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What is Inside the Bottle? - Factors Influencing Pálinka Consumption

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Abstract

Pálinka is the national spirit of Hungary and is in possession of the geographical indication of the European Union, but it used to be listed as a poor-quality product for a long time. The turnaround in this field began in the early 2000s. The aim of this study is to analyse the behaviour and attitudes regarding the purchase and consumption of pálinka and, to assess the product-related awareness of Hungarian consumers who like this particular spirit. Based on the literature, the knowledge of Hungarian consumers about pálinka is rather low, which is confirmed by the results of our questionnaire survey of 1,000 people. Furthermore, based on the results obtained, participants in the pálinka sector are more likely to understand how important certain product attributes that are perceived by consumers when purchasing pálinka. In order to increase the awareness of the spirit, it is essential to get to know the consumers, which can be followed by a well-positioned marketing strategy from both the government and corporate side.

Keywords

Pálinka, spirit, Hungary, consumer survey, knowledge, geographical indication.

Maró, Z. M., Török, Á., Balogh, P. and Czine, P. (2023) "What is Inside the Bottle? - Factors Influencing Pálinka Consumption", *AGRIS on-line Papers in Economics and Informatics*, Vol. 15, No. 1, pp. 83-98. ISSN 1804-1930. DOI 10.7160/aol.2023.150107.

Introduction

Almost every country has its own national drink, which is decisive from a cultural, social, and economic point of views. Which is whiskey in the former British Empire, tequila in Mexico, cognac in France, or grappa in Italy, is undoubtedly pálinka in Hungary. The name pálinka is probably derived from the Slovak word 'palenka' or 'pálit', which means to distil (László et al.; 2016, Török, 2013). Pálinka is a distillate made exclusively from fruit, which can only be produced in Hungary. The only exception to this is the one made from apricot, which can be delivered in four provinces of Austria (Lower Austria, Vienna, Burgenland, Styria). In Hungary, the pálinka culture, which includes the traditions, ceremonies of making and consuming fruit spirits, has a centuries-old history (see e.g., Békési and Pándi, 2005; Harcsa et al., 2014).

In the 1990s, pálinka was still considered to be an extremely poor-quality spirit, due to the low reputation received during the communism, when this product could be distilled from low quality

materials with industrial scale (Török, 2013). The break-through in the field of quality took place at the beginning of the 21st century, and now pálinka, as a liquid food, and the consumption of pálinka is experiencing its renaissance (Géczi et al., 2018) due to changes in Hungarian and EU legislation, the establishment of the Pálinka National Council (PNC), the acquisition of the EU Geographical Indication (GI) and the distinguished Hungarian national product (Hungaricum) status. In the last decade, pálinka has come a long way, has left the 'peasant' drink classification, and become the favourite national drink and value of Hungarians (Harcsa, 2017b; Harcsa, 2017a).

Aim of the research

The main goal of the present research is to explore the preferences of Hungarian consumers interested in pálinka during the purchase of the drink along different attributes, considering the latest changes and trends related to it. The importance of the topic is justified by the fact that Hungary has placed great emphasis on improving the image of pálinka as a national drink, and that the government budget

receives significant revenue from the excise duty on this product. In addition, there is an increasing emphasis in the European Union on protected and quality products, including different kind of spirits. The novelty of the research is also given by the fact that several factors determining the purchase (e.g.: the result of spirit competition, consumer ethnocentrism, the knowledge of the pálinka seal) were included, which were not examined in previous studies. The results may be of interest from both a scientific and a marketing perspective.

Literature review

Major legislative changes of the recent years

In Hungary, for a very long time, three different types of drinks were purchasable under the same name 'pálinka' (Harcza, 2018). This chaotic situation was clarified by the provisions of the Codex Alimentarius Hungaricus No. 1-3-1576 (Hungarian Food Codex Committee, 2002), which entered into force in 2002. It put an end to the decades-long struggle for the uniqueness, specialty, and quality of the spirit. The Act LXXIII of 2008, provides a base for the so-called 'Pálinka Act' on pálinka, törkölypálinka (made from grapes) and the establishment of the Pálinka National Council. According to the law, pálinka is a fruit distillate made from fruit grown in Hungary, which is also mashed, distilled, matured, and bottled within the country. As for fruit production, it essential for it to be in Hungary, since for example, imported distillates made from fruit or vegetables and honey cannot be considered as pálinka. In addition, the use of the pálinka seal, which later became mandatory, was possible for beverages marketed domestically, which is different in colour from other excisable alcoholic products.

According to the current regulations (Act LXVIII of 2016 on Excise Duties), an alcoholic product (distillate or pálinka) can currently be made from fruit in three ways: by private distilling, in contract distilleries and in commercial distilleries. We talk about private distillation when someone makes distillate from (typically) their own fruit, with their own distillation equipment, in their home. When someone uses the services of a contract distillery to make their own fruit, we are talking about a contract distillate. If a specialized company produces distillate for commercial purposes, typically from purchased raw materials, the product made here can only be called pálinka. It is important to point out that products from private and contract distillation can only be described as distillates (with a few

exceptions), they cannot be officially called pálinka; and that only the drinks produced in commercial distilleries qualify as a Hungarikum and EU's protected drinks.

In recent years, many changes were introduced in the regulation of distillation regarding excise duty (Harcza, 2016; Zsótér and Molnár, 2015). From 2021 onwards, the rules of production changed again in several respects (National Tax and Customs Office, 2021), as the production of distillates became duty-free up to a certain amount for both private distillation (up to 86 litres – maximum value) and contract distilleries (up to 50 litres).

Consumer habits for other international spirits

Examining the international competitors of pálinka, we can find some studies similar to this research that deal with consumer preferences (Table 1). Glenk et al. (2012) examined consumer preferences associated with Scotch whisky on sustainable production, consumption, and the purchase of environmentally friendly food. Based on their results, about half of the survey participants consider the proportion of Scotch-grown barley in their whisky at the time of purchase. Furthermore, it was proved that the demand for environmentally friendly production of Scotch malt whisky is rather low, suggesting that consumers are unlikely to be key players in promoting sustainable production.

The number of studies analysing the relationship between glassware (glass or bottle) and consumer preferences has increased over the past few years. Wan et al. (2015) examined red wine, white wine, beer, whiskey, and Chinese grain spirit (baijiu). It is worth noting that for consumers, it is important to serve a particular alcoholic beverage in a suitable glass, based on which they are willing to pay a higher price for it - so the type of glass or bottle affects the willingness to pay. All of this also affects product marketing as well as the design of bottles and glasses.

Prentice and Hadsjuk (2016) analysed consumer factors (brand, country of origin, packaging, social media) that arise during the purchase of vodka. Based on their results, similarly to Siegel et al. (2013), brand has a significant impact on consumer decision-making and purchasing preferences. Packaging has of relatively low importance when buying vodka, and many have found that this factor indicates to them the quality of the product they purchase. Social media has a greater effect on the frequency of purchases. For consumers in Italy, the choice of grappa was most related

Authors	Year of the survey	Examined alcoholic beverage	Target group and data collection technique	Key findings
Glenk et al., 2012	2012	Scotch malt whisky	Questionnaire survey (400) with Scottish respondents over the age of 18.	The presence of Scottish-grown barley is not a decisive factor. Demand for more environmentally friendly whisky production is quite low.
Marinelli et al., 2014	2014	Alcoholic drinks	Questionnaire survey (430) with Tuscan respondents aged between 18 to 35 years.	Young consumers prefer to see alcohol as a means of socializing and getting out of everyday life. The time of consumption and the place of purchase differ for different drinks.
Wan et al., 2015	2015	Red wine, white wine, beer, whiskey, Chinese grain spirit	Questionnaire survey (120) with Chinese students between the ages of 18 and 23 + questionnaires (100) with American respondents between the ages of 19 and 75.	The type of glass or bottle affects the willingness to pay. Proper serving of the drink is essential.
Prentice and Handsjuk, 2016	2016	Vodka	Questionnaire survey (454) with Australian respondents over 18 years of age.	The brand has a significant impact on consumer preference. Packaging is of relatively low importance when purchasing vodka.
Merlino et al., 2019	2019	Grappa	Interviews and questionnaire survey (667) with Italian respondents over 18 years of age.	The most key factors in making a choice are experience, product knowledge and origin. Less crucial factors are alcohol content and packaging.
Cravero et al., 2020	2020	14 alcoholic and non-alcoholic beverages	Questionnaire survey (2388) with Italian respondents aged between 18 to 60 years.	Similar preferences were found for both sexes. Consumption of alcoholic beverages has decreased with aging, with the sole exception of wine.

