteristics' importance for wine choice. Note. Scale from 1 (not important at all) to 7 (very important). Consumers (N = 962).

Gross household income is important for analyzing a rough budget consumers can spend on wine. The minimum age to participate in the survey was 16, which is in line with the minimum age to purchase wine in Germany by law. The

questionnaire was designed and distributed in German language.

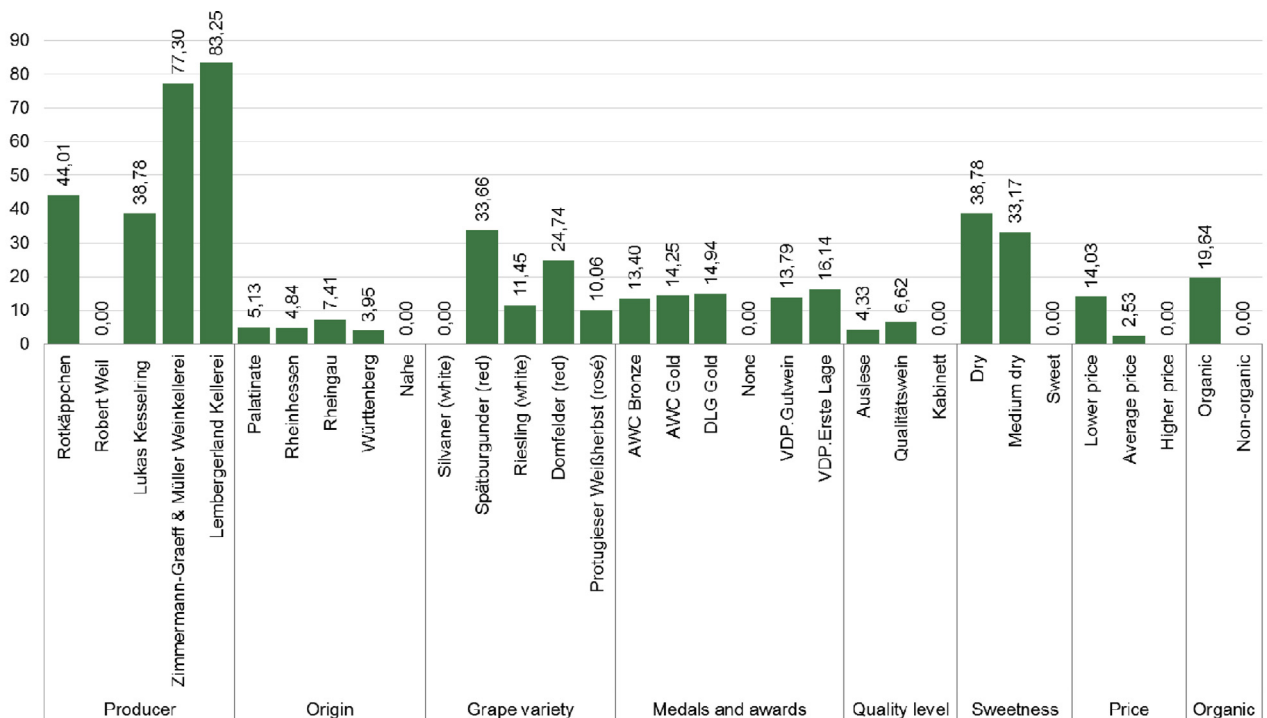
3. Results

In this results section, the sample is first described. After that, the results of the direct questions and the part-worth utilities of the product characteristic attributes resulting from the choice-based conjoint analysis, using a hierarchical bias mechanism, of consumers are presented. Thereafter, the latent segments are identified using latent class analysis. In a last subsection, the results of the wine-related lifestyle approach are presented to describe the different consumer segments and the willingness-to-pay for a bottle of wine for different occasions is shown.

3.1. Sample description

The demographics of the consumer sample are summarized in Table 5.

