

**CZECH UNIVERSITY OF LIFE SCIENCES  
PRAGUE**

**Faculty of Economics and Management**

Informatics

**Department of Statistics**



**Diploma thesis**

**Statistical analysis of beer consumption  
preferences**

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# CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Department of Statistics

Faculty of Economics and Management

## DIPLOMA THESIS ASSIGNMENT

Vlk Tomáš

Informatics

Thesis title

**Statistical analysis of beer consumption preferences**

### Objectives of thesis

Diploma thesis deals with assessment of beer consumption preferences. The main sense is to find out and assess possible factors which affect consumer behaviour. The assessment will be carried out by own questionnaire survey which will be analyzed by SAS analytics software.

### Methodology

The assessment of factors influencing consumer behaviour will be carried out by questionnaire survey. First will be determined hypotheses and will be created appropriate survey by using online applications and Google docs. The dataset will be analysed using categorical data analysis. If needed for detailed analysis will be used also methods for proportional reduction of error (PRE).

### Schedule for processing

Formulation of thesis aims and of the thesis structure: 01/2012 – 03/2012

Preparation of materials for research: 04/2012 – 07/2012

Theoretical part and methodology: 08/2012 – 11/2012

Hypotheses determination, survey preparation: 10/2012 – 11/2012

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### Keywords

Consumption, preference, marketing research, survey, beer, statistical analysis, hypothesis, IT, internet, SAS

### Recommended information sources

- Agresti, A.: Categorical Data Analysis. USA, New Jersey: John Wiley & Sons, Inc., ISBN 0-471-36093-7.  
Bártová, H., Bárta, V.: Marketingový výzkum trhu. Praha: Economia, 1991, ISBN 80-85378-09-4.  
Hebák, P. a kol.: Vícerozměrné statistické metody 3. Praha: Informatorium, 2005, ISBN 80-7333-039-3.  
Hendl, J.: Přehled statistických metod zpracování dat. Praha: Portál, 2004, ISBN 80-7178-820-1.  
Jackson, M.: Encyklopedie piva. Praha: Volvox Globator, 1994, ISBN 80-85769-37-9.  
Jackson, M.: Pivo (Průvodce světem piva pro laiky i odborníky). Praha: Fortuna Print, 2001, ISBN 80-86144-17-8.  
Kába, B., Svatošová, L.: Statistické nástroje ekonomického výzkumu. Plzeň: Aleš Čeněk, 2012, ISBN 978-80-7380-359-9.  
Kotler, P., Armstrong, G.: Principles of Marketing. USA, New Jersey: Pearson Prentice Hall, 2011, ISBN 978-0-13-216712-3.  
Kozel, R. a kol.: Moderní marketingový výzkum, Praha: Grada, 2005, ISBN 80-247-0966-X.  
Lloyd, J., Ch.: Statistical Analysis of Categorical Data. USA, New Jersey: John Wiley & Sons, Inc., ISBN 0-471-29008-4.  
Mišovič, J.: V hlavní roli otázka (průvodce přípravou otázek v socioekonomických a marketingových výzkumech). Praha: Aldis, 2001, ISBN 80-238-6500-5.  
Příbová, M. a kol.: Marketingový výzkum v praxi. Praha: Grada Publishing, 1996, ISBN 80-7169-299-9.  
Řezanková, H.: Analýza kategoriálních dat. Praha: Oeconomica, 2005, ISBN 80-245-0926-1.  
Řezanková, H., Húsek, D., Snášel, V.: Shluková analýza dat. Praha: Professional Publishing, 2007, ISBN 978-80-86946-26-9.  
Svatošová, L., Kába, B.: Statistické metody II. Praha: ČZU, 2008, ISBN 978-80-213-1736-9.

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Prague December 5. 2012

Declaration

I declare that I have worked on my diploma thesis titled “Statistical Analysis of Beer Consumption Preferences” by myself and I have used only the sources mentioned at the end of the thesis.

In Prague .....

.....

Bc. Tomáš Vlk

## **Acknowledgment**

I would like to thank Ing. Tomáš Hlavsa Ph.D. for his advices, patience and supervising my diploma thesis. I also must thank Mgr. Andrea Laštovková for help with correction and formal part of diploma thesis.

# Statistical Analysis of Beer Consumption Preferences

## Summary

Beer is one of the most popular drink around the world and the most popular drink in the Czech Republic. The fact that the Czech nation is number one in beer consumption per capita is a real stimulation for possible new and contemporary breweries and brewing companies interested in this market, and it still can have some unexplored segments.

The main aim of this diploma thesis is to evaluate potential factors which influence consumers' behaviour in process of choosing beer and its consumption. This evaluation is performed via appropriate methods of statistical analysis and current available information technologies, especially by cloud computing technologies and software suitable for specific statistical analysis.

Diploma thesis consists of two main parts. The introductory part is aimed at known facts and knowledge related to beer itself, behaviour of consumers in general, behaviour of beer consumers, market research methods and cloud computing tools used for creating questionnaire survey in digital form intended for Czech consumers.

Practical part is then dedicated to performing statistical analysis, especially categorical data analysis in form of contingency tables and their evaluation via SAS software based on results from the questionnaire survey. Testing of pre-formulated hypotheses is focused on potential dependencies between observed variables and factors from survey.

The conclusion is dedicated to the description of the most important facts resulting from the statistical analysis and estimation of potential causes and consequences of analysed aspects of beer consumption and opinions related to beer and current beer market situation.

### **Key words:**

Consumption, marketing research, hypothesis, statistical analysis, IT, the Internet, preferences, survey, SAS.

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# Statistická analýza preferencí spotřeby piva

## Souhrn

Pivo je jeden z nejoblíbenějších nápojů světa a nejoblíbenějším nápojem v České republice. Fakt, že český národ je číslem jedna ve spotřebě piva na obyvatele je skutečným stimulem pro potenciální nové a současné pivovary a pivovarní společnosti zainteresované v tomto tržním odvětví, který stále může skrývat neobjevené segmenty.

Hlavní zaměření této diplomové práce je vyhodnotit potenciální faktory ovlivňující proces výběru piva a jeho spotřeby. Toto vyhodnocení je provedeno pomocí vhodných metod statistické analýzy a současných informačních technologií, zejména pak pomocí „cloudových“ technologií a softwaru vhodného pro statistickou analýzu.

Diplomová práce se skládá ze dvou hlavních částí. Úvodní část je zaměřena na známá fakta a znalosti týkající se piva jako takového, spotřebitelskému chování, chování spotřebitele alkoholu, metodám průzkumu trhu a „cloudovým“ nástrojům vhodným pro vytvoření dotazníkové ankety v digitální podobě určené pro české konzumenty.

Praktická část je věnována provedení statistické analýzy výsledků z dotazníkového šetření, převážně pak kategoriální analýze dat v podobě kontingenčních tabulek a jejich vyhodnocení pomocí softwaru SAS. S tím je spojeno testování předpřipravenými hypotézám zaměřenými na závislost mezi pozorovanými proměnnými a faktory vyplývající z dotazníku.

Závěr práce je zaměřen na popsání nejdůležitějších faktů vyplývajících ze statistického šetření a odhadu potenciálních příčin a následků analyzovaných aspektu spotřeby piva a názoru vztaheným k pivu a současné situaci na pivním trhu.

## **Klíčová slova:**

Spotřeba, marketingový průzkum, hypotézy, statistická analýza, IT, internet, preference, anketa, SAS.

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**Shortcuts:**

**SAS** – Statistical Analysis System

## 1. Introduction

Beer is a manually produced drink, which has its origins in ancient Mesopotamia (8 000 B.C.). It can be brewed basically from four elementary resources which are water, yeasts, hops and cereals (wheat, barley, etc.). Due to the sugar contained in cereal, beer is classified as an alcoholic drink after fermentation process. Brewing has an old tradition in Bohemian countries. The first veritable brewery was founded in the monastery of Teplá town before slightly before year 1200.

Beer is a one of the most popular drinks all around the world, especially in the Czech Republic, where it is cheaper than water in many places. This diploma thesis is aimed to find and determine beer consumption preferences on the Czech market by using tools which are provided to us by information technologies and possibilities of using the Internet.

The Czech beer market is different from the worldwide market, whether the prices or scale of products. The consumption of beer per person is the highest in whole world (around 160 l) and that is possibly the reason why if you ask almost any Czech person about their favourite drink, the answer will be with highest probability “beer!”. Czechs also considers beer something like national treasure, because the tradition of brewing in Bohemian countries is almost ancient. This is also the origin of phenomena called “the beer culture”. Popularity of beer culture has been increasing, especially during the last two decades, when quality and supply of offered beers multiplied their values and this situation added new factors of beer consumption and changed some of old ones.

Trends of beer consumption changed during the last two decades and give a lot of new opportunities to sell new brand and types of beer due to change of preferences of consumers. These changes were supported by foundation of new breweries, microbreweries and brewery houses. Currently there are about 53 breweries and more than 150 microbreweries. This situation pushed many big breweries to change their brewing policy and start making up some new ways of how to keep their clients or get new ones. Also some Czech consumers are beginning to discover the charm of “Home Brewing”, but this domain is still in its beginnings, because a lot of specific requirements of this beer branch.

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## **2. Objectives and Methodology**

### ***2.1 Objectives***

The objective of this diploma thesis is to determine which factors and preferences are the most important for beer consumers.

The first step towards this objective is to overview facts and elements about beer, brewing and other beer-related topics which are important to the complete understanding of the thesis theme, for example definitions of used keywords and to substantiate the formation and development of test hypothesis are crucial for objective results of statistical analysis.

As was already mentioned, the main aim of author's effort is the determination of factors that are able to specifically influence beer consumption by using tools which current information technologies and the Internet-using possibilities offer to statistical analysis. This also includes proposing of appropriate hypothesis based on a study of materials related to the theme in theoretical part.

For every statistical analysis data are the most important part of research and in this case the data are collected by a questionnaire survey, which is based on analysis of already performed surveys and research.

The survey is created through an on-line technology which is provided by famous company Google inc., like Google drive, Google docs, Google tables and Google forms. These applications in combination with cloud access feature help to save a lot of time during working with data and make the whole process of analyzing much easier.

## **2.2 Methodology**

The first step of every statistical analysis is to get familiar with common problems of analysed matter, so the first part contains information about beer world worldwide and specifications for the Czech lands. There is also described the influence of beer on the Czech culture and a possible different approach to beer consumption from the side of Czech consumers.

The following part is aimed on consumer behaviour and its economics aspects in general. For better understanding there is also the analysis of “consumption models”, which describes the consumption from different aspects.

The important resource for the secondary data analysis related to beer consumption is long term study which is made by CVVM (“Centrum pro Výzkum veřejného mínění” – “The Centre for Investigation of Public Opinion”). The name of this study is “Češi a pivo” (the Czechs and Beer), the first part was created in 2004 and is annually published until today.

The description of online technologies provided by Google in the following part depicts possibilities and advantages for this kind of statistical analysis and creation of similar survey problems.

The last part of methodology is aimed on statistical methods used for processing main goals of the diploma thesis. Namely it consists of functions and usage of contingency tables, one sample test of proportion for comparison diploma results with CVVM results and also software used for concrete analysis of collected data – Statistical Analysis System particularly the interface of SAS Enterprise Guide 4.2 which runs on SAS 9.2. SAS Enterprise Guide was chosen for its good and clear ways of processing with possibilities of SAS programming language, which allows filtering of outputs and other usable adjusting. [30]

### **Statistical methods**

General overview of survey research was processed using distribution of frequencies into the each category. This is called *one-dimensional* frequency distribution, which was graphically expressed in form of different graphs. *Two-dimensional* frequency

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distribution is about linking frequencies of two or more variables in the so-called contingency (pivot) table, on which is possible to infer about dependency or independency between variables. [29]

In case of analysing results based on dichotomous characteristics were used Association tables. Common method for investigation of possible statistically significant dependency among chosen variables is usage of Chi-squared test about mutual independency in contingency table. [29]

For comparison of some specific results of survey with published reports of CVVM was used one sample test of proportion.

### **Data collecting**

Respondents were chosen by non-probabilisable random selection, which is suitable for researches with a big number of respondents and are mostly used for surveys. Positive of this method are time saving and low costs of process, but there is also negative aspect that the results could be affected by respondent in a sense of representatives.

Size of sample which should be representative for a research related to Czech republic, was chosen at least 400 of respondents, but questionnaire survey was able, thanks to ways of spreading, to collect more than 600 of usable respondents. [29]

### **Scales of measurement and variable types**

Scales of measurements are different kinds of expression in which are responses collected. Most important scales are:

- Nominal – impossible to express some order (for example level of education, life style).
- Ordinal – it is possible to express order in way of number or verbal sequences (opinions of some situation in sequence from strictly negative to strictly positive)
- Interval – could exactly express in which interval response belongs (age intervals, income intervals).

Based on scale types it is possible to determine types of categorical variables to nominal ordinal and quantitative (interval).

Special types of used variables are dichotomous variables, which may take only two states (symmetrical: yes/no, male/female asymmetrical where one of answers is more important than the other one). These variables are for calculation process expressed in binary way of 1 and 0. [29]

### **Contingency table – closer explanation of functionality**

Contingency table is used for clear visualisation of mutual relationship of two statistical characteristics. Rows of contingency table correspond with possible values of first characteristic and columns correspond with possible values of second characteristic. In appropriate cell of contingency table is assigned number of cases when at the same time the first characteristic had the value corresponding appropriate row and the second one had a value corresponding to appropriate column. [14]

For example the first characteristic could be gender of person and second one could be month of its birth. Contingency table now in a form of 2 rows (man, women) and 12 columns (all months of year) describes number of occurrences of all combinations of specific gender and month in some set of observed individuals. [14]

It is also possible that one row or column can correspond to more of possible values of characteristic. This happens in case, when characteristic acquires some specific values too rarely, so it is advisable to combine multiple possible values. [14]

Sums (subtotals) of all values in every row respectively columns are bearers of information about the number of occurrences of events at which the first characteristic (respectively second one) acquired appropriate value, regardless of the value of the second characteristic (respectively first one). [13]

Except of simple description of frequencies of two characteristics value combinations, the contingency table (sometimes called Pivot table) provides possibility to test if there is some specific relation between observed characteristics. For this problem is suitable to use the “goodness of fit” test. Characteristics used for display in contingency table must represent discrete values (it is possible to use qualitative, discretely quantitative or

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continuously quantitative; in last mentioned case only when characters are separated into groups – so-called group sorting). [13]

	<b>b<sub>1</sub></b>	<b>b<sub>2</sub></b>	...	<b>b<sub>s</sub></b>	
<b>a<sub>1</sub></b>	n <sub>11</sub>	n <sub>12</sub>	...	n <sub>1s</sub>	n <sub>1+</sub>
<b>a<sub>2</sub></b>	n <sub>21</sub>	n <sub>22</sub>	...	n <sub>2s</sub>	n <sub>2+</sub>
...	...	...	...	...	...
<b>a<sub>r</sub></b>	n <sub>r1</sub>	n <sub>r2</sub>	...	n <sub>rs</sub>	n <sub>r+</sub>
	n <sub>+1</sub>	n <sub>+2</sub>	...	n <sub>+s</sub>	N

**Table 1** Contingency table in general form [14]

- a<sub>i</sub>**      category of variable a (r number of categories)
- a<sub>j</sub>**      category of variable b (s number of categories)
- n<sub>ij</sub>**      (i = 1, 2, ... r; j = 1, 2, ... s) associated absolute frequencies  
(p<sub>ij</sub> = n<sub>ij</sub> / n) associated relative frequencies
- n<sub>i+</sub>**      marginal absolute row frequencies (p<sub>i+</sub> = n<sub>i+</sub> / n relative)
- n<sub>+j</sub>**      marginal absolute column frequencies (p<sub>+j</sub> = n<sub>+j</sub> / n relative)

### Chi-square test

Test is based on assumption that is there are two independent characters, then distribution of frequencies in contingency table is proportional to row and column marginal frequencies (row and column sums). This is a conformity testing among observed and expected frequencies. Generally the zero hypothesis is expressed by statement that one observed phenomena does not depend on the other one. In opposite to zero hypothesis the alternative hypothesis indicates that there is dependency between observed phenomena. [28]

“**Assumption for using** this test is that table cells with expected frequencies don’t descend down to value 5 at least in 80% of cells and in rest of cells were at least values of 1”. [28]

$$\chi^2 = \sum \frac{(\text{observed frequencies} - \text{expected frequencies})^2}{\text{expected frequencies}} \tag{2.1}$$



**Measuring of dependency power (Contingency tables)**

For measuring the power of dependency among variables are used coefficients, which assumes values of interval  $\langle 0; 1 \rangle$ , or  $\langle -1; 1 \rangle$ , where 0 value means independency. There are more kinds of coefficients and it is possible to distinguish them by:

- Dimension of table (by the number of categories of observed variables)
- Type of variables (nominal, ordinal or quantitative)
- Type of dependencies (symmetrical or one-sided)

For objectives of this diploma in part where used contingency tables are was chosen for measuring of dependency Cramer coefficient of contingency  $\chi^2$ . [15]

$$V = \sqrt{\frac{\chi^2}{n \min(r - 1, n - 1)}} \quad (2.2)$$

If the V value is in interval of  $\langle 0; 0,3 \rangle$ , then dependency among variables is weak. In case of interval  $\langle 0,3; 0,8 \rangle$  we can surely say that there is significant dependency among variables and in interval  $\langle 0,8; 1 \rangle$  dependency is strong. [15]

**Test criterion**

As a test criterion for categorical data analysis part of this diploma was chosen P-value of test, which expresses probability of occurrence of first type error. This kind of error can be caused by rejecting of zero hypothesis in case when zero hypothesis should be accepted. P-value of test hypothesis is equal to lowest significance level, where it is possible to reject zero hypothesis. If there is P-value lower, than already given significance level  $\alpha$ , zero hypothesis is rejected. [18]

### Significance level

For processing of categorical data analysis in this diploma was chosen significance level  $\alpha = 0,05$  (5%).