Source: own editing

Table 1: Key studies examining international alcohol consumption patterns.

to previous experience, product knowledge and origin. In contrast, consumers considered alcohol content and packaging to be the two least crucial factors when making a purchase (Merlino et al., 2019).

Cravero et al. (2020) examined taste sensitivity among 14 alcoholic and non-alcoholic beverages (including beer, wine, spirits, cocktails). Despite strong gender differences, because women tend to like and consume less alcohol than men, similar patterns of liking and interest were found for both sexes. Consumption of alcoholic beverages decreased with age, apart from wine. It should be emphasized that people see moderate wine consumption as part of the Mediterranean diet. In Italy, older people associate alcohol with relaxation and everyday life (Bastian et al., 2019), while young consumers see alcohol more as a means of socializing and getting out of everyday life (Marinelli et al., 2014). Young people consume wine mostly during meals, while beer and spirits are mostly consumed outdoors, in the evening

and on weekends. As for the preferred places to shop, the wines are mostly in restaurants, pizzerias, and supermarkets; beers, especially in bars, pubs, distilleries, supermarkets, and pizzerias; and spirits are usually purchased at discos and clubs.

Alcoholic beverages are produced all over EUs, both for domestic consumption and for export, but the number of studies on the subject is rather limited. It should also be emphasized that the number of studies examining the competitiveness and market share of fruit spirits in Central and Eastern Europe is limited (Torok and Jambor, 2013). However, in the case of wines and beers, several publications can be found. Mtimet and Albisu (2006) found that the consumption of PDO and PGI wines is increasing in Spain. During the consumer choice, the age of the wine and the protection of its origin stand out the most. Perrouty et al. (2006) concluded that brand and origin are very important decision-making aspect for those who do not have adequate

information about the quality of the wines. In Japanese wine purchasing decisions, such as taste, style, colour, price and the recommendations of friends are considered outstanding (Bruwer and Buller, 2012). Men prefer beverages from Old World wine countries, while women prefer beverages from the New World wine countries. In Poland (Schaefer et al., 2018), consumers are more likely to buy wines produced outside the country.

Meanwhile, during the selection of beers, also several product attributes appear as a decision criterion (Betancur et al., 2020). In the Czech Republic, consumers' choices are mostly influenced by taste, quality brand and Czech production. Price was not found to be an influencing factor in the selection of beer, but this is due to consumers being interviewed on the street (Svatošová et al., 2021). Another tendency is that with the increase of consumer ethnocentrism, Czech consumers are less likely to choose foreign beer brands (Wanninayake and Chovancová, 2012). In Poland, beer consumers are more attached to national and regional symbols. In Siemieniako et al.'s (2011) research, respondents felt it was their moral duty to buy local beers, thereby supporting the local community by expressing their local identity. All this plays a significant role in the purchase and selection of beer. Hajdu et al. (2007) examined beer consumers in Hungary, it was found that those with a higher education consume new types of beers more often than those with less education, who are more likely to consume traditional beverages (e.g., homemade distillate).

Consumer preferences in the Hungarian pálinka sector

Several studies have examined the pálinka consumption habits of Hungarians, the transformation of consumer habits and the change in attitudes related to pálinka (Table 2). The report of the GFK Hungária Market Research Institute (2008), commissioned by the Agrármarketing Centrum, highlighted the poor information of consumers about the pálinka, and the remarkably high proportion of non-commercial purchases. Consumers' attitudes towards pálinka were mostly related to nostalgia, the rural atmosphere (although pálinka consumers typically live in the larger cities) and Hungarianness, so they found that the name pálinka had become obsolete. Traditions determine the consumption habits and occasions of pálinka (e.g., slaughter of pigs, weddings).

A researches on the topic in the early 2010s have

come to the conclusion that positive associations (group of friends, family event, good mood, cheerfulness) are tied to pálinka; and the negative stereotypes associated with the drink (e.g., poor quality, "old-fashioned" drink) are disappearing (Totth et al., 2011a; Totth et al., 2011b). When buying pálinka, the following aspects are decisive for consumers: taste, packaging (especially design) and price, followed by alcohol content and brand. In the case of a gifting, it is much more common to pay a higher price than in the case of a purchase for one's own purposes; and in the case of gifting, special flavors are the determinants, while for gatherings of friends and home consumption, traditional, more popular flavors are dominant. The role of the brand and the region is less important for the respondents, only a few of the brands/distilleries are better known (e.g., Zwack, Rézangyal). For all types different consumption occasions, 'homemade pálinka' has appeared, mainly due to its origin (self-made, they know what it is made of) and its price (cheaper). Consumers also mix pálinka and pálinka-like drinks in terms of name.

The authors repeated the research later. Based on their results, it can be stated that a significant part of the respondents, between the ages of 18 and 39, used to buy pálinka for various occasions (e.g., home consumption, ceremonies, meetings). The authors highlighted that young people prefer and consume this spirit besides whiskey and vodka - this can contribute to increasing the image of the drink and thus its competitiveness (Totth et al., 2017). In their research, published in 2018, the authors already reported an increase in consumer awareness, as most respondents were aware that only distillate made from 100% domestic fruit could be considered to pálinka. Consumption of pálinka is still mainly associated with celebrations (christening, name days, birthdays, Christmas, funerals) and social events (meeting of friends, family events). Men prefer whiskey and pálinka, while women prefer vodka. Classic flavours (such as plum, apricot, pear) are the most popular, however, in terms of flavour preferences, it should be mentioned that the majority of respondents prefer 'homemade pálinka' regardless of taste. Overall, therefore, there were no significant changes compared to the survey conducted in 2010, which results in a slowdown and stagnation in the improvement and change of the pálinka' image (Totth et al., 2018a; Totth et al., 2018b).

The study of Szegedyné et al. (2017) concluded that (basically) the occasional drinking is

the nature of pálinka consumption (e.g., weddings, house parties, illness). Men, as well as those over 50 and 18-24 years of age, consume pálinka more frequently and more often. The main factor influencing purchasing, in addition to the type of fruit, is the recommendations of friends, and the price, followed by protection of origin. According to the respondents, it is possible to make pálinka from cereals, citrus fruits and potatoes by mistake.

Mucha et al. (2020a) examined the image

of pálinka based on different product properties. The 626 respondents considered quality to be the most important purchasing criteria, followed by price, Hungarian origin, prestige, and fashion. Two particularly important conclusions were drawn: (1) the image of homemade distillate is more positive than that of store pálinka; (2) knowledge about pálinka is still extremely incomplete among Hungarian consumers. In a later publication, Mucha et al. (2020b) concluded that in the case of purchases, price has the greatest influence