The consumer sample included 962 participants aged over 16. A little more than half of the sample is male, and the average age of the respondents is 51.7 years. The education level of the participants is higher than of the general population, which is a common issue in online surveys (Granello and



Note. Attribute importance from left to right: consumer (producer 24.37%, origin 7.26%, grape variety 20.64%, medals and awards 5.91%, quality level 6.64%, sweetness 26.22%, price 5.03%, organic 3.92%)

Fig. 3. Part-worth utilities as a result of the CBCA for consumers (N = 962) Note. Attribute importance from left to right: producer 24.37%, origin 7.26%, grape variety 20.64%, medals and awards 5.91%, quality level 6.64%, sweetness 26.22%, price 5.03%, organic 3.92%.

Table 6
Part-worth utilities (rescaled) of the different attribute levels for consumer segments (convergence limit for log-likelihood: 0.01).

Attribute	Level	Segment 1 (15.9%)	Segment 2 (18.5%)	Segment 3 (35.2%)	Segment 4 (14.5%)	Segment 5 (15.8)
Brand	Rotkäppchen	−64	−32	27	95	89
	Robert Weil	−48	−51	−70	−105	−146
	Lukas Kesselring	7	30	−55	−61	−102
	Zimmermann-Graeff & Müller Weinkellerei	51	0	22	72	121
	Lembergerland Kellerei	55	54	76	0	39
Region	Palatinate	7	2	11	−11	23
	Rhinehessen	0	3	28	−11	−33
	Rhinegau	14	−10	−1	22	24
	Württemberg	−7	16	−13	−20	−34
Grape variety	Nahe	−15	−11	−24	19	20
	Silvaner (white)	11	−193	49	−5	−14
	Spätburgunder (red)	14	219	−78	−11	−73
	Riesling (white)	30	−190	98	20	49
	Dornfelder (red)	−28	227	−116	−15	−4
Medals and awards	Protugieser Weißherbst (rosé)	−27	−64	46	11	42
	AWC Bronze	8	8	−6	11	46
	AWC Gold	2	10	1	−2	−2
	DLG Gold	2	9	25	−1	−17
Quality level	None	0	0	0	0	0
	VDP.Gutwein	7	−12	−8	−6	70
	VDP.Erste Lage	17	−4	21	16	17
	Auslese	−3	14	−1	4	−65
	Qualitätswein	−17	14	5	3	13
Sweetness	Kabinett	−4	−13	−17	−17	−35
	Dry	284	43	−21	−181	31
	Half dry	−42	43	121	−44	−42
	Sweet	−242	−87	−99	225	10
Price	Lower than average	7	7	24	18	2
	Average	−10	−11	−18	6	14
	Higher than average	3	4	−6	−24	−16
Organic	Organic	−1	23	19	9	25
	Non-organic	1	−23	−19	−9	−25
Relative importance (%)						
Brand		14,90	13,17	18,30	25,06	33,38
Region		3,58	3,36	6,52	5,27	7,24
Grape variety		7,24	52,49	26,72	4,29	15,29
Medals and awards		2,14	3,24	6,23	2,97	8,13
Quality level		4,14	3,32	4,65	4,12	16,95
Sweetness		65,80	16,23	27,53	50,72	9,07
Price		2,03	2,34	5,19	5,28	3,81
Organic		0,17	5,85	4,86	2,29	6,13

Wheaton, 2004). The consumer sample is representative in terms of age, gender, and income.

3.2. Importance of characteristics for wine (direct rating)

Fig. 2 presents the importance ascribed to characteristics when choosing a wine, using the mean value for each item.

Sweetness is the most important criteria for consumers, when it comes to selecting wine, followed by the official quality level, grape variety and region of production. Medals and awards, along with VDP quality level, are only of medium interest, while the least important factors for the consumer are bottle shape and vineyard.

3.3. Preference of Characteristics for Wine (Indirect Choice Rating)

Fig. 3 shows consumer preference for the selective wine attributes measured by part-worth utilities. Thus, the columns represent the respective part-worth of each attribute level in relation to a chosen reference. The higher the resulting part-worth value, the greater the benefit for the consumer and the greater the likelihood that he will purchase a product with this characteristic (attribute level) when shopping for wine. The relative attributes' importances are given in the notes under Fig. 3.