### Association table

*Association* is a relation of two categorical characters, where we follow only two categorical values. Typically is association analysis used for two dichotomous characters, which principally acquires only two states (yes/no), that are mutually exclusive. [23]

	$c_1$	$c_2$	$\Sigma$
$r_1$	$n_{11}$	$n_{12}$	$n_{1+}$
$r_2$	$n_{21}$	$n_{22}$	$n_{2+}$
	$n_{+1}$	$n_{+2}$	$n$

Table 2 Contingency table for 2x2 case [23]

	$c_1$	$c_2$	$\Sigma$
$r_1$	$a$	$b$	$r_1$
$r_2$	$c$	$d$	$r_2$
$\Sigma$	$c_1$	$c_2$	$n$

Table 3 Association table in general form [23]

This table contains frequencies of occurrence of each combination. Traditionally is used simplified naming of cells as first four letters of English alphabet  $a$ ,  $b$ ,  $c$ ,  $d$ . Association table could be seen as a special case of analysis of contingency tables, which uses their tools, but it is recommended to use specified methods and characteristics of association.

For a computation of  $\chi^2$  statistics, we can use simplified formula:

$$\chi^2 = \frac{n(ad - bc)^2}{(a + b)(c + d)(a + c)(b + d)} \quad (2.3)$$

Speciality of table 2x2 that it is possible to consider a fault direction of zero hypothesis in it. That is reason why it is necessary to decide for usage of one-sided or two-sided test. For this diploma was chosen the one-sided test ( $H_0: p_1 = p_2$ ;  $H_1: p_1 > p_2$ ) and for our significance level ( $\alpha = 0,05$ ) is critical value 3,84, while we assume that the probability of observed phenomena in first, resp. in second subpopulation is  $p_1$  resp.  $p_2$ . [23]

### **Measuring of association power (Association tables)**

For measuring the power of relation between two dichotomous variables in table of 2x2 was designed a lot of coefficients. These coefficients assume values 0, in case that both variables are mutually independent and negative or positive values in case that variables are negatively or positively associated. [31]

Appropriate level of association should be function of so-called *proportion of chances* – *Odds ratio (OR)*.

$$OR = \frac{ad}{bc} \tag{2.4}$$

Test of independency in table 2x2 is test of hypothesis that the OR coefficient is equal to 1. Coefficient of dependency, which is based on OR is Quetet-Yule`s Q:

$$Q = \frac{OR - 1}{OR + 1} = \frac{ac - bd}{ac + bd} \tag{2.5}$$

If the  $OR = 1$ , which mean the independency of both random variables, then  $Q = 0$ . If OR is increasing respectively decreasing, the Q is closing to 1 respectively to -1.

**One sample test of proportion**

For comparison of some of survey results with published conclusions from CVVM reports “Beer in Czech society” (Pivo v české společnosti) was used one sample T-test also called “testing of hypothesis about mean of binominal distribution”. [14]

This test is about assessing of relative presence of some specific attribute in population sample via random selection based on size  $n$ . Lets presume that  $p_0$  is the relative frequency of occurrence of observed phenomena. [10]

Test criterion:

$$z = \frac{f_i - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

(2.6)

Two tailed confidence interval:

$$p \in (f_i - z_\alpha \sqrt{\frac{f_i(1-f_i)}{n}}; f_i + z_\alpha \sqrt{\frac{f_i(1-f_i)}{n}})$$

(2.7)

$f_i$       relative frequency (calculated as  $x/n$ )

$p_0$       value of relative frequency of observed property

$z_\alpha$       critical value of standardised normal distribution

Hypothesis:

$H_0 : p = p_0$

$H_1 : p > p_0$  or  $H_1 : p < p_0$

Area of  $H_0$  rejection:

$z > z_\alpha$  or  $z < -z_\alpha$

### Representativeness of sample

As a confirmation of sample representativeness was used Chi-square test for *Goodness of fit*, which purpose is to test if form of probability distribution of categorical variable has specific shape. [23]

Test criterion:

$$\chi^2 = \sum_{i=1}^k \frac{(n_i - np_i)^2}{np_i} \quad (2.8)$$

**k** number of possible values of categorical variable

**n<sub>i</sub>** observed frequency in category *i*

**np<sub>i</sub>** theoretical (expected) frequency in category *i*

Hypothesis:

H<sub>0</sub> :  $F(x) = F_0(x)$

H<sub>1</sub> :  $F(x) \neq F_0(x)$

Area of H<sub>0</sub> rejection:

$$\chi^2 > \chi^2_{\alpha}$$

### SAS Enterprise Guide

For best and clear understanding to question “What SAS Enterprise Guide stands for?” follows citation part of introduction from book “Basic Statistics Using SAS Enterprise Guide *a Primer*” created by Geoff Der and Brian S. Everitt and published by SAS institute Inc. [30]

*“SAS is one of the best known and most widely used statistical packages in the world. Although it actually covers much more than statistical analysis, that is the focus of this book. Analyses using SAS are conducted by writing a program in the SAS*

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*language, running the program, and inspecting the results. Using SAS requires both a knowledge of programming concepts in general and of the SAS language in particular. One also needs to know what to do when things don't go smoothly; i.e., knowing about error messages, their meanings, and solutions.” [12]*

*“SAS Enterprise Guide is a Windows interface to SAS whereby statistical analyses can be specified and run using normal windowing point-and-click style operations and hence without the need for programming or any knowledge of the SAS programming language. As such, SAS Enterprise Guide is ideal for those who wish to use SAS to analyze their data, but do not have the time, or perhaps inclination, to undertake the considerable amount of learning involved in the programming approach. For example, those who have used SAS in the past, but are a bit “rusty” in their programming, may prefer SAS Enterprise Guide. Then again, those who would like to become proficient SAS programmers could start with SAS Enterprise Guide and examine the programs it produces.” [12]*

## **SAS programming language**

Possibilities of SAS programming language in statistical analysis practice are from very wide spectre and description of all other important elements could took a lot of important space from methodological part of this diploma, which is a reason why follows only small articles related to syntax and spacing conventions. [9]

Analysis and description of standalone specified commands and instruction, which were used during work on this diploma are unnecessary for explanation of statistical processing and could be found in resources listed in part containing references at the end of diploma. [6]

## **Syntax and Spacing Conventions**

*“The DATA and PROC steps are part of the SAS language. Like any language, it has its own vocabulary and syntax. Some words have special meanings, and there are rules about how words are put together. Fortunately, there are very few restrictions.” [12]*

### **Syntax**

*“There is just one basic syntax rule you must always follow. SAS statements must end with a semicolon. The semicolon tells the software that you have completed one statement and that the next word starts a new statement. If you complete a statement and forget the semicolon, SAS software continues to read your program as one statement. When the software finds something it doesn’t understand, you receive an error message.” [12]*

*However, in most cases, the error message won’t tell you that you have forgotten a semicolon. Anytime you get an error message, you should first look to see that all statements end with semicolons.” [12]*

### **Spacing**

*“With some computer languages, the spacing of your statements and of parts of your statements is important. This isn’t true with SAS software. You can put several statements on one line. You can spread one statement over several lines. You can put spaces between statements or not. You can indent statements or not. The key point is that semicolons, not spacing, determine where SAS statements start and end.” [12]*

## Theoretical part

### 3. Beer

#### *3.1 History of Beer*

Approximately around 12 000 B.C. and 10 000 B.C. in Paleolithic era there was found first signs of directed collection of wild cereals and its consumption. It is proved by both preserved stones that were used to grind grains and also by pollen analysis confirming grain consumption in this period. In year 2004 was documented by scientists directed consumption of cereals in Palestine before 20 000 B.C. First beer brewing is attributed approximately to year 8 000 B.C. in northern Mesopotamia (current Iran), near the river of Euphrates, which is place of first agricultural commodities occurrences. It was often that inhabitants of Mesopotamia (Sumerians) have produced more foodstuff than was possible to consume by local agricultural communities. For the very existences of beer are probably responsible special workers which were not forced to work on the fields and could aimed their efforts into other problems, for example to creation of beer-similar alcoholic based drink. [16]

Other evidence about beer brewing comes from the old Egypt. That was an also place, where was surplus of foodstuff needed for initial processes of beer creation. Both of these civilisations are connected by love for a beer and its often consumption. First tangible proves of beer brewing are dated to year 3000 B.C., when were found marks in era of first and second dynasty. Oldest recipes for a beer brewing are from manuscripts founded in pyramids from the fourth century B.C. [16]

At the territory of Palestine, which was rather the vine aimed area, was not beer such a popular drink. It was a probably a matter of religious aspects. It does not mean that beer was for Palestinians unknown drink. First pioneer of beer brewing was according to legends biblical king Abimelech. Even during Antique era was not beer in point of interest, because wine grown in Mediterranean and mead from European regions were favourite drinks. Greeks also don't even consider a beer as drink of real men. [16]



### 3.1.1 History of Beer in Czech lands

Archaeological research of Czech lands produced evidence, which proves, that also early habitants of this area were preparing fermented drinks from grains. There are also specified information about preparation of beer by Celtic nation of Boji, German Markoman tribes, Kvadians, Slaviks and mythical forefather Czech, which came to bohemian lands and found there a perfect place for living. [17]

Oldest Czech documented brewery is Břevnov monastery brewery in Břevnov monastery, which was founded in 993. First document related to beer brewing is foundation charter of first Czech king Vratislav II., intended for Vyšehrad 'chapter from year 1088, in which except the other gifts and privileges the ruler assigned tithes of hops for brewing of beer. Oldest document about growing of hops in bohemian lands is foundation charter from 30 years of 11<sup>th</sup> century by prince Břetislav. Biggest boom in a brewing in Czech lands began in 12<sup>th</sup> century, when was possible to brew beer by anybody within Czech state. In these times beer was brewed by women in very primitive way in almost every household. Beer was not only determined for drinking, but it was also a basis for preparation of various soups, porridges and sauces. Development of beer craftsmanship began from 13<sup>th</sup> century by founding of new royal towns and cities, which obtained a lot of privileges. For development of brewing was important obtain the brewing right and mile right (which was cancelled in year 1788). Lately these rights were allocated to tributary towns from the nobility. [17]

Great importance for development of brewing and quality of beer was because of malting guilds. These guilds were determining quantity of beer, quantity and type of malt, form which could on house brew; they were also checking quality and unlike neighbouring countries, they supervise person which brew because every brewing person had to be trained in this discipline. That is the reason why there were so quality beers during middle ages and export to neighbouring countries was famous same as export for courts of other sovereigns. [17]

During 14<sup>th</sup> and 15<sup>th</sup> centuries were rich townfolk gathering their resources and established the city's breweries. At the end of Middle Ages and around the half of 16<sup>th</sup> century was developing brewing of beer in noble breweries and steadily maintained or expanded in monastic breweries that were less influenced by political and

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economical changes. City's craftsmanship brewing began to fall after year 1547, when a lot of town started rebellion against domination of Habsburgs and after that followed mass confiscation of estates. [17]

Person which stands for a great reform of malt production, brewing and which was a first step in direction to properties of current Czech beer, was in 18<sup>th</sup> century Czech brewer František Ondřej Poupě (1753 - 1805). He designed a big number of new facilities pro production of malt and beer. He was persuading brewer for using of barley malt only and adjust dosage of hops. At the end of his life he founded a brewing school in city of Brno, which was apparently first of its kind in Europe and it was the springboard for a lot of not only Czech brewers. [16]

For a important milestone in Czech brewing is considered a foundation of City's brewery of Pilsen (Měšťanský pivovar v Plzni) in the year 1842, which was brewing only bottom-fermented beers. Beer had a really good quality and within a short period all breweries in Czech and Morava implemented this technology of brewing.

In a half of 19<sup>th</sup> century began the so-called golden age of Czech brewing, which strongly influenced development of this field all around the world. In a half of 19<sup>th</sup> century began the so-called golden age of Czech brewing, which strongly influenced development of this field all around the world. It was an era of beginning the industrial producing of beer and malt. Excellent development of Czech brewing and quality of its products was supported by three basic elements; optimal conditions for cultivating of malting barley and hops, orientation of developing engineering industry in a direction of production the malting and brewing facilities (export of these facilities were to 400 of countries) and ensuring of high school and university educated brewers. In that time were built around 30 new city's, shared and private breweries. Gradually was overall beer production concentrated into the larger breweries, but small one ceased. Beer was exported literally into the whole world. [17]

In the year 1918 Czechoslovakian republic acquired from former Hapsburg monarchy around 60% of producing potential of breweries, altogether 562 breweries were in a relatively bad shape. Catastrophe for Czech brewing was a World War II. After the war a lot of closed breweries were not able to restart their production. Brewing and malting industry was progressively nationalized in whole republic. [17]

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In the era of communism regime there were not any needed financial resources for modernisation of brewing. Nevertheless brewing industry was able to secure bohemian market with satisfying supply and was also able to export beer and malt to not only so-called socialistic countries, but also into the challenging market of capitalistic parts of world. [17]

After World War II, were in Czech lands only two breweries: Radegast and Most. Second one was closed in year 1998. Malt-houses were built five. In Slovakia there was build during socialistic era of Czechoslovakia around eight breweries. After year 1989 was privatization of breweries and lot of them vanished and some of them became under foreign capital influence. [17]

In year 2003 were 36 malt-houses, which were able to produce 483 thousand tons of malt, from that was export around 214 thousand ton. Active industrial breweries were 48 in year 2007, they produced 18 548 314 hl of beer, and export was around 11,48% of that. Year amount of personal consumption was almost 161 l of beer.