Authors	Year of the survey	Target group and data collection technique	Key findings
Totth et al., 2011a	2010	Questionnaire survey (1487) among economically active consumers of pálinka aged 23–60, who consume pálinka at least occasionally.	The pálinka got rid of its negative image. Pálinka consumption is associated with social events and holidays.
Totth et al., 2011b	2010	Interviews (80) with people over the age of 23 who have consumed pálinka in the last 3 months.	Positive associations can be connected with pálinka consumption. Purchasing aspects: taste, packaging, price, alcohol content, brand.
Totth et al., 2017	2016	Questionnaire survey (1550) among consumers over the age of 18, who purchase alcoholic beverages at least occasionally.	A significant proportion of respondents between the ages of 18 and 39 tend to buy pálinka for various occasions. In addition to whiskey and vodka, young people mostly consume pálinka.
Totth et al., 2018b	2016	Questionnaire survey (1500) among economically active consumers of pálinka aged 23-60, who consume the spirit at least occasionally.	Within the spirits, the popularity of three products stood out: vodka, whiskey, pálinka. Men prefer whiskey and pálinka, while women prefer vodka.
Szegedyné Fricz et al., 2017	2017	Questionnaire survey (1014) with respondents over 18 years of age.	Men, as well as those over 50 and 18-24 years of age, consume pálinka more frequently and more often. The main purchase aspects are the type of fruit, the recommendations of friends, the price, and the protection of origin.
Totth et al., 2018a	2018	Interviews (67) with people over 23 who have consumed pálinka in the last 3 months.	Increasing consumer awareness. Among the not preferred flavours, pálinka-like drinks appear. Consumption of pálinka is mainly associated with festive occasions.
(Mucha et al., 2020a)	2019-2020	Questionnaire survey (626) of respondents over 18 years of age who have consumed pálinka in the last 3 months.	Knowledge about pálinka is extremely incomplete. The most important aspect is quality, followed by price, Hungarian origin, prestige, and fashion criteria.
(Mucha et al., 2020b)	2019-2020	Questionnaire survey (626) of respondents over 18 years of age who have consumed pálinka in the last 3 months.	Price is the most crucial factor when buying pálinka or distillate. The purpose of the purchase determines the role of the price, the type of fruit, and the origin in the purchase.
(Mucha et al., 2021)	2019-2020	Questionnaire survey (626) of respondents over 18 years of age who have consumed pálinka in the last 3 months.	The image of homemade distillate and whiskey is better than that of store pálinka. Consumers mistakenly consider homemade distillate to be a Hungarikum product.
Maró et al., 2022	2021	Questionnaire survey (760) with Hungarian pálinka consumers over the age of 18.	The geographical indication, the Bestillo brand and the small-pot distillation method are associated with a higher sense of utility. People living in big cities are characterized by the consumption of pálinkas, while in the countryside homemade distillate still dominates.

Source: own editing

Table 2: Key studies examining pálinka consumption patterns.

on the decision, which is followed by the type of fruit used and the origin. A significant proportion of consumers prefer homemade distillate, considering the origin, which is explained by differences in image and price. Mucha et al. (2021) also examined the image of store-bought pálinka, homemade distillate and whiskey, which is popular in Hungary. Emotional attachment is highest for homemade distillate, followed by whiskey and store-bought pálinka. This is also since homemade spirits were considered by the respondents to be of a more reliable quality than in-store pálinkas. The latter can be explained not only by emotional and behavioural differences, but also by knowledge and knowledge gaps, which is also confirmed by the fact that the majority of the respondents consider homemade distillate to be a Hungarikum product. In Hungary, the consumption of whiskey is clearly a status symbol.

The latest consumer survey by Maró et al. (2022) who examined Hungarian pálinka consumers with the help of a discrete choice experiment. Based on their findings, the Gönc geographical indication, the Bestillo brand and small-pot (in Hungarian *kisüsti*) distillation method increase the sense of utility of the customers. Branded pálinka is most preferred by those living in big cities, who typically buy pálinka in commercial units, and who are more informed about alcoholic beverages than the average consumer. Because pálinka specialties are associated with higher quality, they are willing to pay a higher price for these products. The popularity of homemade distillate is still dominant in the Hungarian countryside and in smaller towns, so branded pálinka is less likely to be consumed there.

Materials and methods

During our research, the data collection of the online questionnaire was carried out by a professional market research company (InnoFood Marketing Ltd.). The data collection took place between April and July 2021. Due to restrictions related to COVID-19, data collection was done online only using the research software of Qualtrics. The questionnaire was aimed at analysing the behaviour related to the purchase and consumption of pálinka and assessing the respondents' proficiency in the topic, with a special focus on collecting the sociodemographic characteristics of the respondents.

To establish the questionnaire, we prepared a wide-

ranging literature review and expert interviews in advance. Subsequently, a pilot survey ($n = 73$) was conducted, based on which the questions were finalized. From the data of the final survey of 1,000 Hungarian people, representative for the Hungarian alcohol consumer population, 760 responses were evaluated after data cleaning (e.g., exclusion of incomplete or incorrectly completed questionnaires). The most important characteristics of the sample is summarized in Table 3. In the case of gender, (older) men predominate in the sample, which is not surprising, as several studies (e.g., Szegedyné Fricz et al., 2017; Totth et al., 2018b) have found that older men can be considered typical pálinka consumers. In terms of place of residence and the number of people living in one household, the sample is close to the national average (compared to the 2011 HSCO census). In the case of education, those with lower education were under-represented, while those with higher education were over-represented in the sample. All this is mostly explained by the online nature of the query (Bethlehem, 2010). The obtained results can be evaluated further in the light of these representativeness characteristics.

	Survey	HSCO census
Total respondents / Population	1,000	9,937,628
Respondent involved	760	-
Gender		
Female (%)	36.45	52.52
Male (%)	63.55	47.48
Average age (years)	54.73	41.39
Residence		
Village (%)	26.45	30.52
City (%)	40.92	34.35
Large city (%)	32.63	35.13
Education		
Basic education	2.37	31.72
Secondary education	43.42	51.31
Higher education	54.21	16.97
Average number of people living in a household (person)	2.77	2.60

Source: own editing based on survey and HSCO (2013) data

Table 3. Presentation of the sample.

In addition to the descriptive statistical and non-parametric correlation (Spearman's rank correlation) analyses, we performed a regression (o-logit) analysis to understand the factors influencing the preferences of Hungarian consumers regarding pálinka. In the case of our dependent variables (measured on, importance from 1 to 5, Likert scale) to be modelled, we could build

and estimate an ordinal logit (OL) regression model at the ordinal measurement level. The approach often appears when analysing data from research that uses rating-scale-based statements in the context of a questionnaire survey (see, e.g., Bellizzi et al., 2018; Eygu and Gulluce, 2017).

Prerequisites for estimating the model include aspects that appear when other types of regression are used (e.g., lack of multicollinearity), while some are procedure-specific (the level of measurement of the dependent variable should be ordinal, the proportional probabilities of threshold parameters).

The fulfilment of the 'proportional odds' condition can be examined by applying the parallel lines test. This tests whether there is a significant difference between the models estimating common and unique coefficients according to the independent variables for the threshold parameters. If the test is not significant, it can be concluded that the model estimating individual coefficients does not show a significant improvement, so the proportional odds model can be used (McCullagh, 1980; Brant, 1990; Erkan and Yildiz, 2014). The transformed form of the model into a linear formula (taking the natural logarithm of the odds ratios) can be written according to Equation 1 (Ananth and Kleinbaum, 1997):

$$Y = \alpha_t - \sum_{k=1}^K \beta_k X_k, \quad (1)$$

where Y is the dependent variable, α_t is the threshold parameter for the t -th category ($t = 1, 2, \dots, t-1$), X_k is the k -th explanatory variable, β_k denotes the estimated coefficient for the k -th explanatory variable.

Based on all this, the study seeks to answer the following questions:

- How important for the respondents the pálinka purchasing aspects we have discovered (production in Hungary, colour of pálinka, bottle capacity, colour of the bottle, alcohol content, results of the pálinka competition)? How do consumers prioritize these aspects?
- What is the share of those who use private or contract distillation?
- Are consumers aware of the difference between pálinka and distillate?
- Do the respondents know the pálinka seal? If so, can it be distinguished from the seals of the distillate and other spirits?

- Where do consumers buy and how often do they consume pálinka?
- What factors affect consumer preferences during shopping?

Results and discussion

Typical characteristics

In our research, several aspects of the purchase of pálinka, which were also examined by the literature, analysed. The aspects (quality and price) analysed by most studies (Szegegyiné Fricz et al., 2017; Mucha et al., 2020a) observed using a discrete choice experiment (DCE), so these aspects were not explored in the present research. The most important aspect that arises during the purchase of pálinka (Table 4) is that the drink should be made in Hungary (average value of 4.11 on the 5-point Likert scale) - this is consistent with the research of Mucha et al. (2020a). It also follows that the respondents are not aware that, except for apricot pálinka, pálinka can only be of Hungarian origin, so it is likely that people often buy different spirits instead of pálinka. The importance of the origin of the drink is becoming increasingly emphasized in other alcoholic beverages as well (Siemieniako et al., 2011; Perrouy et al., 2006; Merlino et al., 2019). Production in Hungary was followed by alcohol content (3.80), to which applies strict rules during pálinka production (Codex Alimentarius Hungaricus, 1-3-1576).