Overall, consumers primarily look for the attribute ‘sweetness’ (measured from dry, medium dry to sweet) followed by the producer, the grape variety and the region of production. Within, the attribute levels ‘dry’ (attribute category ‘sweetness’), ‘Spätburgunder (red)’ (attribute category ‘grape variety’), and producers ‘Zimmermann-Graeff&Müller’ as well as ‘Lembergerland Kellerei’ (attribute category ‘producer’) are preferred most. Even though the production quality ‘organic’ had a positive part-worth coefficient, this attribute was lower in attribute importance than the overall producer impacts, or other attribute levels from the categories ‘sweetness’ or ‘grape variety’: ‘Medium dry’ and ‘Dornfelder (red)’, respectively. Similar to the attribute value for ‘organic’, ‘medals and awards’ seem to be not very decisive, when it comes to consumer preference schemes.

3.4. Consumer target groups for extrinsic wine qualities

In order to understand consumer trends in a changing society for the heterogeneous product wine better, consumer segmentation was conducted using a latent class analysis.

Table 6 shows the estimation results (*rescaled* part-worth utilities) of the five-group segmentation for German wine consumers, as well as the relative importance of each attribute. The impact of each attribute on the product utility is shown for each segment (Orme, 2010).

The segmentation revealed five latent classes, four of which with equal sizes (rough estimates for latent class membership probability 15%) and one larger segment (35.2%). That the attribute ‘dry’ of the category ‘sweetness’ is most important for Segment 1, whereas the attribute ‘Spätburgunder (red)’ is most relevant to segment 2. Segment 3 seems to be considering more different attributes at the same time and does not have a distinct profile with regard to selective attributions. Overall, ‘grape variety’ and ‘sweetness’ are the most important categories for Segment 3.

For Segment 4, the attribute ‘sweet’ is the most important characteristic, ‘Rotkäppchen’ is its most decisive brand. Members of this group have the least interest in organic origin, awards, and quality.

Segment 5, of all the consumer segments, has the most ambition to buy wine from certain wine producers. For this segment, quality, organic origin, origin in general, and grape

variety are not unimportant when it comes to the purchase of wine. The least important factor is the price of the wine.

3.5. Wine-related lifestyle and the WTP measurement

After considering different consumer segments with regard to understanding preferences for wine consumption, the following aims to relate the consumer heterogeneity captured through the latent classes to lifestyle trends and WTP measures as well as consumption habits.

Table 7 presents the mean values and standard deviations of the factors of the WRL for each segment.

In Table 8, the WTP for wine is shown for the consumer segments. In Table 9, the characteristics of the segments concerning wine consumption habits are shown. In Appendix 2, the demographic characteristics of the consumers are provided.

Segment 1: Wealthy, educated and passionate dry wine drinker (15.9 percent). This cluster is slightly dominated by women, mostly aged 50+, with the highest income compared to the other clusters. The members are usually married and have a high level of education. Over 48.8 percent of the members drink wine more than once a week. They have a tendency to dislike rosé wines and have a strong preference for dry wine (97 percent). Members of this group have the highest WTP for wine, which is consumed on special occasions with an average spend of 17.08 euros. These segment members have the highest value for ‘wine knowledge and connoisseur tendencies’ (WRL factor 2). The value for ‘purchase decisions’ (WRL factor 4) is the lowest.

Segment 2: Hedonistic red wine drinker (18.5 percent). Most of this group is male and is slightly older than the average participant. The members of this segment have a slightly lower household income than the average and are mostly married; 10.1 percent have a Bachelor’s degree as their highest educational level. The other members of this segment have an average education. With 2.36 members per household, the participants who belong in this segment have the largest households in terms of number of persons living in a household. Over half of the segment members drink wine weekly or even more often. There is a strong tendency towards red wine (94.1 percent), which is mostly dry or medium dry. The WTP for wine on a business occasion is at 12.66 euros. This value is

Table 7
Differences in Mean Values (SD) of the WRL factors of each Segment ($N = 962$).