Seven biggest breweries are covering 84% of Czech beer production: Plzeňský Prazdroj, Budějovický Budvar, Staropramen, Královský Pivovar Krušovice, PMS Přerov, Drinks Union and Starobrno. [16]

### ***3.2 Beer types***

#### **Kinds and categories of beer**

Old division method:

- **Draft** (up to 10°)
- **Lagers** (11-12,5°)
- **Specials** (above 12,5°)

This method passed important changes so currently the basic groups are:

- **Pale**
- **Semidark**
- **Dark**
- **Mixed beer** (with many subgroups)

#### **Beer types by way of fermentation**

There are four main ways of beer fermentation:

- **Top fermented beers** (Ale, Wheat beer, Stout, Trappist, Porter)
- **Bottom fermented beers** – also called lagers (Pilsner, Märzen, Bock, Bavarian type beer)
- **Spontaneously fermented beer** (Geuze, Lambik, Kriek Faro)
- **Non-alcoholic beer**

[17]

### ***3.3 Beer signage***

Except the general requirements for beer signage is important due to Decree n. 335/1997 Sb. Beer signs by: name, category (for example beer lager), percentage of alcohol, kind (pale, dark ...) and some other properties. Exact information about content of original wort is not need to be published. However the signing of beer by degrees (for example 12 degree beer) does not fit with decree. It is manifestation of ignorance and it is also illegal. Instead of degrees it is important to publish rightly so-called extract of original wort (also called Plato or in Czech EPM “Extrakt původní mladiny”) and that in weight percentage (12% beer – do not misinterpret with percentage of alcohol – 4-5%), by condition that producer is guaranteeing it. If there is not accuracy of EPM by producer, it is sufficient the publishing of beer kind, but signage of beer kind is important to use every time, also when is already published the EPM.

### ***3.4 New Radler trend***

#### **Radler generally**

Radler is type of mixed drink with low alcohol content, which is created by mixing of beer and fruit lemonade or juice. Ration of both ingredients is usually 50:50. Origin of this drink is from Bavaria and content of alcohol is not over 2,5%. In these days the popularity of this drink is increasing and spreading into the other European countries. Breweries provide these drinks in form of cans or bottle, in some cases the drink is mixed exactly at tap. [17]

#### **Radler in CR**

In year 2002 Heineken Company began brew radler beer in Krušovice brewery, named Radler, whilst this designation was registered via Bureau for industrial property. Due to lack of consumers interest was production after three years stopped.

Currently (2012) Heineken Company producing two radlers; Zlatopramen in three flavour variances (lemon, orange with ginger and grapefruit). Staropramen brewery producing Cool lemon; Gambrinus brewery producing Lime and eldberry, Brisk lemon. Samoson brewery provides Radler Lemon and Radler Grapefruit or brewery Černá hora producing radlers with flavour of grapefruit and cranberry. [16]

### ***3.5 Brewing***

Principles of beer brewing as an alcoholic drink from grain are two processes. At first it is a splitting it in cereal grains presented complex carbohydrates (starch) into simple fermentable sugars. At second it is a following fermentation of these simple sugars thanks to cultures of microorganisms (especially yeasts). An integral part of brewing process is mixing of materials with water, which transfer the usable substances into the aqueous solution. [17]

The base for a beer brewing is malt, which arises in malt-house by germination of cereal grains and gentle drying at a certain temperature depending on the kind of malt. After that follows the transfer of materials into the brewery. [17]

#### **Mashing and malting**

At the beginning of standalone beer creation process, the malt is grinded and mixed with water. This mix is gradually warmed up which cause the fission of starch contained in grains to fermentable sugars, which is caused by enzymes. This procedure is processed in work station called boiling house. [17]

According of country of origin, are used different methods. On British islands is popular method of brewing called scalding, which is really close to preparation of tea. During one to three hours is malt exposed to temperatures between 65 and 68 °C. Contrary to Britain in continental Europe prevails so-called decoction process, which is in comparison to it much more complicated process. Result of its process is fluid, in which was more precise transformation of starch to sugars and fission of proteins. Process if based on overdraft of part from “mash tun” into the special “mashing cauldron (pan)”, where this part is brought to boiling, which cause distortion of starch structures, which allows better access for enzymes to molecules of starch after repeated mixing with colder part. This procedure is usually initiated at temperature of 35 °C and then is gradually increased temperature up to 76 °C. During mashing process (classical and decoction) there are specific delays based on appropriate temperatures. [17]

**Lautering**

Mash is a result of both of previously mentioned methods. This mash is overdraw into so-called “lauter tun”. In initial phases of lautering, the shells of grains (husks) create filtering layer called draff and clear wort is leaving this layer. Remaining usable part caught in draff are washed out by sprinkling or by washing of draff by warm water. [17]

**Wort boiling**

Process, when is wort initiated into the boiling for a 60-90 minutes. During this time, is into the nascent beer added important resource for a gaining of right flavour – hops. Hops could be added in form of whole cones, or leaves or as a fluid extract. Hops could be added into boiling beer more times than only one, up to three times. There is common rule, that the sooner the hops are added to beer, the bitter flavour will beer have. Mixing of that fluid with hops creates matter called “hopped wort”. Also during wort boiling, occurs process of precipitation of so-called “villuses”, thus proteins and hop residues. Hopped wort is then overdrawn to blowdown device, where is beer deprived of hop residues and villuses, before cooling and fermentation. [17]

### ***3.6 Cultural aspects of Beer in CR***

There are just a few of so obvious aspects of Czech life, which are seen as stable part of existence and society of Czech people and culture as the beer. Beer itself has a long tradition and history, it has present and there are no doubt about its future. So it is possible the beer and pub as a place of its consummation seen at many levels.

Form literal aspect is possible to introduce protagonists of beer as was Jan Neruda, Karel Toman, Jaroslav Neruda, Bohumil Hrabal and many others. Except these, there are many other persons, which were became to folklore as anonymous possession.

While up to half of 19<sup>th</sup> century are pubs mostly the meeting place of patriots, pubs of second half of 19<sup>th</sup> century loses this sociological and political aspect and transforms into centres of neighbourly coexistence. At the beginning of 20<sup>th</sup> century penetrates in them a bohemian-anarchistic spirit of persons like Gellner, Hašek, Neuman and Šrámek, but there is obvious aspect of social rebellion.[17]

Dark age of Czech pub social life, which is a during World War II is exchanged by communistic oppression, when demoralised and tired people seeks escape from reality in a circle of friend in their favourite places. During this era are forming special kind of pub subcultures, which is evident until current days.

After political revolution in 1989 a lot of pubs a brewing itself passed the complicated transformation, which was not with happy end in every case, but current situation shows a visible progress and society seems to be again more interested in this beautiful sociological and cultural aspect of Czech life. [17]



## **4. Consumer theory and behaviour**

### ***4.1 Introduction***

In case we need a really good orientation in a specified market, it is really important get a best knowledge about consumer; it means that we need to analyze consumer's behaviour.

For this problem is important to generally clarify, what "Consumer behaviour" stands for and how is possible to approach to this problematic. [26]

### ***4.2 Behaviour of alcohol consumer from psychological approach***

Consumption of alcoholic products is different from a normal consumption of most of other products. Main reason is that alcoholic products could be overused and sometimes even abused for individual reasons and wants, which are not connected with typical theory of consumption for best utility of consumer. That is reason why is important to analyse behaviour of alcohol consumer from psychological approach for more objective understanding of this diploma thesis problematic. [24]

Analysis of behaviour of alcohol consumer, which follows is based on study called "Alkoholici, feťáci a gambleři" (Alcoholics, junkies and gamblers) written by psychologist PhDr. Jana Marhounová Csc. and former Czech psychiatrist, expert dealing with problematic of addicting substances MuDr. Karel Nešpor Csc. According to Marhounová, Nešpor (1995) alcohol accompanies mankind all the time of its civilised evolution. It was known by old Egyptians, also by ancient Sumerians. Our ancestors were mostly used to drink beer and wine. [24]

Drinking of alcoholic substances fulfils four relatively mutually independent functions: 1. Nutrition function (part of a meal), 2. Social (contributes to social interaction), 3. Anxiolytic (decreases level of anxiety) and 4. Orgiastic (serves as a means of purposeful intoxication). Authors mostly agree with influence leading to desire of inclusion, because consumption of alcohol of individual is very tight relation with need of friendship and in relation to pressure form side of friends to shared consumption. [24]

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Attitude of society to consumption of alcohol could be negative or prohibited, which is resulting to strictly abstinence culture. Culture which admits drinking, insobriety and distribution of alcohol without restrictions has in mind interests in a alcohol business. Increasing trend of consumption of alcoholic drinks in Czech Republic is warning signal of social development. Same time is widely known that most of pure alcohol we obtaining through a drinking of beer, which we consider as a harmless drink. [24]

Due to social liberal attitude of public to alcohol, there was established abnormal state, when is outsider that person which abstains and conversely others who converges to the “alcohol subculture”. At the end, there are situations when conflict with social environment is much closer to abstaining persons instead of alcohol drinkers. [24]

### ***4.3 Nature of Consumer behaviour***

Consumer behaviour represent one of many dimensions of human behaviour. It consists of reasons which lead consumers to consumption of specific estate and also ways how it is performed, including influences which are a part of this whole process. General question consequent from that is: “Why and how consumer these estates use.”

Definition of consumer behaviour “Consumer behaviour means a behaviour of people (end consumers), which is related to gaining, using and postponing of consumer products.” [21]

Consumer behaviour includes acting connected with immediate purchase or consumption of product, and also environs which stimulates that behaviour. It reflects the more general “consumer essence” of every human, which is conditioned particularly from genetic part and particularly by cognitive functions during the life time experiences in individual society. Consumer behaviour cannot be disassociated from its bindings to other aspects of human behaviour. [26]

#### ***4.4 General view on consumer behaviour***

Specific stimuli invokes in consumer's mind decision processes connected with gaining of exact product (so-called purchasing decision process). Exact form of purchasing decision process is conditioned with individual behaviour of every consumer with his consumer's predispositions. In phase of analysis of consumer's behaviour from aspect of marketing research, we are interested these relations which are between predispositions of consumer, process of individual decision making and marketing stimulation.

Relation of predispositions and decision making occurs inside of the individual consumer. It is a matter of inside processes and in the way it express so-called "*black box*" of consumer. [26]

##### **4.4.1 Black box**

**Definition:** "*Black box, from perspective of marketing, represents world of mutual influencing of consumer's predispositions, situational influences and purchasing decision making, which takes place in the mind of consumer.*"

In principle, the view comes from structure of psychological model "*Stimulus → Reaction*", however on its own black box is seen as investigated object and with some probability as a recognizable area.

From marketing aspect there is especial interest in question: "How the marketing stimuli (combinations of marketing tools) are able to cause processes in black box, which will have results of desired market behaviour."

Crucial is current influence of other stimuli, which lies out of possibilities of marketing tools at all. [21]

## ***4.5 Approaches to consumer behaviour***

### **4.5.1 Rational model**

These models are trying to explain consumer behaviour based on economical rationality, which means that consumer is considered as a rationally thinking being, which acting on fundamentals of economical advantages. Consumer behaviour is in this case interpreted like a result of rational thought of consumer.

Rational models of consumer behaviour presume that the consumer proceeds in accordance with “unbiased calculations” in which emotional, psychological and sociological aspects have only marginal role. This is based on the fulfilment of a number of assumptions, for example “The consumer is fully informed about all parameters of all variances and is able to make its own algorithm of decisions, which also consciously observes.”

In the field of monitoring and analysis are links between income, prices, amenities, budget constraints, marginal utilities cross-price elasticity, indifferent curves etc. [21]

### **4.5.2 Sociological model**

Sociological approaches to the consumer behaviour investigates how is consumer behaviour conditioned due to the social circumstances and social groups. One of the fundamental thoughts, which has been expressed by sociologist and economist T. Veblen at the beginning of twentieth century have following meaning:”Under normal conditions, people have strong tendencies to observe social norms. Influence of fashion is extremely obvious example. ” [21]

### 4.5.3 Psychological model

Psychological model expresses consumer behaviour like consequence of psychological processes. In main field of interest is especially conditionality of consumer behaviour.

For example how:

- Consumer receives external stimuli,
- Consumer learns to consume behaviour
- Are reflected deeply hidden motives in his consumption expressions.

There is also used application of behaviouristic approaches, which investigates consumer behaviour based on following schematic.

*Stimulus → Reaction*

Schematic explains behaviouristic approach like a analysis and description of how consumer reacts to some specific external stimuli.

Another aspect of psychological model is usage of psychoanalytical approach. Analysis of consumer acting is in this case based on influences of deeper motivational structures, so how are in consumer's behaviour reflected his unsuspected motives (Based on theories of S. Freud and C. G. Jung). [26]

### 4.5.4 Modified model Stimulus – Black box - Reaction

Complex understanding of consumption behaviour is element of successful marketing. Generally it is then possible to see consumer behaviour as a relation between predispositions to some exact consuming acting, stimuli, which evokes specific consuming behaviour and between progress of consumer decision making and its results as reactions.

It is a modification of originally behaviouristic approach. In a field of interest are relations between stimuli and reactions. We are trying to understand them and explain them by analysing of processes inside the black box of consumer. [21]

## ***4.6 Factors which influent consumer's behaviour***

Consumer market consists of all individual consumers and households, which purchasing or demands goods and services for individual consumption. Consumers are mutually differenced by levels of age, income, education and taste.

Competitive advantage of company is in knowledge of customer's reaction on as many as possible properties of good. That is a reason why the companies are making such a effort to analyse and discover reaction of consumer to marketing stimuli. [19]

### **4.6.1 Cultural factors**

Cultural factors have a deep influence on behaviour of consumer. These factors are mostly separated in three following groups. [19]

#### **Culture**

Generally, every society has its own culture. Society is therefore a root element which implies individual needs, wants and following behaviour. In every country there could be found a different types of influence on buying behaviour that is another reason why is so important to analyze different kind of markets, regions or whole countries. [19]

## **Subculture**

Every culture consist from a mix of different subcultures, like geographic regions, religions, nationalities, racial groups etc. Subcultures can be analyze by appropriate specialists which recognize current segmentation of market into as smaller groups as possible for better understanding of individual needs. Knowledge of these needs could significantly help to design new products for specified subcultures. [19]

## **Social Class**

In every society there could be found some kind of social classes, which mostly determine many factors important for market analysis. These social classes could give as information about buying (consumer's) behaviour, because consumers from same social class will probably have similar needs or wants.

Based on social class recognition there could be specifically created marketing activities with high effectiveness. It is also important to not forget that social classes are not determined only by level of income. There is variety of other different factors which could separate interest of individual classes, for example: education, environment, wealth, occupation etc. [19]

### **4.6.2 Social Factors**

Another group of factor which significantly affect consumer's behaviour are social factors which have roots in determination based on social feelings of consumers. [19]

## **Reference Groups**

Potential of reference groups lies in creating and forming of person attitude (behaviour), because reference groups could have different affection in a field of brands and

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products. A good example of high influence of reference group is the product visible as dress, clothes, shoes, car, and sport tools.

Another important part of reference group is so-called opinion leader which influences other persons because of his knowledge, skills or some other characteristics important for specified reference group. [19]

## **Family**

Origin of these social factors is really obvious, because every customer is affected from its family for long years. This influence could change during time but never can disappear at all. As was already outlined, behaviour of buyer is affected by affiliation to a family, where are three main roles husband, wife and children. These roles could be modified due to the current circumstances and other influencing elements (for ex. Changes in consumer's "lifestyle").