The aspects concerning the appearance of the drink, i.e., the colour of the bottle (3.09) and the capacity of the bottle (3.02), had equivalent results. Respondents on average do not really consider it important for the drink to have colour (2.74) when purchasing. Overall, the appearance of the pálinka was not considered as important by consumers as the aspects presented earlier. In the early 2010s, consumers placed even more emphasis on the appearance of the beverage (Totth et al., 2011b), however, in a recent study (Mucha et al., 2020a) we can already see results similar to our research. Moreover, it is clear that the appearance of pálinka is not such an important decision criterion, similar to the case of vodka (Prentice and Handsjuk, 2016), in contrast to the experiences of other competitors (Wan et al., 2015).

According to the respondents, the least decisive factor when buying pálinka is whether the pálinka has a result in a competition (2.53). However,

those who still found the results of the competition important mentioned the National Pálinka and Törkölypálinka Competition spontaneously.

Aspects of purchasing pálinka	Average	Standard deviation
Production in Hungary	4.11	1.12
Alcohol content	3.80	1.02
Colour of the bottle	3.09	1.33
Capacity of the bottles	3.02	1.25
Colour of the pálinka	2.74	1.25
Place in pálinka competition	2.53	1.11

Note: the answer was possible on a Likert scale from 1 to 5, where 1 meant that the aspect was not important at all to the respondent, while 5 meant that it was of paramount importance

Source: own editing based on survey

Table 4: Respondents' views on the purchase of pálinka.

During the examination of the correlation among the aspects presented in Table 4, we came to the conclusion that there is mostly a weak relationship or no relationship among the aspects. There is a moderate strength correlation with positive direction ($r_s > 0.3$) between the importance of the capacity of the bottle and the colour of the bottle, which indicates that as the importance of the former aspect (capacity of the bottle) increases, the importance of the latter aspect (colour of the bottle) also increases. A similar conclusion is true for the pairing of colour of the bottle and alcohol content as well as for the pairing of colour of the pálinka and the capacity of the bottle.

More than half (460 people) of the 760 respondents

(or one of their families) use the services of a contract distillery. If we look at private distillation, it is less common than contract distillation, as only 29% of respondents said that someone in the family distillates at home. The changes in legislation in 2021 (e.g., the production of distillates is duty-free up to 86 litres for private distillation and up to 50 litres for contract distillation) may bring the distilleries to the forefront again, as from 2015 to 2021 was a taxable activity under the 92/83/EGK directive.

It is important to highlight opposing judgement of private distillation, since on the one hand it increases the popularity of the drink, but on the other hand quality issues arise. A similar situation can be seen in several countries of Europe or Asia, where various regulations (e.g., restrictions on opening hours) prioritized homemade spirits over their shop counterparts (Skorobogatov, 2014; Manthey et al., 2020; Probst et al., 2021). As in the case of home-distilled pálinka, the quantity and quality of homemade drinks also causes problems in other countries of the world and of the European Union. In 5 member states (Croatia, Finland, Greece, Hungary, Portugal) of the European Union, homemade, unrecorded alcohol made a significant contribution to total consumption (Manthey et al., 2019; Manthey et al., 2020). It is clear from the literature (Manthey et al., 2019, Probst et al., 2021) that consumers of homemade distillates (as well as wines and beers) are usually from the lower social classes. In contrast, the consumers of store-bought spirits

	Production in Hungary	Alcohol content	Colour of the bottle	Capacity of the bottles	Colour of the pálinka	Place in pálinka competition
Production in Hungary	1.00					
Alcohol content	0.23***	1.00				
Colour of the bottle	0.19***	0.35***	1.00			
Capacity of the bottles	0.16***	0.27***	0.36***	1.00		
Colour of the pálinka	0.17***	0.12***	0.26***	0.31***	1.00	
Place in pálinka competition	0.27***	0.16***	0.27***	0.17***	0.25***	1.00

Note: The matrix contains Spearman's rank correlation coefficients (r_s). The results (strength of correlation coefficients) were interpreted based on the categorization of Dancy and Reidy (2007). *** significant at 1%.

Source: own editing based on survey

Table 5: Spearman's correlation analysis between the examined aspects.

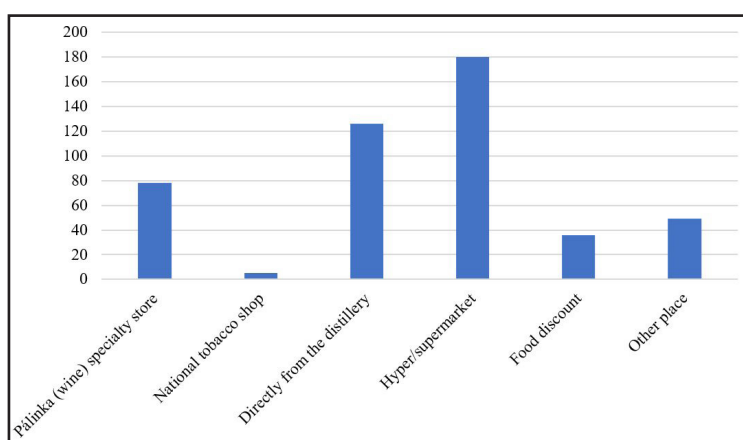
(e.g., pálinka) come from the higher social classes, and it can be concluded from this that the consumers must be properly targeted by companies.

541 people (71%) stated that they knew the difference between pálinka and distillate, but less than one in two respondents (only 31% of all respondents) knew the difference between distillate and pálinka. Although some studies (Totth et al., 2018a) have reported an increase in awareness, the most recent publications on the subject (Mucha et al., 2020a; Mucha et al., 2020b) found a similar result to this study. Pálinka, distillate and other spirits (e.g., vodka, whiskey) have different seals (Act LXVIII of 2016 on Excise Duties). The seal represents a guarantee of quality and certifies that the alcoholic drinks has been placed on market in accordance with the law, thus excluding the possibility of counterfeiting. The seal is reddish-brown on the pálinka, green on the distillate and blue on the other spirits. 60% of the respondents stated that they are aware that the pálinka, that can be bought commercially in Hungary, has a unique seal that is different from all other alcoholic products. However, when these respondents had to choose between the three different seal

types, only 41% (165 people) correctly marked the reddish-brown seal.

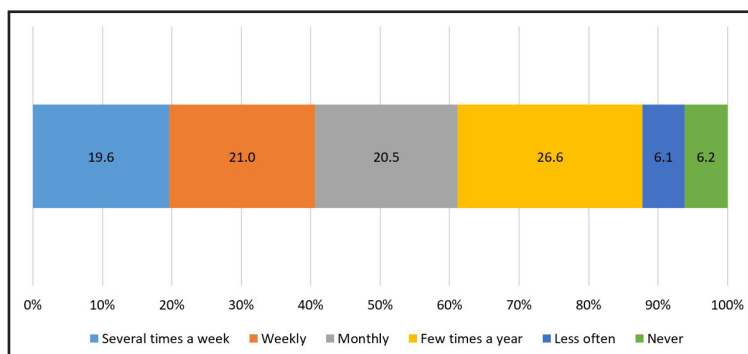
Most respondents purchase pálinka in a hypermarket or supermarket (38%) or directly from the distillery (27%). The least common place of purchase was the national tobacco shop (less than 1%) (Figure 1). Shopping goals include consumption with friends (33%), consumption within the family (27%), shopping for gift (23%), and personal consumption (17%). As the knowledge of Hungarian consumers about pálinka is still extremely incomplete, in many cases pálinka-like drinks (e.g., Füttyülös) may be purchased in hypermarkets or supermarkets. In contrast, in the case of purchases directly from the distillery, the chances of this are much lower, as only a few contract distilleries can market their product after paying the excise duty and affixing the pálinka seal. Pálinka consumption is tied to various occasions (e.g., family events, meetings of friends), which has been confirmed by several previous studies (Totth et al., 2011b; Totth et al., 2018a).