Factors	Segment 1		Segment 2		Segment 3		Segment 4		Segment 5	
Savor and looking for new experience	-0,08	(0.840)ab	-0,06	(0.916)ab	0,17	(1.088)b	-0,34	(0.858)a	0,08	(1.086)b
Wine knowledge and connoisseur tendencies	0,52	(0.861)c	0,32	(0.862)c	-0,07	(0.980)b	-0,38	(0.897)a	-0,48	(1.061)a
Information procurement for the purchase	-0,04	(1.013)b	-0,01	(1.038)b	0,15	(0.947)b	0,04	(0.980)b	-0,35	(1.005)a
Purchase decisions	-0,13	(0.972)a	0,06	(1.093)ab	-0,04	(0.937)ab	-0,04	(0.994)ab	0,21	(1.036)b
Reason for wine consumption	-0,04	(1.047)a	-0,07	(1.003)a	0,11	(0.959)b	-0,08	(0.964)a	-0,06	(1.062)a
Price consciousness	-0,08	(0.933)ab	-0,06	(0.958)abc	0,07	(0.981)bc	0,22	(1.058)c	-0,23	(1.062)a

Note. Items were assessed by means of Likert scales (1 = totally disagree; 7 = totally agree). Superscripts stand for significant mean differences at the 0.05 level based on Tukey’s post hoc testing.

Table 8
Willingness to pay for wine (€) of consumers ($N = 962$).

Segment	Willingness to Pay for a bottle of Wine (€)			
	Good Quality	Unknown Occasion	Business Occasion	Celebratory Occasion
1	14,43	9,98	13,28	17,08
2	14,36	10,24	12,66	13,99
3	15,20	12,09	14,70	16,31
4	11,67	9,04	11,99	12,74
5	30,62	9,70	32,65	11,68
Sample	16,85	10,59	16,53	14,77

below the average. This segment has a connoisseur tendency and its members drink wine mostly for social reasons.

Segment 3: Social, information-seeking wine drinker (35.2 percent). Members of this segment have an ordinary income and approximately 50 percent of them are married. Consumers in this group are likely to drink medium-dry white wine on a regular basis. Members of this segment have a high WTP for wine of good quality (15.20 euros). They are looking for new experiences in wine and are the most likely to seek information regarding the wine they want to purchase.

Segment 4: Sweet wine drinker (14.5 percent). The majority of this segment is single females with relatively low incomes. This segment is the youngest of all the segments in this survey, with only 11.3 percent aged 70+; 22.5 percent of the participants in this segment are between 30 and 39 years old. Most of the members absolved an apprenticeship (39.4 percent) and there are no individuals with a doctorate degree. This group drinks the lowest amount of wine—28.2 percent drink wine less than once a month—but if they do, they prefer either red or white medium-sweet wines. The WTP is the lowest in the entire sample. For unspecified occasions, segment members are willing to pay up to 9.04 euros for a bottle of wine. Members of this group are not looking for new wines or experiences: they are looking for bargains when buying wine due to their high price sensitivity.

Segment 5. Conservative wine drinker (15.8 percent). This segment is also a young one, with 17.7 percent at 20–29 years of age. Members of this segment have a slightly lower income

Table 9
Characteristics of the segments.