For a clear example, in case that decision process is influenced by wife role, marketers will aim their effort to enhance affection of advertisement in women direction. [19]

## **Roles and Status**

Every person represents different status (roles) among society. These roles are determined by belonging to various groups, organisations, crews or associations. Simple example could be seen in case of adult married man is working in banking company human resources department. From this statement are obvious two roles, man as recruiter and man as a husband, so his buying decisions are affected by his roles. [19]

### **4.6.3 Personal Factors**

Other important group of factor influencing consumer's behaviour are personal factors. These specified factors (economic situation, occupation, age, self concept, personality,

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and lifestyle) are inherent to each person but not everybody react to it influence in same way. [19]

### **Age**

Consumer's buying behaviour could be potentially influenced by age (life-cycle), because properties of chosen goods and services are changing during the time of living. Life-cycle refers also to different stages in a "life" of families. There could be found several stages based on current situation in which members of family are. For example, the product or service is aiming for singles, unmarried couples and married couples, because needs and wants could be different. [19]

### **Occupation**

It is obvious that occupation has a significant affection on individual buying behaviour, which refers to specific needs among different occupations. For example, businessman needs quality suits on the contrary the car repairman needs working cloths. [19]

### **Economic Situation**

Economic situation has also major influence on a customer's buying behaviour, because mostly decision processes are dependent on individual incomes and revenue, so if the income is high customer has a broader interest spectrum of goods and service. [19]

### **Lifestyle**

Influence of lifestyle on customer is resulting from specific way that a person lives in a concrete society; essentially it is expression of individuality by the customer's surroundings (it can be seen mostly as specific products). Lifestyle is specified by buyer's opinions, interests and activities. Sum of previously mentioned elements help to get a whole pattern for final interacting in society and creating stand-alone lifestyle. [19]

## **Personality**

This factor is extremely individual matter, because you cannot find two individuals with same personality, but a personality could transform in a time, because of influence of many specified elements. Personality is not a sum of opinions which customer spreads, but it is manifesting by his behaviour due to specific circumstances. There are many characteristic of personality like: aggressiveness, submissivity, dominance etc which could be used for determination of consumer's buying behaviour for potential product or service. [19]

### **4.6.4 Psychological Factors**

To category of factors which influences customer's behaviour from psychological aspect belongs: motivation, learning, perception, beliefs and attitudes. [19]

#### **Motivation**

Buying behaviour is also affected by the level of individual motivation, which is an element of every person's individuality, with different needs. These needs could be biological, social, psychological etc. Need is becoming a motive in situation, when is more pressing customer to satisfy it. [19]

#### **Perception**

Perception is a sum of sub-skills which have goal to select, organize and interpret information in appropriate way to get useful experiences. Perceptual processes are selective distortion, attention and retention. Marketers try to attract customer's attention (*selective attention*). When customer try to interpret provided information in that form which potential buyer already believe, we talk about *selective distortion*. In case of

*selective retention*, main effort of marketers is to retain suitable information which supports their way of believe. [19]

### **Beliefs and Attitudes**

Potential buyer's has some specific attitude towards various products and services. Marketers are interested in believes and attitudes in case that it makes up a special brand image which stimulate consumer to purchasing. In this case it is important to change whole aspect of consumers believes and attitudes due some specific advertising campaigns. [19]

## ***4.7 Consumer research methods***

Market research is every time one of the most important part of successful marketing, because it is crucial obtain information what customers really demand and want instead of what we think that they probably could want.[20]

Currently are known two methods (approaches) of marketing research: primary and secondary. At first is important to reveal some basic information about *secondary research* because for object of this diploma thesis is not suitable. This kind of research is based on usage of data, which was already prepared by some other robust researchers.

*Primary research*, conversely, is research which must analysis prepare, design and manage all by himself. There are many forms of primary research and it is important to choose the right one for the analysed problematic. For better understanding how a desired method chosen is, follows a simple flowchart which depicts process of decision among primary research methods. [11]

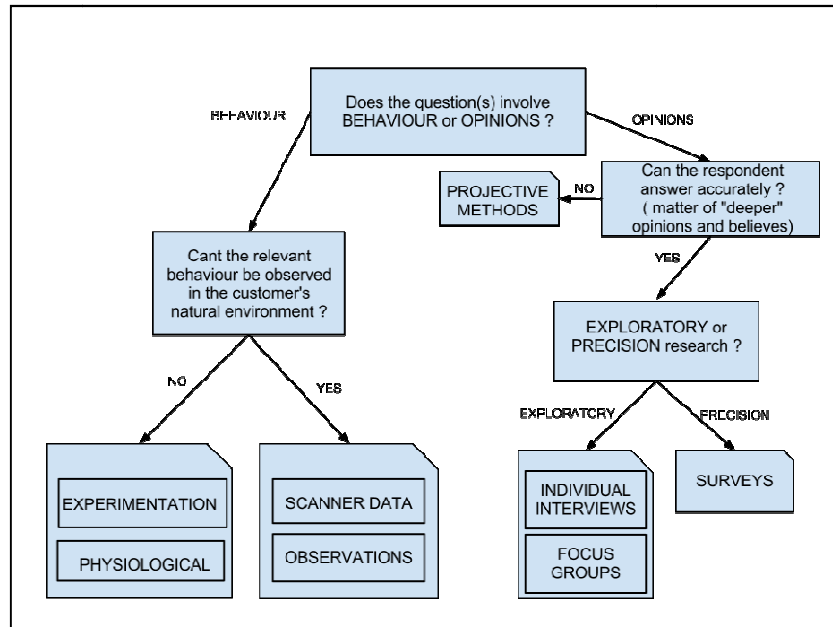


Figure 1 – Consumer research method - decision diagram [<http://www.consumerpsychologist.com/>]

From this flow diagram is obvious that for creating of marketing research method which will be suitable for fulfilling goal of this diploma thesis is questionnaire survey. Specifically in on-line form, because the data which this survey provide will be in digital format, what is of course much better for following statistical data analysis. [22]

## 5. CVVM

### 5.1 CVVM introduction

Centrum pro výzkum veřejného mínění (Centre for research of public opinion - CVVM) is research department of Sociological institute of AV CR, v.v.i. (Academy of Sciences Czech Republic, public research institute). Its origins dates back to year 1946, when as small part of Ministry of information, began its operations Czechoslovakian institute for a research of public opinion. Current centre was established in year 2001 by migrating of its leader (IVVM – Institute for research of public opinions) from Czech statistical bureau to Sociological institute of AV CR, v.v.i. By incorporation into scientific institution ensures quality and professional background and credit of workplace, which must (CVVM) as a part of academic environment fulfil as conditions and achieving the highest professional level. [7]

The main concern of department is a research project “Naše společnost” (Our society), under which are made ten researches every year. This is a exploration of public opinion based on representative sample of Czech population up to 15 years of life, which every time have at least 1000 respondents. Omnibus form of questionnaire allows covering really wide spectre of themes and also economical, political and generally sociological topics are included into the investigations. There are used both repetitive questions, which allows to observe progress of studied phenomena and new topics which reacts to current events. Thanks to long-term and continuous character is this scientific project of investigation of public opinions in Czech Republic unique and its outputs are valuable materials, which are usually used especially by the professional public, students and journalists. Besides regular investigation of project “Naše společnost”(Ous society), the CVVM performs special researches for other departments of Sociological institute AV CR, v.v.i., and for external contractors among institutions of government administration or research organisations and universities, including foreign sector. CVVM also takes a part on international cooperation of agencies for research of public opinions – Central European Opinion Research Group (CEORG) and in year 2001 – 2004 was participated on research project of European Union – “Eurobaormeter”. [7]

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CVVM regularly presents its work in form of press releases (about 15 by every month) and few times in a year organises a press conferences related to current topics and events. As a part of popularisation activities are also regular representations in media. There is an archive containing press reposts since year 1990 available to general public. In one of projects was also processed archive of final reports from researches of Institute for research of public opinions (and its follower IVVM) since the late sixties till the year of 1999. Copies are publicly accessible in library of Sociological institute AV CR, v.v.i., library of AV and in the National Library. Digital files with result of researches are stored in Sociological data archive, which also provides them for a scientific and study purposes. [7]

Bulletin “Naše společnost”(Our society) is regularly and professionally specified output which contain essays drawing form results of research of public opinions. Publication “České veřejné mínění: výzkum a teoretická souvislost” (Czech public opinions; research and theoretical connection) is a culmination of one of grant projects.

Activity of CVVM is continuously presented on the webpages [www.cvvm.cas.cz](http://www.cvvm.cas.cz). There could be found public press reports from regular researches and contributions to bulletin “Naše společnost” (Our society); in case of newly published contributions, registered users are notified via e-mail. [7]

CVVM consists of 11 permanent employees, which specialisation completely covers requirements of complete execution of sociological research. The centre has its own interview network in a size of approximately 700 interweavers and its distribution provides both as whole population and specialised researches. [7]

Members of department are dealing with generally theoretical and methodological matters of public opinions and its research in case of their specialisations with individual experts and scientist workers takes care about public opinions as social phenomena. Except other professional activities, members also lecture for example at Philosophical faculty or Faculty of sociological sciences of Charles University. [7]

## ***5.2 CVVM studies “Pivo v české společnosti” (Beer in Czech society)***

Study “Beer in Czech society” is long term stud performed since 2004. Spectrum of analysed phenomena is really wide and consist a lot of important factors, which could help in a market analysis of a specific segments of beer market. Press report for year 2012 provides general results and conclusions about progression of situation in case of beer consumption, situation of non-alcoholic beer, attitudes Czech public to high level of beer consumption in Czech Republic and potential expectations about future progression and development of Czech beer and brewing. All analysis is performed on dataset of respondents, which are 18 years old at least. [4]

Other parts of study Beer in Czech society, important for fulfilling of goals of this diploma thesis are projects “Obliba a konzumace piva v České republice” (Popularity and consumption of beer in Czech Republic), “Radler na českém pivním trhu” (Radler beer in Czech beer market) and “Výběr piva českými konzumenty” (Choise of a beer by Czech consumers). All these particulars studies, on which are this diploma thesis based, were performed for a year of 2012. [4]

### ***5.3 CVVM conclusions important for diploma goals***

This part of diploma thesis consists of CVVM studies analysis and highlighting of already known results (particularly the secondary research). Following statements and numerical facts are separated into standalone studies performed by CVVM in which there were published. Study of these researches is a crucial for fulfilling diploma thesis goal because in practical part follows testing of diploma authors results witch results gained by CVVM. [7]

#### **5.3.1 “Pivo v české společnosti 2012” (Beer in Czech society 2012)**

##### **General consumption [4]**

- At least occasional consumption of beer: 90% of men and 62% women.
- Decreasing trend of in beer drinking among all categories of men except oldest ones (age category: 60 and over). Potential economical reasons, because respondents were from groups with lower incomes.
  - Slightly increasing trend of beer drinking among women (age category 18-29 and 30-45).

##### **Non alcoholic beer [4]**

- Generally non-alcoholic beer is not a substitute of a alcoholic beer for a Czech drinkers.
  - Only in situation when consumer must stay sober especially in case of driving 55% of men and 27% of women chose the non-alcoholic beer.



**Attitude to beer consumption (Pride related to Czech leadership in beer consumption – relation to “Czech beer Culture”) [4]**

- Feelings of pride Czech beer consumption 45% men and only 17% women.
- Diversity among spectre of consumers depending on consumption quality (pride increasing with quantity), level of education (higher education – lower pride) and age (older person – more proud person)

**Future situation of beer and brewing [4]**

- Optimistic view of almost all consumers.
- Slightly increasing trend of less optimistic expectations.
- Czech beer pierces the beer markets of foreign countries. With this statement agree 59% of consumers, disagree 26%.
- Displacement of Czech beer on Czech beer market by foreign brands is not a threat for a 73% of consumers (slight increase of opposite view to 17%).

**Future situation of small breweries [4]**

- Obvious increasing trend (since 2006) in capability to express a clear opinion to situation and majority of consumer are optimistic about the future situation.

**Development of beer prices [4]**

- Extremely important attribute for Czech consumer.
- With grow rate of beer price expects the vast majority of respondents (more than 90%).

**5.3.2 “Obliba a konzumace piva v České republice 2011” (Popularity and consumption of beer in Czech Republic 2011)**

It was necessary to use report published for year 2011 because newer was not available during work on diploma thesis.

### **The popularity of beer [2]**

- The popularity of beer in the Czech society is often considered as a given fact, but there is relatively significant difference between men and women.
- While the almost men consumers considers beer tasty, only approximately half of women consumers have a same opinion.
- Popularity of these consumers which consider beer tasty is not influenced by group specifications.
- In almost every case consumer which consider beer tasty drinks the beer.
- Surprisingly there are also beer drinker among consumers which consider beer as rather distasteful, namely 41% of men and 32% of women.

### **Beer consumption [2]**

- Information about beer consumption is similar with slight deviation due to report and confirms a trend of slightly decreasing beer consumption among men under the age of 60 and over.
- This kind of decreasing consumption can be observed especially among men with high school education level.

### **Amount of consumption [2]**

- Persisting amount situation of average consumption of half of liters of beer per week, approximately 8-9 half of litres/week consumed by men and 2 half of liters/week women.
- Signs of decreasing trend of average consumption, which is connected with long-term trend of decreasing number of beer consumers among all observed categories.
- Development heading to frugal average beer consumption.
- Decrease of “big drinkers” (average week consumption more than 14 half of liters/week) from 20% to 14%.
- Slight decrease of “regular drinkers” (average week consumption 8-14 half of liters/week) from 27% to 23%
- Increase of “occasional drinkers” (average week consumption 3-7 half of liters/week)

- Decrease of average week consumption among group university-educated respondents from 8 to 6,5 of liters/week.
- No differences among consumers living in family with different economical statuses (different incomes).
- Assumption that due to relatively low prices of beer in Czech Republic in relation to average incomes, consumers are not pushed to consider if drink and in how amount.

#### **Frequency of consumption (beer as a regular or festive drink?) [2]**

- Observed sign is a average frequency of drinking during week.
- Decreasing trend of frequency consumption slightly above level of 3 times per week for men and 2 time for women.
- Decreasing trend is predominantly related to men, without any differences based on consumer segmentations, except men between 18-29 year of age.
- Decrease of everyday drinkers from 26% (2007) to 15%.
- Increase of two-times drinkers from 16% to 24%.

### **5.3.3 “Výběr piva českými konzumenty 2012” (Choice of a beer by Czech consumers 2012)**

#### **Choice of beer by the brand [1]**

- Male part of consumers is significantly profiled (favourite brands 94% men and 79% of women).
- “Every time” performed choice based on favourite brand: 4/10 men and women.
- “Mostly” performed choice based on favourite brand: 5/10 men and 2/5 women.
- Brand unbiased performed choice only: 1/10 men and ¼ women.
- Education and age don’t have any influence to choice, only amount of consumption (Bigger amount of consumption mean more frequent choice based on

favourite brand).

#### **Regional aspects (potential preference of local brands) [1]**

- Only 1/3 of men and 1/4 of women makes choice related to regional and local brands.
- 15% of men and 27% women don't even think about any relation of their choice due to region.
- Generally it is possible to make a statement that with the rising amount of consumption also rise the preferring of regional brands (only exception in group of avid drinkers with 14 and more beer, week consumption).

#### **Choice between known and unknown brand (willingness to try unfamiliar products) [1]**

- Only small part is not able to answer the question (10%).
- Part of consumers which are willing to try new brand is almost same as part negative attitude to a unknown brands.
- Long-term trend indicate increasing willing of consumers to try new brands (especially in group of men 45-59 year of age with high-school graduation and higher amount of consumption).

#### **Importance of price, taste and advertisement during choosing of beer [1]**

- The most important aspect for Czech consumers is significantly a taste.
- Second most important aspect is a price.
- Advertisement is aspects with lowest importance for consumer.
- Male consumers prefer a taste slightly more than females.
- Price is important for 3/4 consumers.
- Importance of taste is increasing with increasing of consumer's standard of living.
- Groups with lower income prefers attribute price (importance of low price especially for pensioners).