Most respondents (202 people) consume pálinka a few times a year, followed by weekly



Source: own editing based on the questionnaire

Figure 1: Respondents' most common place to purchase pálinka.



Source: own editing based on the questionnaire

Figure 2: Frequency of respondents' pálinka consumption.

(160 people), monthly (156 people) and several times a week (149 people) consumptions with almost the same values (Figure 2). The least common of the fillers is that they never (47 people) or less than a year (46 people) consume pálinka. Such frequent consumption of the drink is not surprising, as alcohol is considered by many to be a means of socialization (Marinelli et al., 2014).

Factors affecting certain product properties

Following the descriptive statistics, Table 6 shows the results of the estimated regression models. The columns contain the examined dependent variables, while the rows contain the explanatory variables of the models. It is necessary to mention that the modelling of our independent variables was done simultaneously, without any algorithms, in order to avoid the often-mentioned disadvantages of stepwise methods (Harrel, 2015). The fit of the models was first examined using the Deviance and Pearson χ^2 tests, the results of which were not significant in either case, suggesting that our models fit well - the predicted values do not differ significantly from those observed. Henceforth, the result of the likelihood ratio test shows significant results for five models (the only exception being model 3), which leads to the conclusion that we obtained significantly better fitting models compared to the base model without explanatory variables (Field, 2009). Finally, the parallel lines test did not show a significant difference at the level of 1% for any of the models. The results of additional indicators related to the fit of the models can be found in the notes of Table 6.

Based on the significant coefficients of the 1st model, we can conclude that the chances of higher importance values for pálinka made in Hungary were 1.51 times higher for those respondents who claimed to be aware of the existence of a unique seal for commercially available pálinkas in Hungary, compared to respondents who have no knowledge of it. In comparison to respondents who buy directly from the pálinka distillery, respondents who purchase from the national tobacco shop, grocery discount, hypermarkets and supermarkets, and other places (e.g., nightclubs) are also less likely to place more importance on homemade products. Compared to buying for own consumption, those who buy pálinka as a gift or for consumption with friends are more likely (2.20 times and 1.84 times, respectively) to consider the product made in Hungary to be essential. Respondents who consume pálinka weekly are more likely; while those who drink pálinka less than a few times a year are less likely to give priority to domestically

produced products, compared to those who consume such a product several times a week. Along with the increase in the level of ethnocentrism, the chances that respondents fill in the Hungarian origin more important when buying are increasing. If the goal is to increase the turnover of Hungarian drinks, especially pálinka, it may be a good strategy to introduce Hungarian consumers to the difference between the seals (e.g., colour).

In the case of the 2nd model, respondents who claimed to know the difference between pálinka and distillate were less likely to associate a higher importance value with the colour of the pálinka than those who claimed not to know what the difference between the two types of drinks. In contrast to those who drink pálinka several times a week, both respondents who drink pálinka a few times a year and those who never drink pálinka are more likely to prioritize the colour of pálinka when choosing a drink. The higher the value of ethnocentrism for a pálinka consumer on the CETSCALE, the greater their chances of prioritizing the colour of the drink. Only natural, fruit-coloured alcoholic beverages can be considered pálinka. If Hungarian consumers are aware of this, they do not consider it a primary priority whether a given pálinka is matured on a fruit bed.

Based on the significant coefficients of the 3rd and 4th models, we can see that those in whose family distillate drinks at home are 0.72 times more likely to have a higher importance value in terms of the capacity and the colour of the bottle than those who do not have private distillery in their family. Furthermore, the colour of the bottle (4th model) is much more likely to be a priority for those who have claimed to know what the difference is between pálinka and distillate; and those with a higher level of ethnocentrism. The 5th model (for alcohol content) shows similar significant values and coefficients (home distillation; difference between pálinka and distillate; ethnocentrism) as for the colour of the bottle. However, compared to those who drink pálinka several times a week, those who drink pálinka once or less a week are less likely to find alcohol content important.

Based on the 6th model, it can be stated that the chances of higher importance values for receiving a place in a pálinka competition were 1.70 times higher for those who claimed to be aware of the existence of a unique seal for commercially available pálinkas in Hungary, compared to respondents who are unaware of this. Those respondents who actually knew about the legislation had a 1.48 higher chance

Explanatory variables	Production in Hungary (1 st model)	Colour of the pálinka (2 nd model)	Capacity of the bottle (3 rd model)	Colour of the bottle (4 th model)	Alcohol content (5 th model)	Place in pálinka competition (6 th model)
Coefficient (β) exp (β)						
Does anyone in your family uses the services of a contract distillery? (base category: No)						
Yes	0.022 (1.022)	0.007 (1.007)	-0.151 (0.860)	-0.082 (0.921)	-0.056 (0.945)	0.075 (1.078)
Does anyone in your family make pálinka (distillate) at home? (base category: No)						
Yes	-0.176 (0.838)	-0.215 (0.806)	-0.325* (0.723)	-0.323* (0.724)	-0.554*** (0.575)	-0.121 (0.886)
Do you know the difference between pálinka and distillate? (base category: Do not know)						
Knows	-0.013 (0.987)	-0.333* (0.717)	-0.196 (0.822)	0.592*** (1.808)	0.455** (1.577)	0.152 (1.164)
What is the difference between pálinka and distillate? (base category: Do not know)						
Actually knows	-0.138 (0.871)	-0.006 (0.994)	0.047 (1.048)	-0.323 (0.724)	0.063 (1.065)	0.048 (1.049)
Did you know that pálinka, that can be bought commercially in Hungary, has a unique seal different from all other alcoholic products? (base category: Did not know)						
Knew	0.414* (1.512)	0.291 (1.338)	-0.002 (0.998)	0.165 (1.179)	0.091 (1.095)	0.532*** (1.702)
Which of the following is the pálinka seal? (base category: Do not know)						
Actually knows	0.226 (1.254)	-0.092 (0.912)	-0.086 (0.917)	-0.027 (0.974)	-0.103 (0.902)	0.393* (1.482)
Where do you usually purchase pálinka? (base category: Directly from the distillery)						
From a pálinka (wine) specialty store	-0.259 (0.772)	0.162 (1.176)	0.162 (1.176)	-0.133 (0.875)	-0.329 (0.720)	0.542** (1.719)
From a national tobacco shop	-1.528* (0.217)	-0.315 (0.730)	0.778 (2.178)	-1.132 (0.323)	-0.704 (0.495)	-0.942 (0.390)
From hypermarket/ supermarket	-0.786*** (0.456)	0.164 (1.178)	0.166 (1.180)	-0.201 (0.818)	-0.174 (0.840)	-0.070 (0.932)
Food discount store	-1.117*** (0.327)	0.535 (1.708)	-0.202 (0.817)	0.026 (1.026)	0.007 (1.007)	0.330 (1.391)
Elsewhere	-0.734** (0.480)	0.032 (1.032)	-0.177 (0.838)	-0.119 (0.887)	0.019 (1.019)	0.033 (1.034)
For what purpose do you usually purchase pálinka? (base category: For own consumption)						
For consumption within the family	0.370 (1.448)	0.236 (1.266)	0.337 (1.401)	-0.043 (0.958)	-0.047 (0.954)	0.077 (1.080)
For consumption with friends	0.612** (1.844)	0.023 (1.024)	0.211 (1.235)	-0.159 (0.853)	-0.057 (0.945)	0.129 (1.138)
As a gift	0.786** (2.195)	-0.131 (0.877)	0.061 (1.063)	0.084 (1.088)	-0.016 (0.985)	0.219 (1.245)
How often do you consume pálinka? (base category: Several times a week)						
Weekly	0.552* (1.736)	0.058 (1.060)	0.344 (1.410)	0.275 (1.316)	-0.692** (0.501)	0.296 (1.345)
Monthly	0.312 (1.366)	-0.058 (0.944)	0.227 (1.255)	-0.173 (0.841)	-0.949*** (0.387)	-0.028 (0.973)
A few times a year	0.124 (1.132)	0.489* (1.630)	0.249 (1.282)	0.224 (1.250)	-0.941*** (0.390)	0.191 (1.210)
Less often than a year	-1.007* (0.365)	0.005 (1.005)	0.649 (1.914)	0.736 (2.087)	-0.041 (0.960)	-0.039 (0.962)
Never	0.196 (1.216)	1.195** (3.304)	0.623 (1.864)	0.238 (1.269)	-0.389 (0.678)	1.440** (4.222)
Ethnocentrism						
Ethnocentrism	0.043*** (1.044)	0.025*** (1.026)	0.009 (1.009)	0.024*** (1.024)	0.026*** (1.026)	0.017*** (1.017)