Characertistics	Consumer segments					Sample
	1	2	3	4	5	
Consumption habits (%)						
More than once a week	48,8	25,5	27	14,8	23,4	28
Weekly	25,6	32,4	22,4	16,9	24,7	24,4
2–3 times per month	12,8	17,6	24,7	28,9	20,3	21,3
Monthly	8,5	10,6	11,1	11,3	7,6	10,1
Less than once a month	4,3	13,8	14,8	28,2	24,1	16,2
Consumption category (%)						
Red	56,1	94,1	40,3	43,7	46,8	54,5
White	40,9	3,7	44,9	42,3	34,8	34,6
Rosé	3	2,1	14,8	14,1	18,4	11
Sweetness of wine (%)						
Dry	97	50	30,1	2,1	35,4	41,6
Medium dry	2,4	42	55,1	12,7	36,7	35,2
Medium sweet	0,6	8	14,8	85,2	27,8	23,2

and most of them are unmarried. Often, this segment has a low educational status. The number of single households is the highest throughout, with an average of only 1.81 persons per household. Wine consumption in this group is lower than the average: 24.1 percent drink wine less than once a month. The segment has the highest preference for rosé wines in the sample (18.4 percent) and the majority prefers medium-dry wines. Members of this group have the highest average WTP. This segment does not have much wine knowledge or connoisseur tendency and is not very interested in information about the wine they buy. Furthermore, they do not want to take any unnecessary risks when purchasing wine. However, if the members of this segment do purchase wine, the price is not that important.

4. Discussion

The paper aims to analyze the importance of other extrinsic attributes (e.g. organic production) against the well-established quality classification system based on grape variety and sensory attributes of taste as well as the local place of production ('terroir') in reflection of changing lifestyle and consumption habits for wine. Overall, results of the choice experiment reflect the direct ratings: Consumers of wine primarily look for the attribute 'sweetness' (measured from dry, medium dry to sweet) followed by the producer, the grape variety and the region of production. Like others, we only found a few key attributes important (Lockshin et al., 2006; Petzoldt et al., 2007) when making a purchase decision about wine. Many authors have found that origin is one of the most important criteria for consumers' choice (Johnson and Bruwer, 2007; Kolyesnikova et al., 2008; Lockshin et al., 2006; María Angulo, María Gil, Gracia and Sánchez, 2000; Thomas, 2000; Thomas and Pickering, 2003). Papadopoulos and Heslop (2002) describe the region of origin of a wine as analogous to the brand and model of a car manufacturer. With the additional information on grape variety, brand, and vintage, high involvement consumers can predict what the taste of the wine will be (Lockshin et al., 2006). Interestingly, the geographical cue seems to be decisive and may be bound to a relative widespread knowledge of wine and its quality (Akaike, 1987). Even low involvement consumers know what to expect when they buy 'dry' wine. The consumers' knowledge and the amount of information they have, plays an important role when choosing wine from the shelf (Chaney, 2000). Even though there is a forcing trend towards ethical production in agricultural production, also in the wine market (Pomarici et al., 2018; Schäufele and Hamm, 2018), it still is not reaching a high market share (as measured through attribute importance of the label 'organic' and 'information seeking' preference). However, the regional production site is already considered a high value, which interferes with the standards quality scale based on sole chemical property of the wine. The 'terroir' system may be easier to understand for low-involvement wine buyers. Rössel and Beckert (2013) argued that wine quality and its assessment is not only a question of information, but also a social process. In this

process, the classification brings in a certain bonus to set the product prices higher.

Overall, we found low price sensitivity. Nonetheless, wine is considered a luxury agricultural product, hence, price sensitivity was not expected. Rather, price may have interfered as a quality cue (Oczkowski, 2001). Consumers tend to use price as a distinguishing characteristic (Lynch and Ariely, 2000). Also, the results underline that the brand name is a surety for a number of attributes including quality, and acts as a shortcut in dealing with risk and providing product cues (Lockshin et al., 2000).

With the WTP questions, we confirmed that for a formal and somehow status-bound occasion, the price sensitivity decreases. When there is no special occasion, a lower WTP is shown. Other authors found that different consumption situations muted or amplified the importance of different wine attributes (Hall and Lockshin, 2000).