- For latest year there is mentionable decrease of importance of price for all consumers also among the segmented groups (potential influence of newly provided tasted beers “radlers”, which is impossible to consider as trend for its novelty).

#### **5.3.4 “Radler na českém pivním trhu 2012” (Radler beer in Czech beer market 2012)**

Radlers, which mean flavoured beer came to the Czech beer market during year of 2012 by its successes it, earned their own study in a project “Beer in Czech society”.

- Consumers feel enthusiastic about new kind of beer.
- Consumers consider radlers as a good idea.
- Consumers are not afraid about position of classical common types of beer (possibly because most of consumers don’t consider radler as a beer and as a temporary fashion matter). [8]

##### **Consumption of radlers [8]**

- Majority of respondents at least tasted radlers (3/5 of all respondents and majority of these respondents only tasted the radlers and almost nobody drinks it regularly).
    - Respondents which only tried: 55% men and 29% women.
  - Respondent which drinks occasionally: 20% men and 46% women.
    - With increasing age of respondents there is also an increasing trend of consumers, which don’t even try radlers.
    - Surprisingly the major parts of occasional consumers are men (30-49 years of age).
    - Surprisingly the drinking of radlers is not significantly or systematically related, with amount of beer consumption, because groups of respondents (men and women) with highest and lowest consumption, which don’t even tried radlers, are almost same.
-

### **Radler as a beer or special drink [8]**

- Almost all respondents unanimously answered that radler is distinctive alcoholic drink (considered as beer by only small part: 9% men and 15% women).
- Trying and drinking of radlers may not have any direct relationship with drinking of beer.
- In fact there is large part of “I don’t know” answers (15% men and 23% women).
- The more often respondents drinks radlers than more often is considered as beer.
- Elderly consumers refuse radler as a beer.
- With increasing consumption of beer both of opinions are increasing.

### **Perception of radler’s position on Czech market [8]**

- Good way of extension of the offer: 77% all groups of men and women.
- Only group with highest beer consumption don’t consider radler as a good idea.
- Radler as a threat to Czech beer: 79% men and 74% of women have no worries.
- Future of radlers: Mostly considered as fashion trend by men respondents, but women have a different opinion.
- Elder respondents consider radlers as an impermanent matter, but younger respondents (with university graduation and lower beer consumption) disagrees.
- Current radler drinkers disagrees with assumption that radler is a fashion trend.

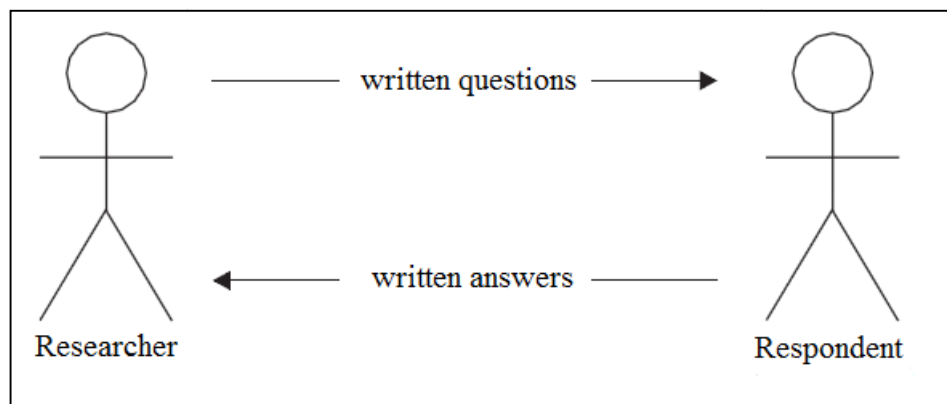
### **Links between radler and beer [8]**

- First research did not reveal any connection, but it is impossible to make a final statement about mutual influence of beer and radler consumption.
- It is an extremely individual opinion matter.
- Respondents EXAMPLE 1: Considers beer as a very tasty → more often only tasted the radler → considers radler as a special drink → don't have any worries about future of beer → radler is only a temporary fashion matter.
- Respondents EXAMPLE 2: “experimenters” → drinks radler most often → considers radler as good way of extension of the offer → don't consider radlers only as a fashion temporary matter.
- Research about radler is a good topic for an investigation and there could be an interesting potential future trend.

## 6. Questionnaire survey

Questionnaire belongs in to a group of marketing research tools, for evidence of phenomena origins, human behaviour and also cognition of their views, attitudes and motives. Similar ways how to obtain desired data are observation and experimenting.

Questioning is one of the most used procedures of marketing research. It is performed by tools (questionnaires, record sheets) and properly chosen contact with a bearer of the information – respondent. This contact could be direct, immediate, as it is in case of written answering of our questions (see following picture). [27]



**Figure 2 Survey method scheme [Author]**

When creating of questionnaire it is important to pay attention about its correct composition. Inappropriate composition of questionnaire could call doubts upon obtained information and results could not fit to requirements and objectives of research. [25]

A good questionnaire should meet two main requirements:

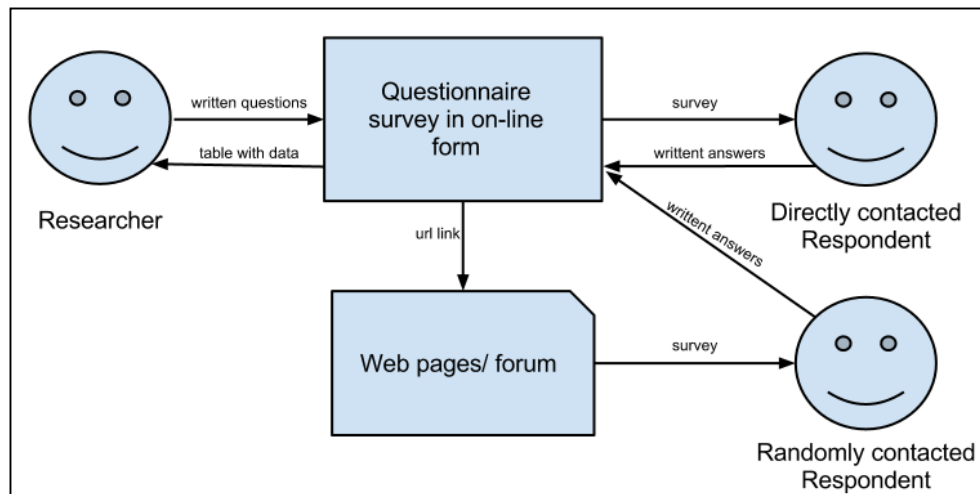
- *Purposefully technical* – such assembly and formulation of questions, which provides possibility to respondent to response as accurately as possible to object of our interest.
- *Psychological* – creation of conditions (environment, circumstances), which could make this task easy, suitable, pleasant, desired and willed for respondent as much as it is possible. The point is to get answers from respondent briefly and truthfully. [25]

In case of survey created for this diploma thesis is important to change a little bit previous scheme of interactions between researcher and respondent. Main is that for

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reliability of survey is crucial obtain satisfying size sample which could represent residents of CR. Questionnaire survey is created via online application and stored in cloud computing solution of Google Apps. This survey is easy accessible for the respondent thanks to one simple link which could be simply sent via mass email or placed in forums or pages, where could be found be non-directly encountered respondents.



**Figure 3 Used survey method diagram [Author]**

## 6.1 Google drive

Google drive is a newly accessible cloud application provided by Google inc. connected to services of Gmail. It is based on previous version of cloud applications with similar main ideas called Google docs.

Possible usage of Google drive is very comprehensive and could cover most parts of process connected not only with data collecting, that is also reason why Google drive was chosen for creation of this diploma thesis, other particular properties and applications are explained in following subchapter aimed to cloud computing and standalone applications. [3]

### 6.1.1 Cloud computing

Cloud computing is Internet based model of usage of computer technologies. It is also possible to characterise it as providing services or programs stored in distance internet servers, users could connect to these features via internet browsers or specific local clients and use them practically from everywhere with internet connection.

Users don't pay for own exact software but only for its usage (assuming that the service is chargeable). Offer of applications has a really wide spectre: office, systems, distributed counting and also operational systems operated in browsers (for example eyeOS, Cloud or iCloud). [5]

Technology of cloud computing is characterised by following properties:

- *Multitenancy* – Computer resources are shared between all users.
  - *Huge scalability and elasticity* – Provides to users a possibility to quickly change their computing resources due to actual needs.
  - *“Pay as you go”* – This approach is based on simple principle: “pay for what you consumed”.
  - *Up-to-date* - All software is automatically actualised, user is not interested into this process and all is directed by provider.
  - *Internet access* –Users can connect to their software from everywhere around the world via internet connection.
-

## 6.1.2 Google Apps usage

Google drive is connected with increasing number of applications, which you can install from internet market of Google Chrome internet browser. With these applications it is possible to manage and edit pictures, videos, fax, sign the documents, manage projects, create tables etc. Regardless to number of Google drive applications you have installed, you still have an access to all of your files on one place, on online Google drive servers. [3]

Main features and possibilities of Google drive in form of simple list:

- Access to files and possibility to open files.
- Creating of new files of appropriate application.
- Access to files in Google drive via applications outside of Google drive environment.
- Storing of files on Google drive via applications outside of Google drive environment.
- Sharing of files of any kind of type, including files created in Google drive applications.

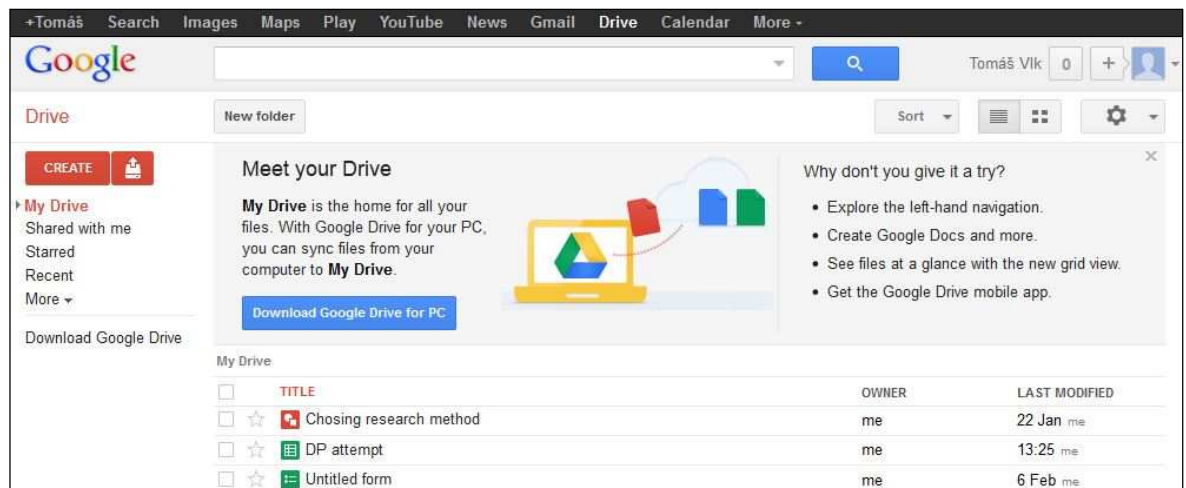


Figure 4 Print screen of Google drive interface [Author]

As was already mention there are plenty of possibilities with Google drive in combination with Google Chrome “plug-ins”, but for processing of activities leading to correct fulfilling of this diploma thesis goals are most important only few of them. [3]

### **Google forms**

As a one of inseparable parts of Google apps are also online forms originally called Google forms. This kind of applications provides opportunity to create and publish forms. During creation of form there are possibilities to choose different kind of answering styles. For example checkboxes, pull-down menus, a range of satisfaction etc. Creator can also make form more attractive and personal in way of additive graphical motives and themes. Before is form provided to respondents, the creator can set up other important properties of form (mandatory questions, author anonymity, etc).

When the data collection is ended, there is possibility to evaluate the results of questionnaire not only in tables, but also automatically in the form of a graph. [3]

### **Google spreadsheet**

This browser-based application is similar to Microsoft Excel spreadsheet system. It doesn't have such a wide spectrum of advanced properties but it allows user to store, edit and organize data or information in many ways. Other main advantages are simplicity, multi-formatting and cloud solution.

Google spreadsheet is also a data output from application Google forms, which contains results in appropriate way due to relevant specified form. [3]

### **Google drawings**

It is a fine graphical solution in way of graphical or sketch implementation of desired topic. As it is usual in Google apps the interface is extremely similar and as a cloud web application it could be accessible from every computer with internet connection. Working in Google drawing has a many of prepared shapes, object and features for simple and quick solution of users needs.

An important advantage of working in Google drawings is feature managing dynamic indexing (depiction) of positions of inserted object for symmetrical placement and better overall impression of result. [3]

## **Practical part**

### **7. Empirical study**

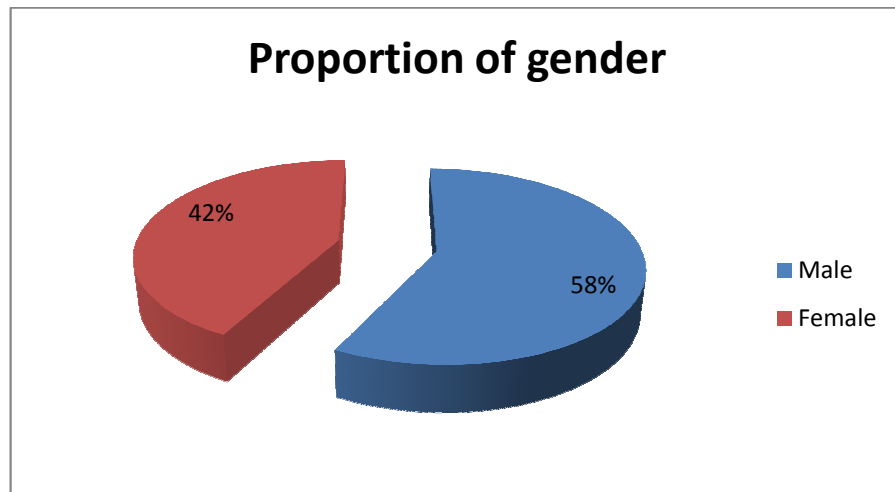
The final gross number of collected respondents, who answered the questionnaire survey, was almost seven hundred, but after removing incomplete answer sets, the number of usable data from respondents was 602. From this number, only 50 respondents answered “No” to the question “Do you like beer?” which reduced the sample to 552 respondents suitable for further analysis.

At first there is a general overview of survey results in clear way of pie charts with comments and specifications. MS Excel 2007 and Google spreadsheets were used for creating these charts and graphs.

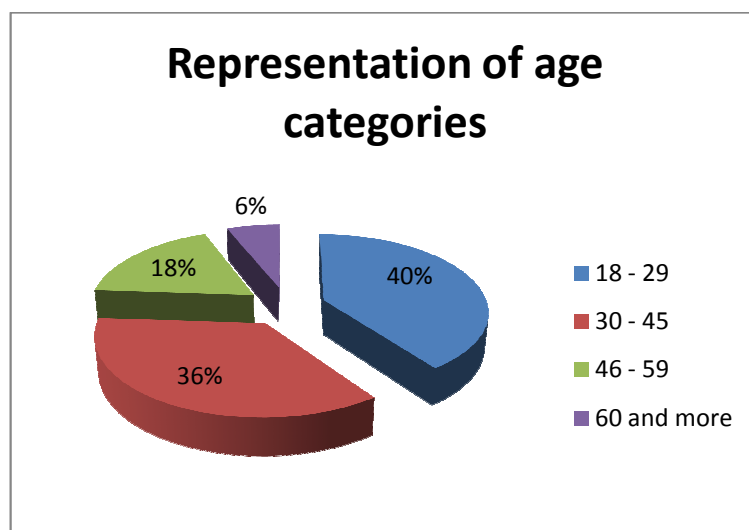
The following part is focused on analysing the results in table forms, which contain collected data from SAS 9.2 and SAS Enterprise guide 4.2 in order to appropriate hypothesis related to beer consumption preferences.