Note: 1st model: Akaike's information criteria: 1071.226; Bayesian information criteria: 1171.095; Likelihood ratio test: $\chi^2 = 89.581$, $df = 20$, $p < 0.01$; 2nd model: Akaike's information criteria: 1484.350; Bayesian information criteria: 1584.219; Likelihood ratio test: $\chi^2 = 39.054$, $df = 20$, $p < 0.01$; 3rd model: Akaike's information criteria: 1467.294; Bayesian information criteria: 1567.163; Likelihood ratio test: $\chi^2 = 18.988$, $df = 20$, $p = 0.523$; 4th model: Akaike's information criteria: 1482.809; Bayesian information criteria: 1582.678; Likelihood ratio test: $\chi^2 = 41.908$, $df = 20$, $p < 0.01$; 5th model: Akaike's information criteria: 1194.060; Bayesian information criteria: 1293.929; Likelihood ratio test: $\chi^2 = 51.856$, $df = 20$, $p < 0.01$; 6th model: Akaike's information criteria: 1386.102; Bayesian information criteria: 1485.971; Likelihood ratio test: $\chi^2 = 50.632$, $df = 20$, $p < 0.01$. *** significant at 1%, ** significant at 5%, * significant at 10%.

Source: own editing

Table 6: Results of the estimated ordinal logistic regression models.

of showing a greater importance value assigned to the result achieved in the pálinka competition. Compared to those who buy directly from the pálinka distillery, buyers from the pálinka (wine) specialty store are more likely to have a priority to the places the drink achieved in any pálinka competition. Contrasted to fillers who consume pálinka several times a week, those who never consume pálinka are more likely (4.22) to prefer whether a given pálinka has a result in a pálinka competition. Similar to all models where ethnocentrism was significant, simultaneously with the increase in the level of ethnocentrism, there is a higher chance that a respondent considers the result achieved in the pálinka competition to be important.

Conclusion

About a quarter of the respondents (or their families) make distillates at home (private distillation), while more than half of them use the services of a distillery. The perception of private distillation in Hungary is twofold, as on the one hand it increases the consumption of distillates and makes the product better known; on the other hand, only constant quality can be guaranteed for drinks produced in contract distilleries as well as in commercial distilleries

The conceptual confusion between pálinka and distillate continues to exist according to the research. Seal can help to distinguish pálinkas from other alcoholic beverages, as pálinkas, that can be purchased commercially in Hungary, have a different (reddish-brown) seal. Knowledge of the seal, which has not been previously examined in any study, is considered to be similarly low, than knowledge of the actual difference between pálinka and distillate. Respondents most often purchase pálinka in a hypermarket or supermarket, as well as directly from the distillery and a sizeable proportion of respondents (approximately 61%) consume pálinka monthly. It is important to emphasize the moderate consumption of the drink, as Hungary is at the forefront of per capita alcohol consumption both in the European Union and in the world.

For Hungarian pálinka consumers, the most important decision-making aspect when purchasing is the Hungarian origin of the drink, followed by the alcohol content and the appearance of the drink. The Hungarian origin of pálinka is clearly defined by laws, which also shows the low proficiency of Hungarian consumers in the subject. Furthermore, there is a close relationship between alcohol content and price, so we can conclude that price is also a decisive factor for Hungarian

consumers.

Finally, several conclusions can be drawn from the ordinal regression models. One of the most important is that by increasing the knowledge of the seal, the turnover of quality, commercial pálinkas can clearly increase. The spread of real pálinkas could also be helped by more and more consumers purchasing the product directly from pálinka distilleries. The more a consumer knows the rules and regulations for pálinka (for example, because it is consumed many times), the more likely he or she is to choose the product in a purchasing situation, and the appearance of the drink (e.g., colour of the drink) is less and less important to such consumers. Furthermore, it is also clear from the results that those who have already chosen homemade distillate (e.g., makes pálinka at home) are less likely to buy pálinka more regularly. They cannot be considered as a consumer group to be targeted by companies.

Overall, it can be concluded that the knowledge of Hungarian consumers about pálinka can still be considered low (e.g., the differentiation between pálinka and distillate, the knowledge of the seal), the increase of which is an important task at both the governmental and corporate level. To do this, it is essential to launch further (marketing) campaigns and a well-positioned marketing strategy, which can help to make the drink more widely known. Based on the presented results, the pálinka distilleries and the companies selling the spirit can even better understand how important certain product attributes are considered by the consumers. However, it is worth emphasizing that the results cannot be considered representative of the entire Hungarian population (due to, among other things, the limitations of online research), we conducted our survey among consumers interested in pálinka. Further examination of this target group of consumers (e.g., the role of prices, the effect of the existence of the geographical indication) would also be important, since it would give us an even more accurate picture of the Hungarian pálinka sector.

Acknowledgements

This research was funded by the National Research, Development and Innovation Office project of FK 137602 „The economics of farmers' markets - economic, environmental and social sustainability” and the ÚNKP-21-3-I-CORVINUS-22 New National Excellence Program of the Ministry for Innovation and Technology from the National Research, Development and Innovation Fund.

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References

- [1] Act LXXIII of 2008 on Palinka, Törkölypalinka and the National Palinka Council (2008) [Online]. Available: [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021XC0426\(01\)&rid=7](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021XC0426(01)&rid=7) [Accessed: Sept. 20, 2022].
- [2] Act LXVIII of 2016 on Excise Duties (2016) [Online]. Available: <https://ec.europa.eu/growth/tools-databases/tris/en/search/?trisaction=search.detail&year=2016&num=561> [Accessed: Sept. 20, 2022].
- [3] Ananth, C. V. and Kleinbaum, D. G. (1997) "Regression models for ordinal responses: a review of methods and applications", *International Journal of Epidemiology*, Vol. 26, No. 6, pp. 1323-1333. ISSN 1464-3685. DOI 10.1093/ije/26.6.1323.
- [4] Bastian, S. E., Danner, L., Niimi, J., Ristic, R. and Johnson, T. E. (2019) "Alcoholic beverages in context", In *Context, The Effects of Environment on Product Design and Evaluation*, pp. 605-630. ISBN 978-0-12-814495-4. DOI 10.1016/B978-0-12-814495-4.00029-5.
- [5] Békési, Z. and Pándi, F. (2005) "*Pálinkafőzés*", Mezőgazda Kiadó, Budapest, p. 214. ISBN 9789632865607. (In Hungarian).
- [6] Bellizzi, M. G., Eboli, L., Forciniti, C. and Mazzulla, G. (2018) "Air transport passengers' satisfaction: an ordered logit model", *Transportation Research Procedia*, Vol. 33, pp. 147-154. ISSN 2352-1465. DOI 10.1016/j.trpro.2018.10.087.
- [7] Betancur, M. I., Motoki, K., Spence, C. and Velasco, C. (2020) "Factors influencing the choice of beer: A review", *Food Research International*, Vol. 137, p. 109367. ISSN 0963-9969. DOI 10.1016/j.foodres.2020.109367.
- [8] Bethlehem, J. (2010) "Selection bias in web surveys", *International Statistical Review*, Vol. 78, No. 2, pp. 161-188. ISSN 0306-7734. DOI 10.1111/j.1751-5823.2010.00112.x.
- [9] Brant, R. (1990) "Assessing proportionality in the proportional odds model for ordinal logistic regression", *Biometrics*, Vol. 46, No. 4, pp. 1171-1178. ISSN 0006-341X. DOI 10.2307/2532457.
- [10] Bruwer, J. and Buller, C. (2012) "Consumer behavior insights, consumption dynamics, and segmentation of the Japanese wine market", *Journal of International Consumer Marketing*, Vol. 24, No. 5, pp. 338-355. ISSN 0896-1530. DOI 10.1080/08961530.2012.741478.
- [11] Cravero, M. C., Laureati, M., Spinelli, S., Bonello, F., Monteleone, E., Proserpio, C., Lottero, M. R., Pagliarini, E. and Dinnella, C. (2020) "Profiling individual differences in alcoholic beverage preference and consumption: New insights from a large-scale study", *Foods*, Vol. 9, No. 8, p. 1131. ISSN 2304-8158. DOI 10.3390/foods9081131.
- [12] Dancey, C. P. and Reidy, J. (2007) "*Statistics without maths for psychology*", Pearson Education, Harlow, 619 p.. ISBN 978-0-132-05160-6.
- [13] Erkan, A. and Yildiz, Z. (2014) "Parallel lines assumption in ordinal logistic regression and analysis approaches", *International Interdisciplinary Journal of Scientific Research*, Vol. 1, No. 3, pp. 8-23. ISSN 2200-9833.
- [14] Eygu, H. and Gulluce, A. C. (2017) "Determination of customer satisfaction in conservative concept hotels by ordinal logistic regression analysis", *Journal of Financial Risk Management*, Vol. 6, No. 3, pp. 269-284. ISSN 2167-9541. DOI 10.4236/jfrm.2017.63020.
- [15] Field, A. (2009) "*Discovering statistics using SPSS*", SAGE Publications, London, p. 856. ISBN 978-1-84787-907-3.