Five wine consumer segments were found in this study. This confirms segmentations by other researchers from different countries (Bruwer and Li, 2017). The assumption that consumers only look for a low-priced wine cannot be confirmed. Depending on the segment, customers are willing to pay a moderate price for wine, especially for special occasions. Furthermore, it seems that younger people are showing an increased interest in wine of higher quality and of a certain origin; the very young generation seems to buy wine mainly if it is cheap. Like other segments, they are looking for the benefits of wine in terms of its effects regarding social events. We have shown that low-involvement consumers tend to look for quality cues much more than high-involved consumers. Information seekers made up the biggest segment and may appoint to consumers' interest in the production cues, which may be of further interest to the field. The construct of wine-involvement was further studied by Bruwer et al., 2019 as well as Bruwer and Cohen (2019).

5. Conclusions

This paper aims to analyze the importance of other extrinsic attributes (e.g. organic production) against the well-established quality classification system based on grape variety and sensory attributes of taste as well as the local place of production ('terroir') in reflection of lifestyle and consumption habits for wine. With regard to a growing societal demand for ethical consumption, 'organic', 'medals and awards' seem not to (yet) be of high relevance for the product wine. Nonetheless, the geographical site of production is already a quality attribution of importance to consumers. The largest consumer segments found in this study has a strong demand for information and look for an easy way to access the product quality. The VDP quality system offers a quick way to understand quality, using the pyramid solution for the quality scheme. The official quality system offers information about the grape

quality and maturity but is difficult for the consumers to understand. Some of the quality characteristics such as 'Kabinett' do not have a good reputation on the buyer side and should be used less. High-involvement buyers and winemakers need only a few key attributes to identify the quality of a wine. Low-involvement buyers need quality levels and other recommendations such as awards to evaluate the quality of a wine. Delivering the desired information to the consumers can increase market shares. By knowing which segment should be targeted, winemakers and retailers can fit the needs of the consumers. With regard to the value of extrinsic product characteristics, it can be said that extrinsic quality attributions do have a value to consumers. Especially for the biggest segment 3, which is looking for information when buying wine, this might be an important result to the sector. Even though the quality oriented marketing strategy is successful, future studies should bear societal demand for sustainable production in mind.

5.1. Study's strengths and limitations

With regards to methodology this study combined direct and indirect ratings with socio-psychometrical assessments, drawing conclusion for the wine markets.

Within, we used conditional pricing, so the price is bound to the brand to give a more realistic choice set. Because of that, the average importance of the characteristic price is lower than expected. As a result, the importance of the characteristic brand might be higher than when not using conditional pricing. Furthermore, in the direct questions, we did not ask about price, which is another limitation of the present study.

A further limitation of this study is that we did not ascertain the regional origin of the participants. Wine attribute preferences might differ between regions—for example, if a particular variety is produced in one region, the inhabitants might typically prefer this variety.

5.2. Future research

Further research should be done concerning the high value segments to achieve a better understanding of their needs. The amount and quality of information on the label should be further investigated to fit the needs of information-seekers (Meyerding and Merz, 2018): an informed consumer has increased satisfaction when buying wine (Lynch and Ariely, 2000). The impact of different awards and quality levels and their effect on the WTP is another possible research option.

Another possibility would be to change the parameters of the study to amplify the gained knowledge.

With regard to statistical implication of the segments, it would be worth to differentiate the effects of WRL more closely.