## 7.1 General overview of survey results

### 7.1.1 Characteristics of sample

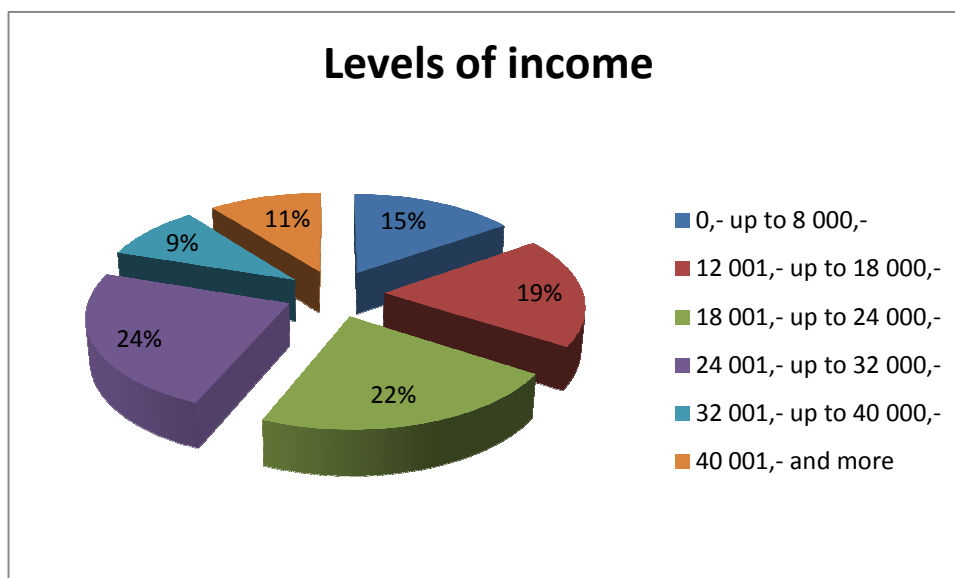


Graph 1 Sex of respondents [Author]

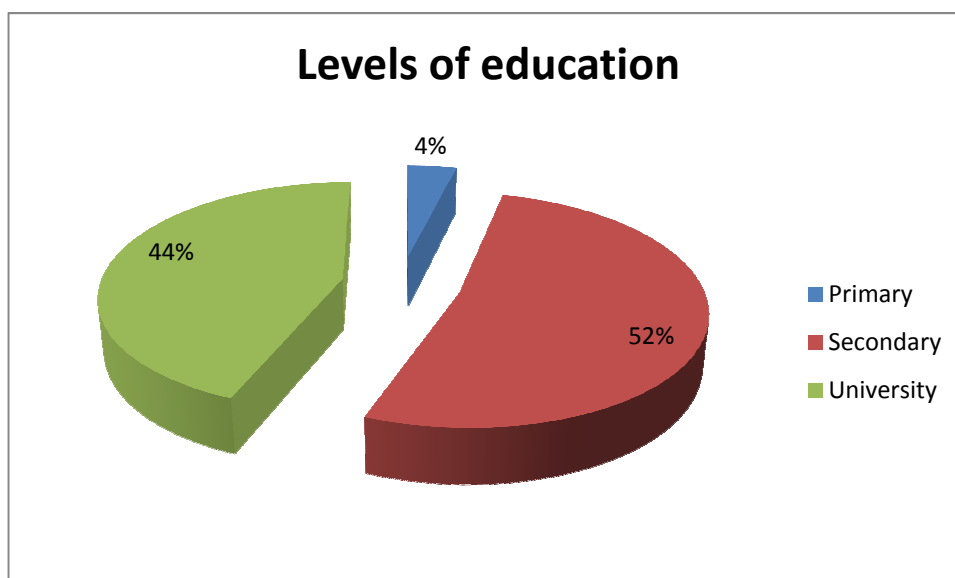


Graph 2 Age categories of respondents [Author]

The low representation of group “60 and more” is caused by very low accessibility and interest of this category in information technologies, which is a problem for every survey performed in a digital form.



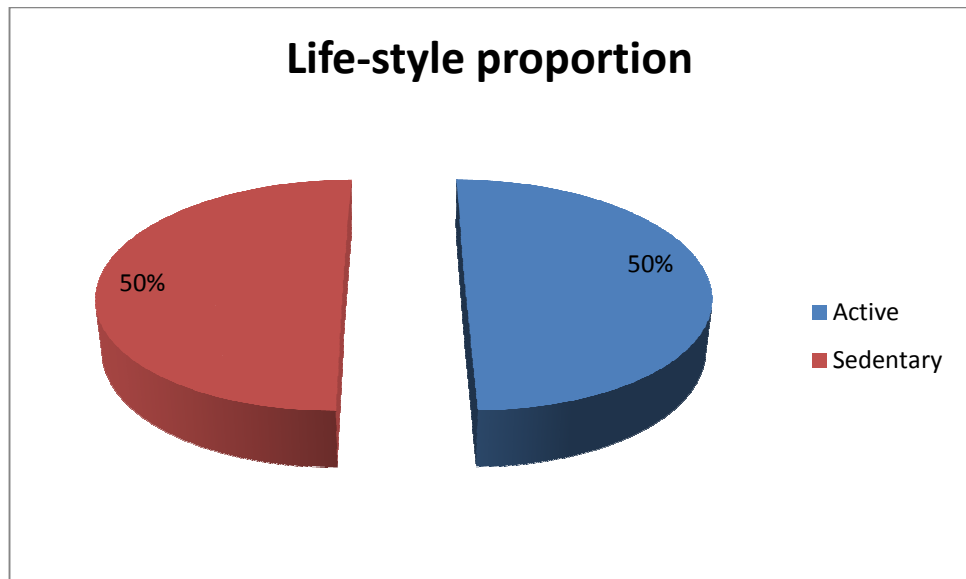
Graph 3 Income categories of respondents [Author]



Graph 4 Education categories of respondents [Author]

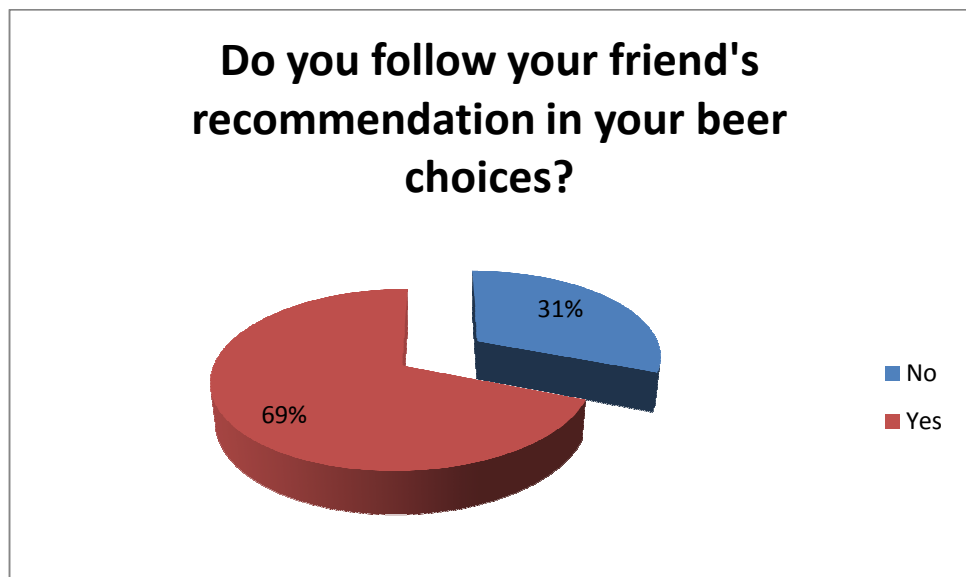
The representation of Primary educated respondents is very low, which could be caused by similar reasons as those in the oldest age group. For categorical data analysis and fulfilling the condition of minimal representation for  $\chi^2$  test, this group was aggregated with Secondary education group.



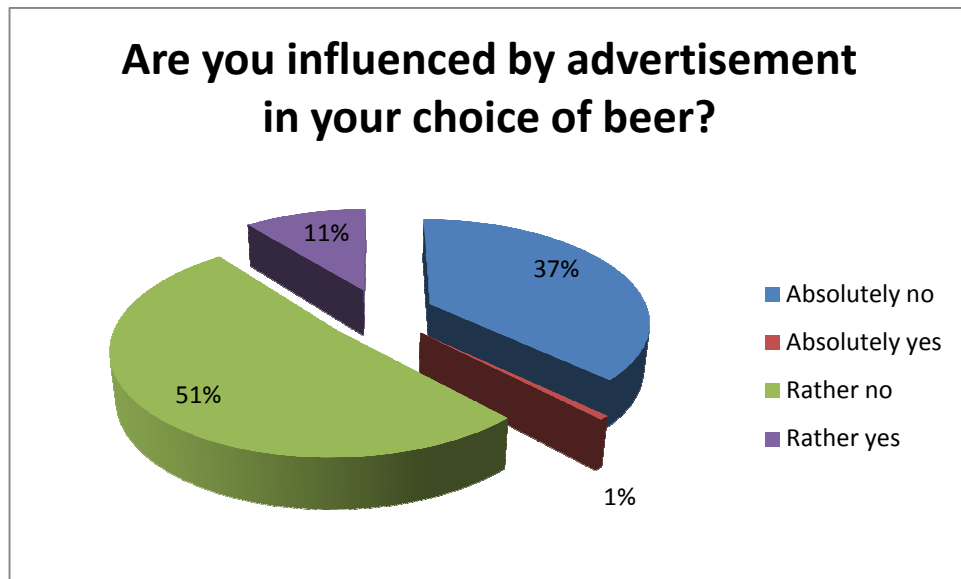


Graph 5 Life-style classification of respondents [Author]

In this case “Active” lifestyle was conditioned by doing sport or exercise regularly.



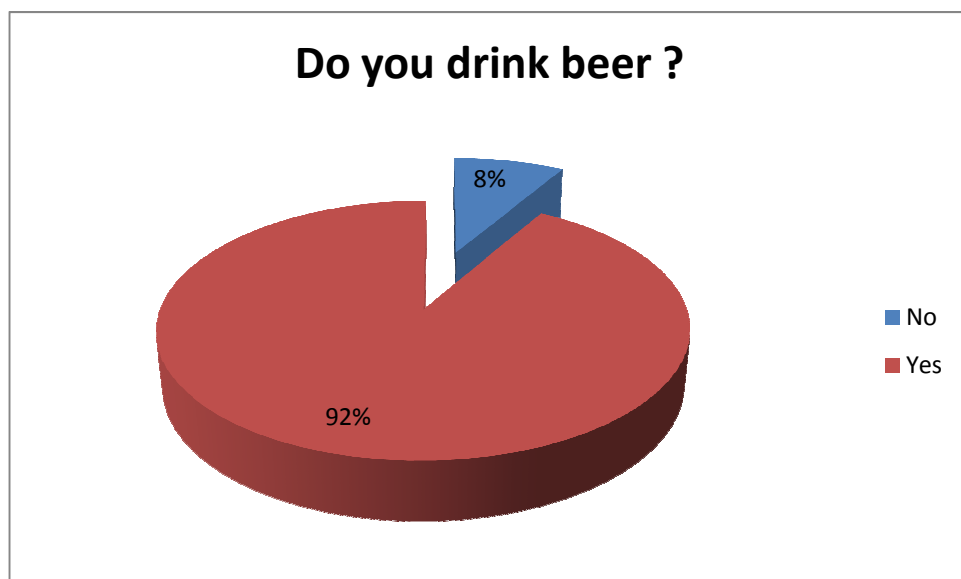
Graph 6 Friend's recommendation influence on respondents [Author]



**Graph 7 Advertisement influence on respondents [Author]**

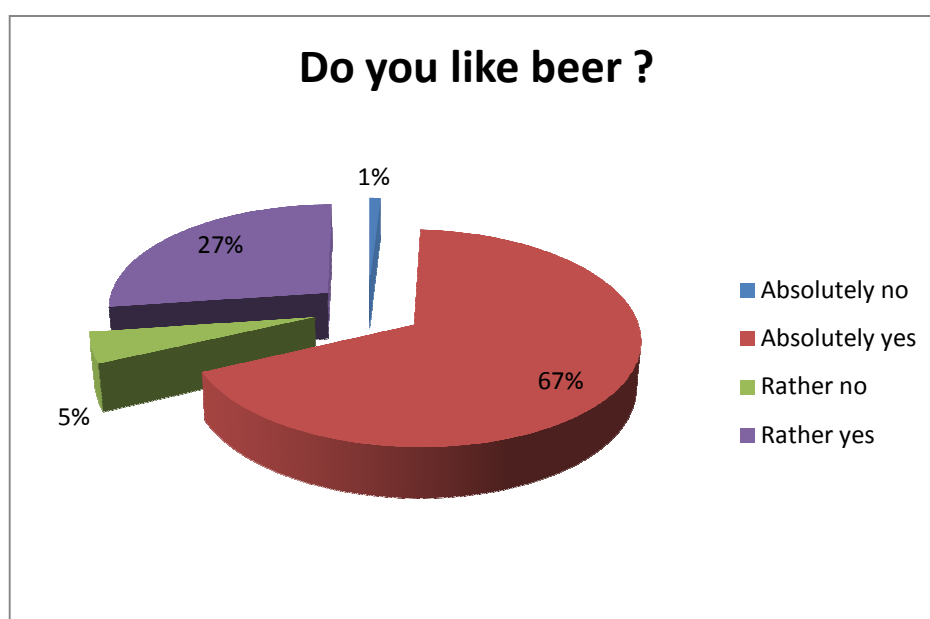
This is a problematic question which could have decreased testifying value, because we do not know how many respondents are aware of potential influence of advertisements on their behaviour. This is obvious from the percentage of respondents who answered “Absolutely yes”. For testing purposes this answer was aggregated with “Rather yes”.

### 7.1.2 Overview of survey results for standalone questions



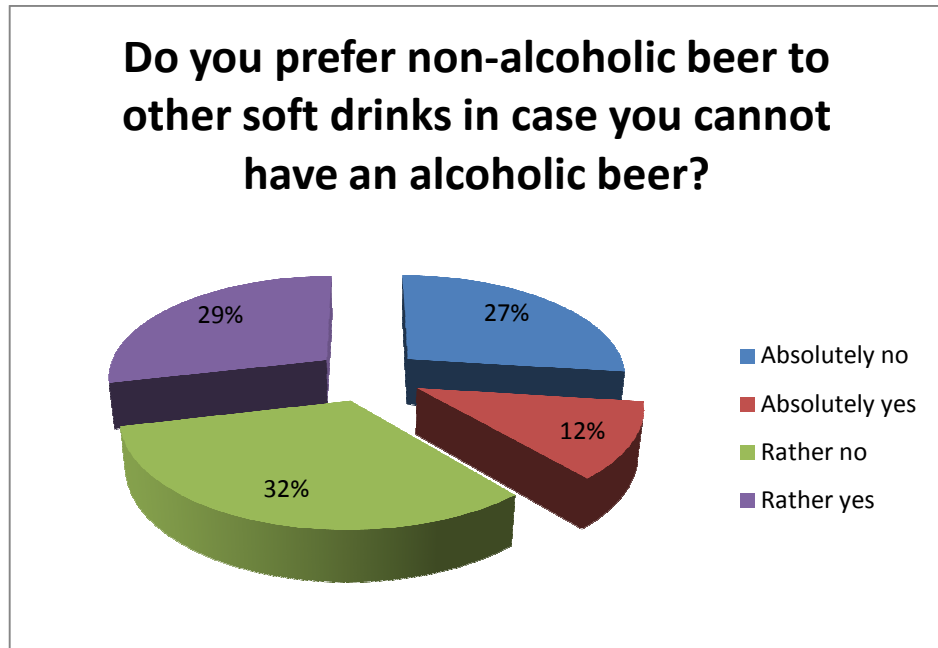
**Graph 8 Proportion of beer drinking respondents [Author]**

This graph shows the popularity of drinking beer in the Czech Republic, because 552 respondents from total 602 respondents chose the answer “Yes”. Due to the survey analysis, we consider only answers of the respondents who chose “Yes” to this question, because we assume that only people who drink beer are able to objectively answer most of beer related questions.