- [16] Géczy, G., Korzenszky, P. and Nagygyörgy, L. (2018) "Analytical and sensory testing of palinkas made with different distillation technologies", *Hungarian Agricultural Research*, Vol. 27, No. 3, pp. 4-9. ISSN 1216-4526.
- [17] Glenk, K., Hall, C., Liebe, U. and Meyerhoff, J. (2012) "Preferences of Scotch malt whisky consumers for changes in pesticide use and origin of barley", *Food Policy*, Vol. 37, No. 6, pp. 719-731. ISSN 0306-9192. DOI 10.1016/j.foodpol.2012.08.003.
- [18] Hajdu, I., Major, A. and Lakner, Z. (2007) "Consumer behaviour in the Hungarian beer market", *Studies in Agricultural Economics*, Vol. 106, pp. 89-103. ISSN 1418-2106. DOI 10.22004/ag.econ.47016.
- [19] Harcsa, I. M. (2016) "A magyarországi pálinkafőzés jogszabályi változásai és hatásai", *Ars Boni*, Vol. 4, No. 1, pp. 25 - 42. [Online]. Available: <https://docplayer.hu/46637652-Harcsa-imre-milan-1-a-magyarorszag-palinkafozes-jogszabalyi-valtozasai-es-hatasai.html> [Accessed: Aug. 5, 2022]. (In Hungarian).
- [20] Harcsa, I. M. (2017a) "Energy demand for pálinka production and some practical issues of waste treatment", *Economic and Regional Studies (Studia Ekonomiczne i Regionalne)*, Vol. 10, No. 3, pp. 82-95. ISSN 2451-182X. DOI 10.2478/ers-2017-0027.
- [21] Harcsa, I. M. (2017b) "Increasing palinka recognition with tourism and gastronomy", *APSTRACT: Applied Studies in Agribusiness and Commerce*, Vol. 11, No. 3-4, pp. 37-44. ISSN 1789-7874. DOI 10.19041/APSTRACT/2017/3-4/6.
- [22] Harcsa, I. M. (2018) "A pálinkafőzés gazdasági hatásai", Ph.D. dissertation, University of Debrecen (In Hungarian).
- [23] Harcsa, I. M., Nábrádi, A. and Tar, I. (2014) "Hungarian spirits pálinka as a "Hungaricum" I. Literature review and practical approaches", *Applied Studies in Agribusiness and Commerce*, Vol. 8, No. 2-3, pp. 133-141. ISSN 1789-7874. DOI 10.19041/APSTRACT/2014/2-3/16.
- [24] Frank, E. H. (2015) "*Regression modeling strategies with applications to linear models, logistic and ordinal regression, and survival analysis*", Springer Nature, Berlin, 607 p. ISBN 978-3-319-19425-7.
- [25] Hungarian Food Codex Comitte (2002) "Codex Alimentarius Hungaricus" Order No 1-3-1576/89 Alcoholic Beverages. [Online]. Available: <https://docplayer.hu/2373427-Magyar-elelmiszerkonyv-codex-alimentarius-hungaricus-1-3-1576-89-szamu-eloiras-szeszesitalok.html>. [Accessed: Aug. 5, 2022]. (In Hungarian).
- [26] GfK Hungária Market Research Institute (2008) "Piackutatás a pálinka népszerűsítő kampány megalapozására", Budapest. (In Hungarian).
- [27] László, Z., Hodúr, C. and Csanádi, J. (2016) ""Pálinka": Hungarian Distilled Fruit", In *Traditional Foods*, pp. 313-318, Springer, Boston. ISBN 978-1-4899-7646-8. DOI 10.1007/978-1-4899-7648-2_24.
- [28] Manthey, J., Probst, C., Kilian, C., Moskalewicz, J., Sierosławski, J., Karlsson, T. and Rehm, J. (2020) "Unrecorded alcohol consumption in seven European Union countries", *European addiction research*, Vol. 26, No. 6, pp. 316-325. ISSN 1022-6877. DOI 10.1159/000506333.
- [29] Manthey, J., Shield, K. D., Rylett, M., Hasan, O. S., Probst, C. and Rehm, J. (2019) "Global alcohol exposure between 1990 and 2017 and forecasts until 2030: a modelling study", *The Lancet*, Vol. 393, No. 10190, pp. 2493-2502. ISSN 0140-6736. DOI 10.1016/S0140-6736(18)32744-2.
- [30] Marinelli, N., Fabbrizzi, S., Sottini, V. A., Sacchelli, S., Bernetti, I. and Menghini, S. (2014) "Generation Y, wine and alcohol. A semantic differential approach to consumption analysis in Tuscany", *Appetite*, Vol. 75, pp. 117-127. ISSN 0195-6663. DOI 10.1016/j.appet.2013.12.013.
- [31] Maró, Z. M., Török, Á., Balogh, P. and Czine, P. (2022) "Pálinkavásárlási preferenciák vizsgálata a magyar fogyasztók körében-egy diszkrét választási modell építése", *Statisztikai Szemle*, Vol. 100, No. 1, pp. 44-67. ISSN 0039-0690. DOI 10.20311/stat2022.1.hu0044. (In Hungarian).