Appendix 1. Factor analysis: Wine-related lifestyle

Factors and the corresponding variables	Mean	SD	Factor loading
Savor and looking for new experience (Cronbach's alpha: 0.918)			
I usually decant red wine before pouring it into a glass	3,54	2,126	0,545
I believe that drinking wine reflects an image of sophistication	3,53	1,818	0,403
When shopping for wine, I often look for something that I have not tried before	3,51	1,736	0,559
Being knowledgeable about wine gives me a great deal of satisfaction	3,15	1,797	0,642
I drink wine because it has positive health benefits	2,91	1,798	0,719
I take more notice of wine related articles in the press and TV than I did 2 years ago	2,85	1,839	0,444
I am choosy when it comes to selecting wines from particular vintages	2,82	1,870	0,581
When available, I consult tasting notes when I buy wine in a specialist wine retail store	2,80	1,887	0,708
I have a special wine storage space i.e. wine racks allowing me to age my wine/maintain a collection	2,75	2,120	0,519
I use special wine accessories e.g. filter, wine pourer, to help me prepare and consume wine	2,68	1,981	0,489
I often look for a unique wine when buying wine for my normal consumption	2,65	1,758	0,646
When consuming wines I usually begin with lighter styles and move to heavier styles	2,46	1,745	0,423
I almost always ask for a discount from the wine store when I buy 6 bottles or more	2,39	1,792	0,705
I buy wine with the firm intention to cellar/store it for a certain period to improve its quality	2,37	1,675	0,409
I often use recommendations from wine writers to help me select my wine	2,36	1,667	0,557
I often look for rare or scarce wines	2,32	1,725	0,662
I prefer shopping for and buying wine via the Internet	2,32	1,758	0,635
I use special equipment i.e. a stopper to prevent wine from going off after opening	2,29	1,936	0,519
I regularly attend special wine tastings or wine club meetings	2,17	1,596	0,470
I regularly read wine magazines or wine reviews in newspapers	2,14	1,630	0,659
I will generally buy the most expensive wine that fits my budget on the day of purchase	2,09	1,577	0,666
I keep a record of the wine that I buy	1,75	1,475	0,530
Wine knowledge and connoisseur tendencies (Cronbach's alpha: 0.810)			
I am quite aware of the alcohol content of the wine I drink	5,46	1,772	0,554
I usually use the right style of glassware for different wine styles	5,04	1,984	0,509
I am never concerned that drinking wine could have a detrimental effect on my health	4,98	2,072	0,358
I believe that drinking wine with food makes the food taste better	4,89	1,698	0,541
I would choose a different wine if I were eating at a fine restaurant compared to BBQ at home	4,75	1,914	0,500
I drink wine because it compliments food and adds extra enjoyment to eating	4,74	1,781	0,577
I buy different types of wine depending on the occasion when it will be drunk	4,54	1,783	0,468
I can generally recall the memorable wines that I drink	4,45	2,097	0,640
I usually allow the wine to breathe by standing it for a period of time before drinking	4,36	1,939	0,413
For me, the grape variety from which the wine is made is an important consideration	4,21	1,846	0,437
I prefer wine from certain geographical regions	4,06	1,771	0,543
I know exactly how wine should be stored (cellared) at my home for lengthy periods	4,05	1,968	0,592
I always check my wine for cork or other taints	3,98	2,128	0,581
I usually buy at least a half dozen (mixed or same) each time I buy wine	3,02	2,067	0,593
Information procurement for the purchase (Cronbach's alpha: 0.671)			
When shopping I use the information on wine labels to help me decide what to buy	4,75	1,611	0,479
I would like to learn more about wine styles and their countries of origin	4,03	1,802	0,482
A poorly designed wine label can turn me off even when the wine itself is OK	3,88	1,811	0,452
The occasion when I consume wine is an important consideration when I buy wine	3,83	1,945	0,487
I firmly believe wines under cork are of higher quality than those under screwcap or plastic closures	3,81	2,105	0,439
Wines that have won medals are usually of higher quality than those that have not won any	3,73	1,622	0,617
I tend to be more attracted to wines in elegant, interesting bottles, than traditional bottles	2,83	1,781	0,508
Purchase decisions (Cronbach's alpha: 0.722)			
When drinking wine, it is important for me to know which country the wine was made in	4,02	1,903	0,394
I always buy the same style of wine	3,92	1,845	0,625
I often use the recommendations of wine store sales assistants when buying wine	3,63	1,636	0,406
I normally have a very clear idea of what brand I will buy before going into a wine shop	3,57	1,940	0,525
I always buy the same wine brand	3,04	1,870	0,735
It is risky to buy lesser-known wine brands	2,86	1,663	0,715
I always buy wine made from the same variety	2,62	1,665	0,409
Reason for wine consumption (Cronbach's alpha: 0.639)			
I consider that I am somewhat of a risk taker when buying wine	3,70	1,767	0,609
I drink wine in order to get into a better/relaxed mood	3,68	1,885	0,490
People who regularly drink wine are usually more sophisticated in the way they live their lives	3,49	1,824	0,501
I drink wine because people of my social standing do so	2,48	1,747	0,571
I drink wine because it makes it easier to socialize	2,42	1,648	0,375