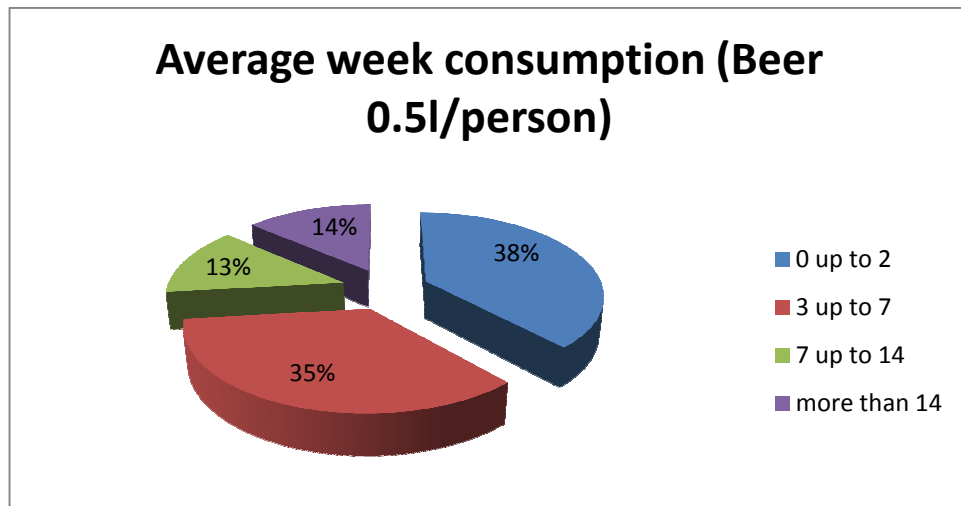
**Graph 9 General beer likeness of respondents [Author]**

There could be seen an interesting phenomenon related to respondents who chose answers “Absolutely no” and “Rather no”. As was already mentioned, the sample, on which this analysis is based, is the respondents who drink beer. It brings a question: why they drink beer if they do not like it? In the theoretical part of this diploma thesis there could be found reasons of sociological aspect of alcohol consumption, especially in case of the Czech Republic. We could assume that this small part of respondents drinks beer because of social affiliation.



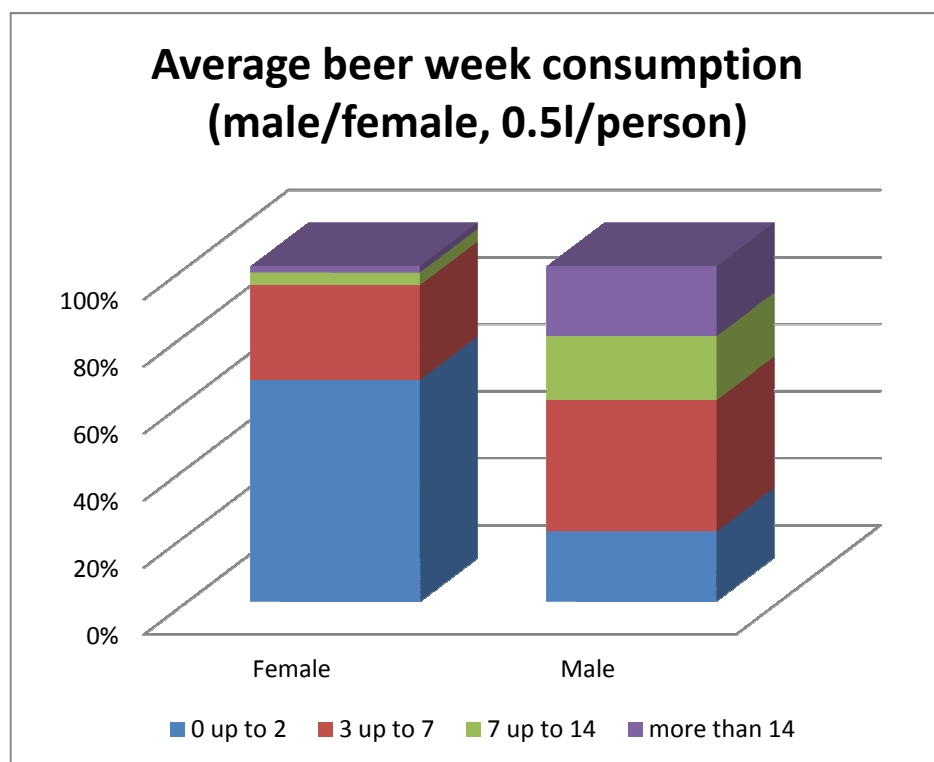
**Graph 10 Non-alcoholic beer likeness [Author]**

An interesting fact is that in case of driving, major part of beer consumers chooses a non-alcoholic version of beer instead of other non-alcoholic drinks, like water or soda. In case of comparison these preferences between male and female respondents, about 15% more of male respondents prefer non-alcoholic beer than female respondents.



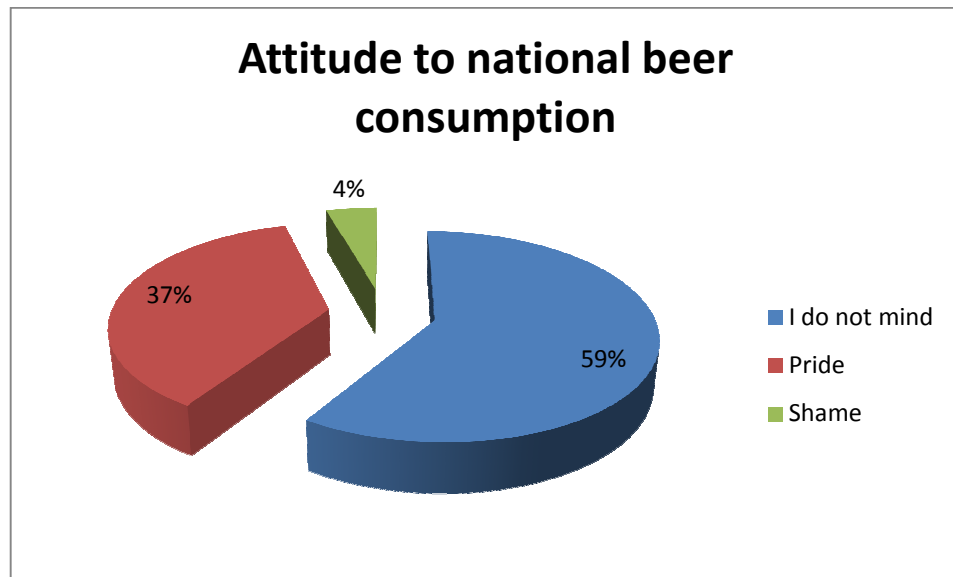
Graph 11 Average week beer consumption of respondents [Author]

This graph shows the distribution of average week beer consumption of respondents, which reports major part of “temperate” drinkers.



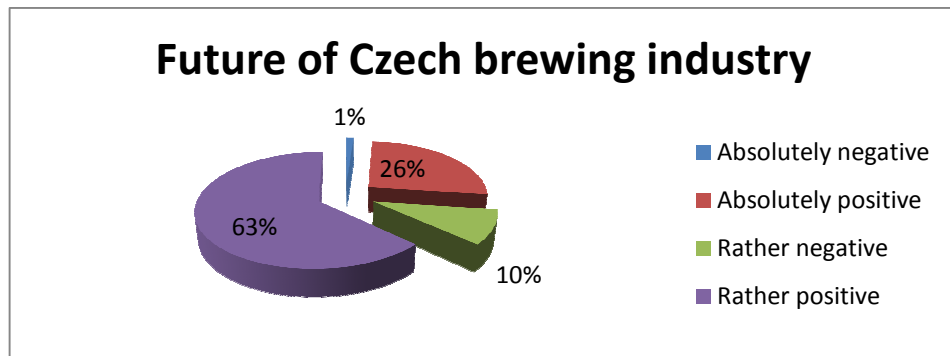
Graph 12 Comparison of male and female average week consumption

Average week consumption comparison clearly shows that male respondents' consumption is much higher than female respondents'. Female respondents could be considered as occasional drinkers.



**Graph 13 Respondents' attitude to high national beer consumption [Author]**

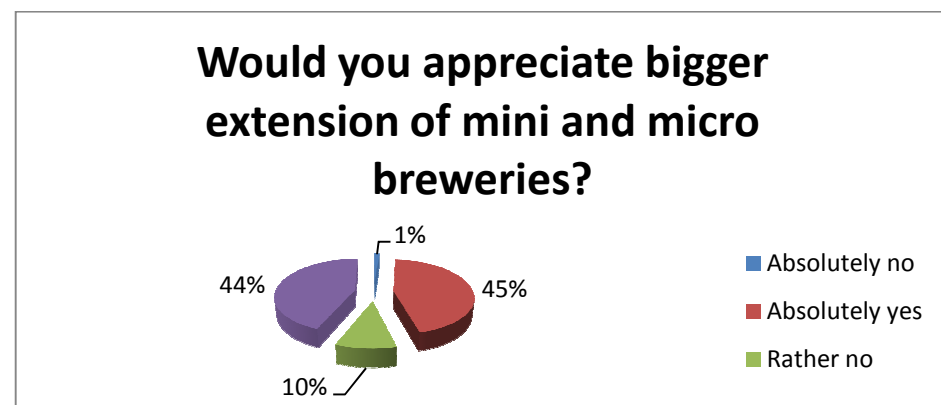
In this case the graph indicates the emotional relation of respondents to the world primacy in beer consumption (which is actually slightly decreasing) of the Czech nation. The major part of respondents does not feel involved in this question, but "proud" consumers many times outweigh "ashamed" respondents too.



Graph 14 Future of Czech brewing industry from the view of respondents [Author]



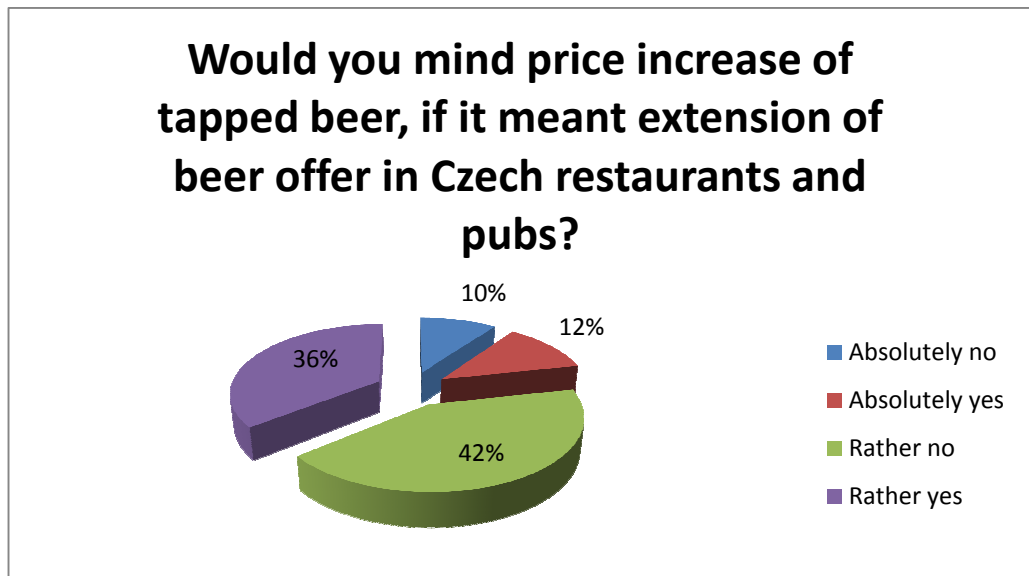
Graph 15 Future of Czech smaller breweries from the view of respondents [Author]



Graph 16 Opinion of possible positive development of mini and micro breweries [Author]

This set of graphs shows essentially positive expectations related to Czech brewing industry.

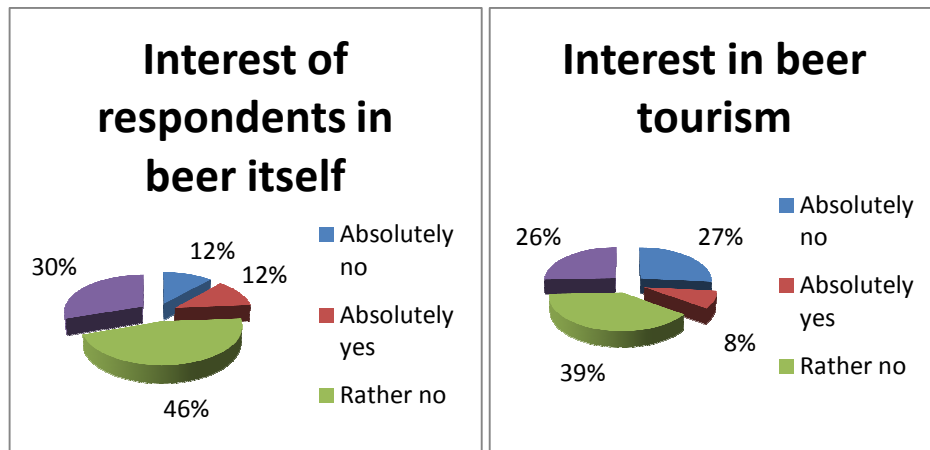
Important information related to the last graph (Graph 16) testifies in favour of really good attitude of Czech consumers to a smaller brewery industry and for the significant demand in this part of Czech beer market.



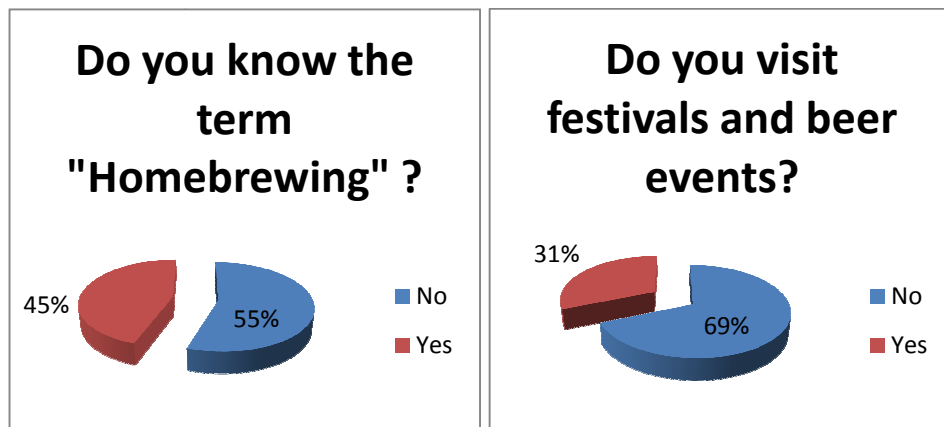
**Graph 17 Opinion of potential beer price increase**

According to the previous graph, where the major part of respondents expressed really positive attitudes to the potential future development of mini and micro breweries, in case of potential increase of beer price respondents are not such enthusiastic. Ratio of summarised answers of “Yes” and “No” is almost equal.