- [32] McCullagh, P. (1980) "Regression models for ordinal data", *Journal of the Royal Statistical Society: Series B (Methodological)*, Vol. 42, No. 2, pp. 109-127. ISSN 0035-9246. DOI 10.1111/j.2517-6161.1980.tb01109.x.
- [33] Merlino, V. M., Massaglia, S., Borra, D. and Mantino, V. (2019) "New consumer targets towards a traditional spirit: The case of Grappa in Piedmont (Northwest Italy)", *Italian Journal of Food Science*, Vol. 31, No. 4, pp. 652-668. ISSN 1120-1770. DOI 10.14674/IJFS-1375.
- [34] Mtimet, N. and Albisu, L. M. (2006) "Spanish wine consumer behavior: a choice experiment approach", *Agribusiness: An International Journal*, Vol. 22, No. 3, pp. 343-362. ISSN 0742-4477. DOI 10.1002/agr.20090.
- [35] Mucha, L., Oravecz, T. and Totth, G. (2020a) "A fogyasztói attitúd kognitív komponensének a pálinka imázsában betöltött szerepe", *Táplálkozásmarketing*, Vol. 7, No. 2, pp. 21-32. ISSN 2631-1380. DOI 10.20494/TM/7/2/2. (In Hungarian).
- [36] Mucha, L., Oravecz, T. and Totth, G. (2020b) "Pálinkavásárlási szempontok vizsgálata conjoint-elemzés segítségével", *Marketing & Menedzsment*, Vol. 54, No. 2, pp. 41-50. ISSN 1219-0349. DOI 10.15170/MM.2020.54.02.04. (In Hungarian).
- [37] Mucha, L., Oravecz, T. and Totth, G. (2021) "A fogyasztói attitúd affektív és konatív komponenseinek elemzése a pálinka imázsában", *Táplálkozásmarketing*, Vol. 8, No. 1, pp. 21-32. ISSN 2631-1380. DOI 10.20494/TM/8/1/2. (In Hungarian).
- [38] National Tax and Customs Office (2021) "Újra adómentes a pálinkafőzés". [Online]. Available: https://nav.gov.hu/nav/sajtoszoba/hirek/Ujra_adomentes_a_pali20210204.html. [Accessed: May 6, 2022]. (In Hungarian).
- [39] Perrouy, J. P., d'Hauteville, F. and Lockshin, L. (2006) "The influence of wine attributes on region of origin equity: An analysis of the moderating effect of consumer's perceived expertise", *Agribusiness: An International Journal*, Vol. 22, No. 3, pp. 323-41. ISSN 0742-4477. DOI 10.1002/agr.20089.
- [40] Prentice, C. and Handsjuk, N. (2016) "Insights into Vodka consumer attitude and purchasing behaviors", *Journal of retailing and consumer services*, Vol. 32, pp. 7-14. ISSN 0969-6989. DOI 10.1016/j.jretconser.2016.05.009.
- [41] Probst, C., Manthey, J., Ferreira-Borges, C., Neufeld, M., Rakovac, I., Andreasyan, D., Sturua, L., Novik, I., Hagverdiyev, G., Obreja, G., Altymysheva, N., Ergeshov, M., Skukrov, S., Saifuddinov, S. and Rehm, J. T. (2021) "Cross-sectional study on the characteristics of unrecorded alcohol consumption in nine newly independent states between 2013 and 2017", *BMJ open*, Vol. 11, No. 12, pp. 1-10. ISSN 2044-6055. DOI 10.1136/bmjopen-2021-051874.
- [42] Schaefer, R., Olsen, J. and Thach, L. (2018) "Exploratory wine consumer behavior in a transitional market: The case of Poland", *Wine Economics and Policy*, Vol. 7, No. 1, pp. 54-64. ISSN 2212-9774. DOI 10.1016/j.wep.2018.01.003.
- [43] Siegel, M., DeJong, W., Naimi, T. S., Fortunato, E. K., Albers, A. B., Heeren, T., Rosenbloom, D. L., Ross, C., Ostroff, J., Rodkin, S., King, Ch., Borzekowski, D. L. G., Rimal, R. N., Pardon, A. A., Eck, R. H. and Jernigan, D. H. (2013) "Brand-specific consumption of alcohol among underage youth in the United States", *Alcoholism: Clinical and experimental research*, Vol. 37, No. 7, pp. 1195-1203. ISSN 0145-6008. DOI 10.1111/acer.12084.
- [44] Siemieniako, D., Kubacki, K., Glińska, E. and Krot, K. (2011) "National and regional ethnocentrism: a case study of beer consumers in Poland", *British Food Journal*, Vol. 113, No. 3, pp. 404-418. ISSN 0007-070X. DOI 10.1108/0007070111116464.
- [45] Skorobogatov, A. (2014) "The effect of closing hour restrictions on alcohol use and abuse in Russia", Higher School of Economics Research Paper No. WP BRP, 63/EC/2014. [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2501865 [Accessed: Sept. 10, 2022]. DOI 10.2139/ssrn.2501865.

- [46] Svatošová, V., Kosová, P. and Svobodová, Z. (2021) "Factors influencing consumer behaviour in the beer market in the Czech Republic", *Czech Journal of Food Sciences*, Vol. 39, No. 4, pp. 319-328. ISSN 1805-9317. DOI 10.17221/153/2020-CJFS.
- [47] Szegedyné Fricz, Á., Szakos, D., Bódi, B. and Kasza, G. (2017) "Pálinka: fogyasztói ismeretek, preferenciák, fogyasztási szokások, marketinglehetőségek", *GAZDÁLKODÁS: Scientific Journal on Agricultural Economics*, Vol. 61, No. 02, pp. 158-170. ISSN 0046-5518. DOI 10.22004/ag.econ.264586. (In Hungarian).
- [48] Torok, A. and Jambor, A. (2013) "Competitiveness and Geographical Indications: the case of fruit spirits in Central and Eastern European countries", *Studies in Agricultural Economics*, Vol. 115, No. 1, pp. 25-32. ISSN 1418 2106. DOI 10.22004/ag.econ.146816.
- [49] Torok, A. (2013) "Hungaricums–Hungary's geographical indications. The role of origin in agriculture and food production in the 21st century – lessons learnt from the case of the pálinka", Doctoral Dissertation, Corvinus University of Budapest.
- [50] Totth, G., Hlédik, E. and Fodor, M. (2011a) "Pálinkával kapcsolatos fogyasztói percepciók és preferenciák elemzése kvalitatív kutatás eredményeinek tükrében", *Marketing & Menedzsment*, Vol. 45, No. 2, pp. 11-15. ISSN 1219-0349. (In Hungarian).
- [51] Totth, G., Hlédik, E. and Fodor, M. (2011b) "Fogyasztói vélemények és preferenciák a pálinka piacán", *Élelmiszer, táplálkozás és marketing*, Vol. 8, No. 1-2, pp. 41-47. ISSN 2560-2551. (In Hungarian).
- [52] Totth, G., Kovács, I., Mezőné Oravecz, T. and Zarádné Vámosi, K. (2017) "A fiatalok pálinkafogyasztási szokásai", In Bányai E., Lányi B. and Töröcsik M. (edt.): *Tükröződés, társtudományok, trendek, fogyasztás: Egyesület a Marketing Oktatásért és kutatásért (EMOK) XXIII. országos konferencia, Pécs*. ISBN 9789634291466. [Online]. Available: <https://emok.hu/emok2017/tanulmánykotet> [Accessed: Sept. 10, 2022]. (In Hungarian).
- [53] Totth, G., Mezőné Oravecz, T. and Zarádné Vámosi, K. (2018a) "A pálinka fogyasztási és vásárlási szokásainak kvalitatív vizsgálata", *Prosperitas*, Vol. 5, No. 2, pp. 100-115. ISSN 2064-759X. DOI 10.31570/Prosp_2018_02_6.
- [54] Totth, G., Mezőné Oravecz, T. and Zarádné Vámosi, K. (2018b) "A pálinkafogyasztás és a fogyasztói szokások változása", *Prosperitas*, Vol. 5, No. 2, pp. 87-98. ISSN 2064-759X. DOI 10.31570/Prosp_2018_02_5.
- [55] Wan, X., Zhou, X., Woods, A. T. and Spence, C. (2015) "Influence of the glassware on the perception of alcoholic drinks", *Food Quality and Preference*, Vol. 44, pp. 101-110. ISSN 0950-3293. DOI 10.1016/j.foodqual.2015.03.018.
- [56] Wanninayake, W. M. C. and Chovancová, M. (2012) "Consumer ethnocentrism and attitudes towards foreign beer brands: With evidence from Zlin Region in the Czech Republic", *Journal of Competitiveness*, Vol. 4, No. 2, pp. 3-19. ISSN 1804-171X. DOI 10.7441/joc.2012.02.01.
- [57] Zsótér, B. and Molnár, A. (2015) "A pálinka előállításával kapcsolatos jogszabályváltozások (2010) - előállítási feltételek, adózási kötelezettségek-hatásainak vizsgálata a gyakorlatban", *Jelenkori Társadalmi és Gazdasági Folyamatok*, Vol. 10, No. 2, pp. 35-52. ISSN 1788-7593. DOI 10.14232/jtgf.2015.2.35-52. (In Hungarian).