(continued on next page)

(continued)

Factors and the corresponding variables	Mean	SD	Factor loading
Price consciousness (Cronbach's alpha: 0.631)			
I buy wine from general wine retail stores; it is more convenient than specialist stores	4,15	1,979	0,659
I take care to compare prices between similar wines in order to get the best value	4,11	1,857	0,695
When I think of a value for money wine, I usually think of a cheap wine	3,75	1,746	0,684
I often look for bargains and buy wines that are on special in the wine store	3,61	1,863	0,623
I am reluctant to ask for help when buying wine	2,66	1,779	0,378

Note: Scale from 1 (totally disagree) to 7 (totally agree). $N = 1,004$.

Appendix 2. Sociodemographic characteristics of the consumer segments and winemakers

Characteristics	Segment					Winemaker (%)	Sample (%)
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
Gender							
Male	45,7	60,6	53,1	47,2	53,2	74,1	52,5
Female	54,3	39,4	46,9	52,8	46,8	25,9	47,5
Age							
16–19	1,2	1,6	3,7	6,3	6,3	0,0	3,7
20–29	2,4	7,4	15,6	12,0	17,7	13,8	11,8
30–39	9,8	11,2	13,9	22,5	18,4	23,3	14,6
40–49	18,9	18,6	16,2	19,7	15,8	19,0	17,5
50–59	22,6	19,1	15,3	17,6	15,2	31,9	17,5
60–69	14,6	12,2	12,8	10,6	10,1	12,1	12,3
70+	30,5	29,8	22,4	11,3	16,5	0,0	22,6
Monthly household income							
less 1,300 €	9,1	12,8	14,8	25,4	19,6	6,9	15,7
1,300 €–2,600 €	21,3	34,6	31,8	31,0	31,0	41,4	30,4
2,600 €–3,600 €	22,6	19,7	21,9	21,1	17,7	20,7	20,8
3,600 €–5,000 €	24,4	16,0	15,9	14,1	17,7	18,1	17,3
5,000 € and above	22,6	17,0	15,6	8,5	13,9	12,9	15,7
Marital status							
Single	23,2	22,9	32,1	44,4	37,3	31,0	31,5
Married	57,9	56,9	50,0	38,7	37,3	59,5	49,0
Divorced	11,6	13,3	10,2	12,7	14,6	1,7	12,1
Widowed	6,7	5,9	6,8	3,5	8,2	0,0	6,4
None	0,6	1,1	0,9	0,7	2,5	7,8	1,1
Education							
Apprenticeship	26,8	36,2	36,4	39,4	27,2	14,7	33,8
Technical college degree	14,0	11,2	9,9	12,0	9,5	23,7	11,1
Technical college former GDR	3,7	3,2	3,4	4,2	2,5	0,0	3,4
College degree	9,1	9,6	11,1	9,9	6,3	14,7	9,6
Institution of higher education	13,4	6,9	7,1	7,7	11,4	5,2	8,9
Bachelor's degree	1,8	10,1	7,4	5,6	8,2	13,8	6,9
Master's	7,3	4,3	5,1	2,8	5,7	4,3	5,1
Diploma	16,5	12,2	11,1	9,2	14,6	17,2	12,5
Doctorate	4,9	2,7	2,6	0,0	4,4	2,6	2,9
No finished education level	2,4	3,7	6,0	9,2	10,1	0,9	6,1
Household size							
Number of people	2,10	2,36	2,25	2,20	1,81	2,92	2,25

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