Graph 18 Interest in a beer itself [Author] Graph 19 Interest in beer tourism [Author]



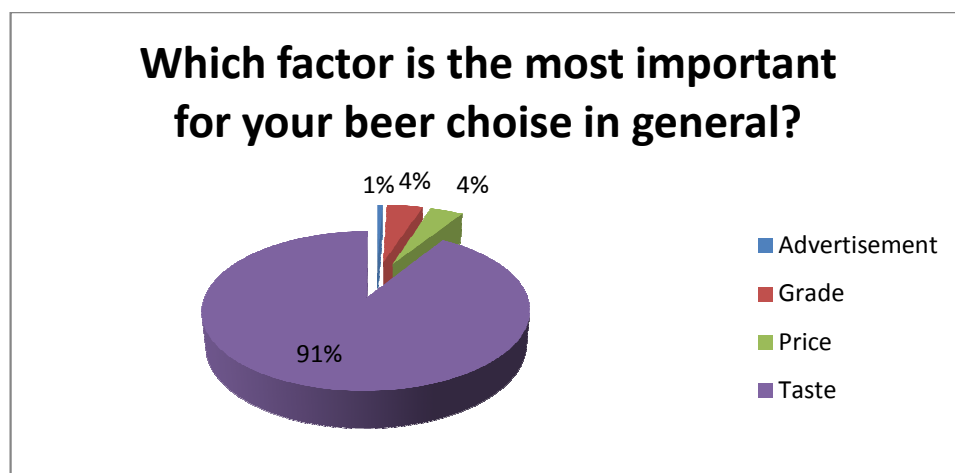
Graph 20 Term knowledge [Author] Graph 21 Visiting of beer events [Author]

This informational set of graphs indicates overall aspects of respondents related to beer itself .



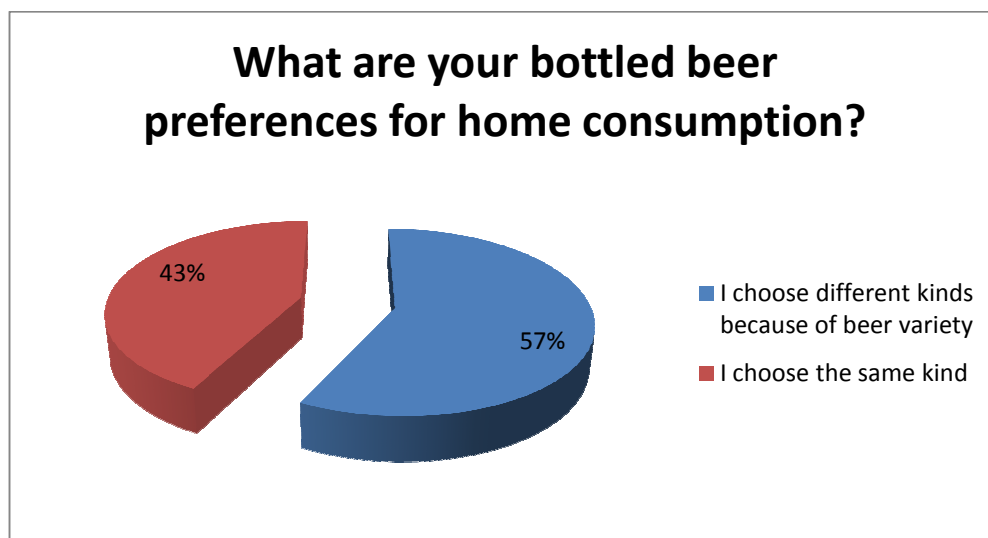
Graph 22 Decision between big well-known and small regional breweries [Author]

According to the results from Graph 16, choice of respondents in the situation where big Czech-known brewery brands and small local brewery brands occur, there are obvious sympathies related to regional small beer breweries, which is an important fact for the potential development of these breweries on the Czech beer market.



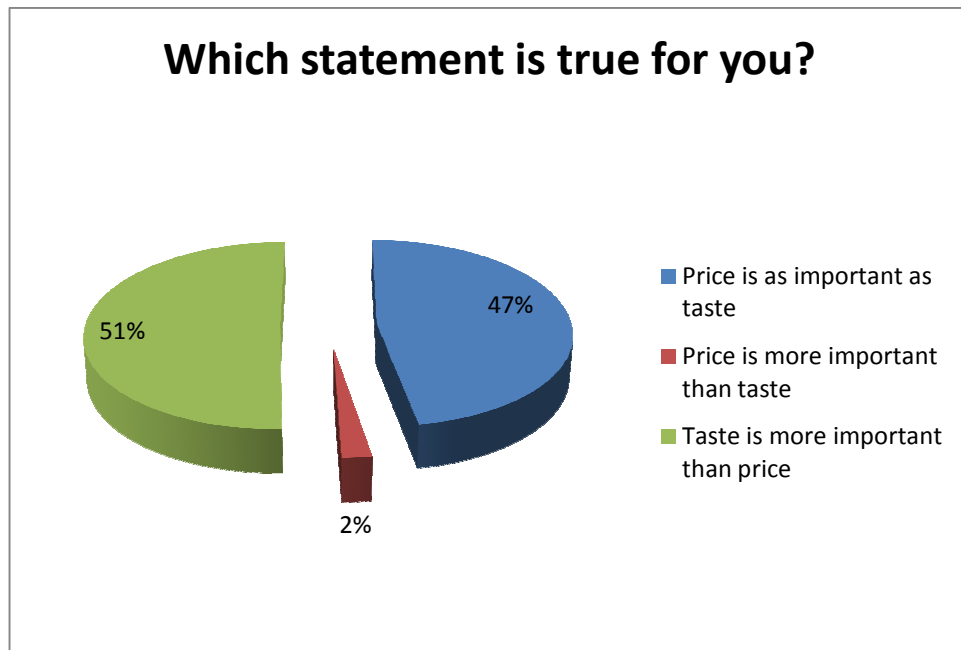
Graph 23 Importance of factors for beer consumers [Author]

There is a clearly visible domination of taste factor, which cannot be compared to any other potential factor. Interesting is an extremely low value of advertisement factor, but as was already said, it is almost impossible to gain truthful statements about the real influence of advertisement on consumers in this form of general survey.



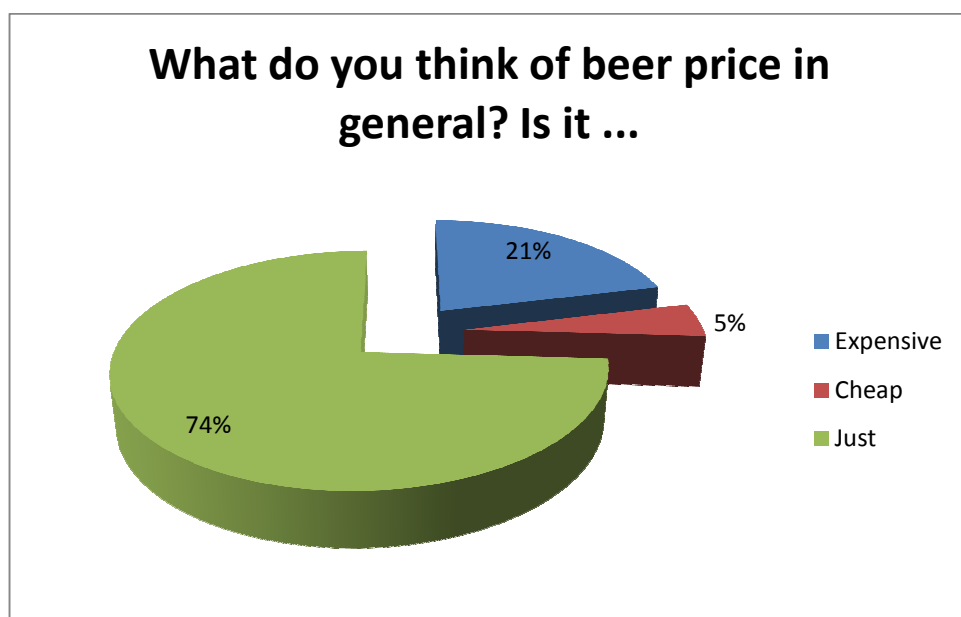
**Graph 24** Choice of respondents in the situation of buying bottled beer [Author]

This question was conditioned by the situation when a consumer bought at least 10 or more bottles of beer for home consumption. The major part of respondents which chose beer variety options show that Czech drinkers do not drink beer at home only because they want some alcoholic drink but they want to enjoy potential differences of provided beer supply.

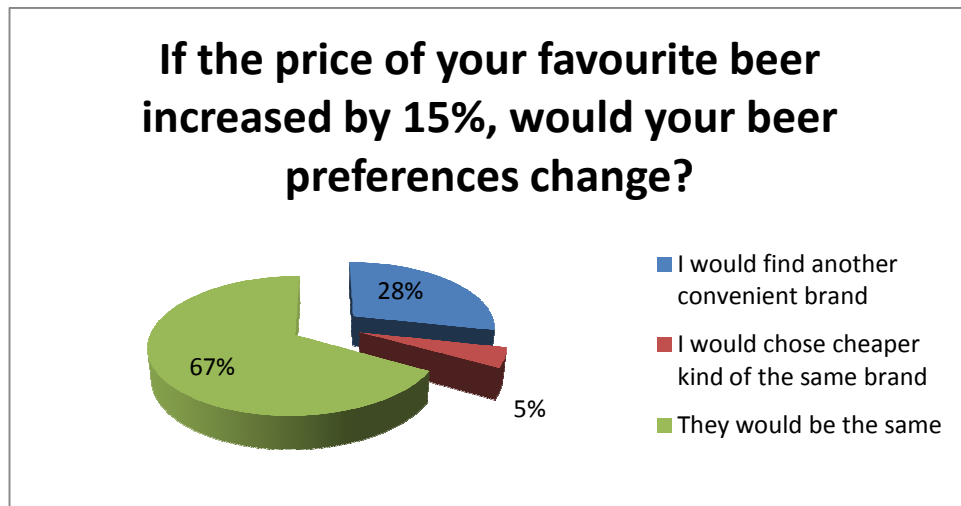


Graph 25 Price and taste ratio decision [Author]

According to graph 23 where 91% respondents expressed that most important for them was the taste, in this situation where there were three statements describing imaginary relation between the taste and price, the leading position of exact popularity of price itself was not so dominating. An answer with the lowest frequency occurred mostly in the category of respondents with lower income.

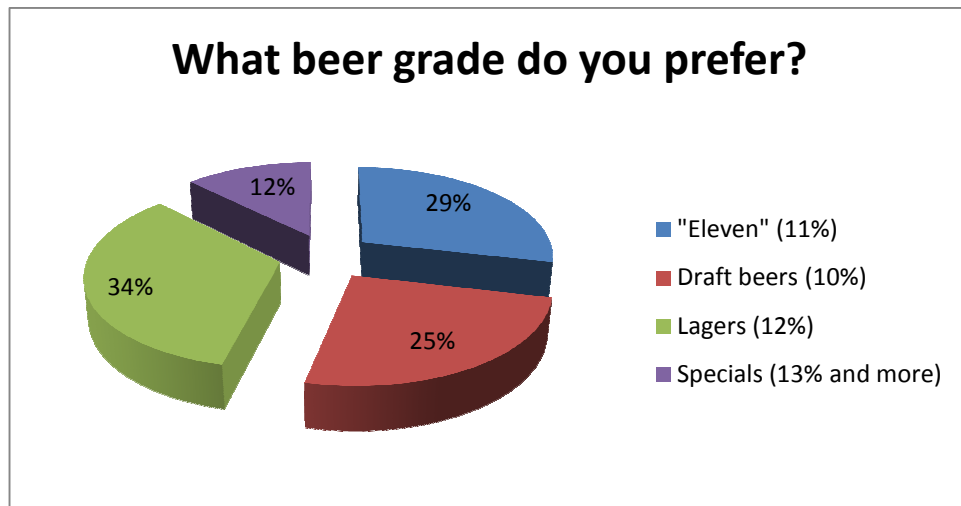


Graph 26 Opinion on beer price [Author]



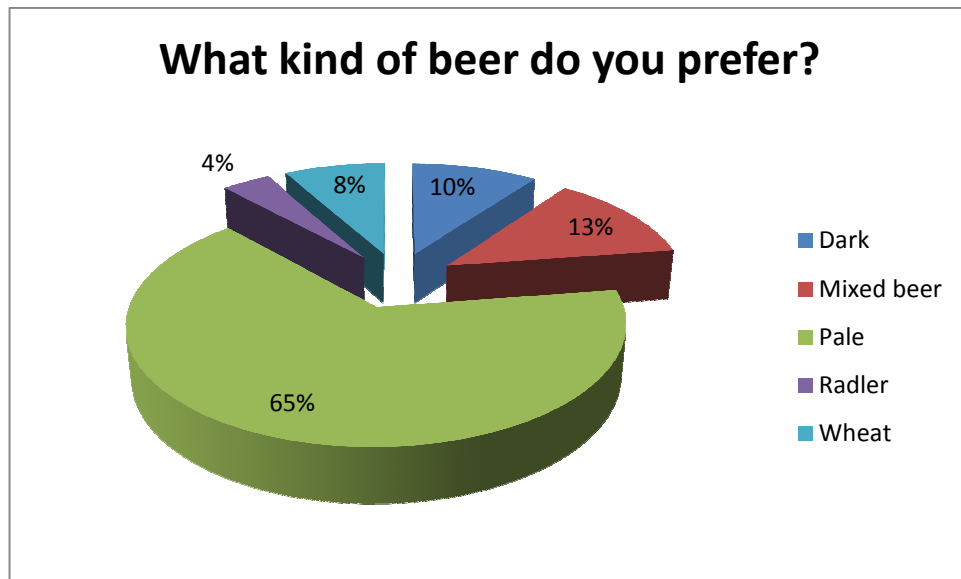
**Graph 27 Opinion on potential beer price development [Author]**

Interesting combination of these two graphs shows that even when the beer price is just according to the majority of respondents, there is still the possibility that if the price increased, it would not have a critical influence to consumers and their preferences.



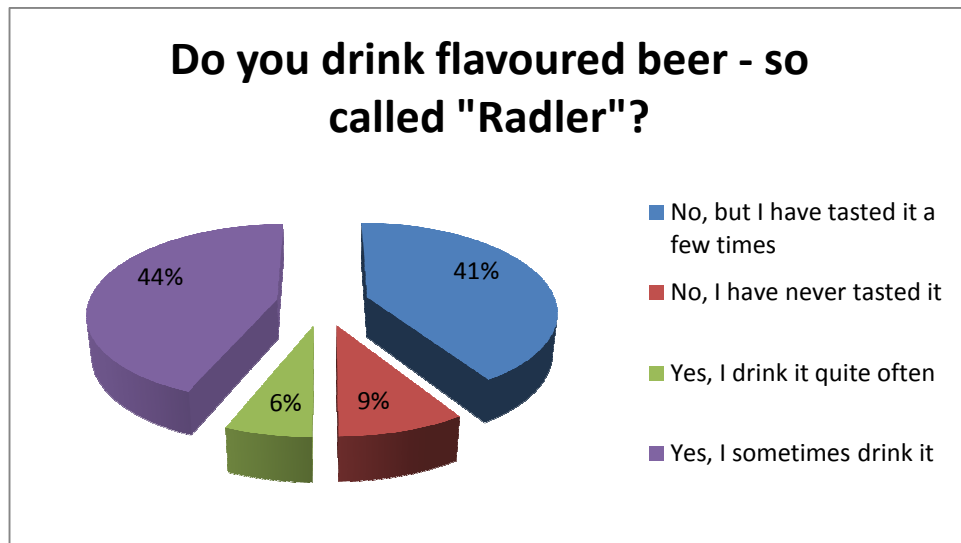
**Graph 28 Preference of beer grade [Author]**

There could be seen an equal preference distribution of draft beers, lagers and so-called “elevens”, which are relatively new on the Czech beer market (the first beer marked as “Eleven” came to the Czech beer market in 2007 as “Zlatopramen Eleven”) and now have a stable part of Czech consumers.



**Graph 29 Preference of beer type [Author]**

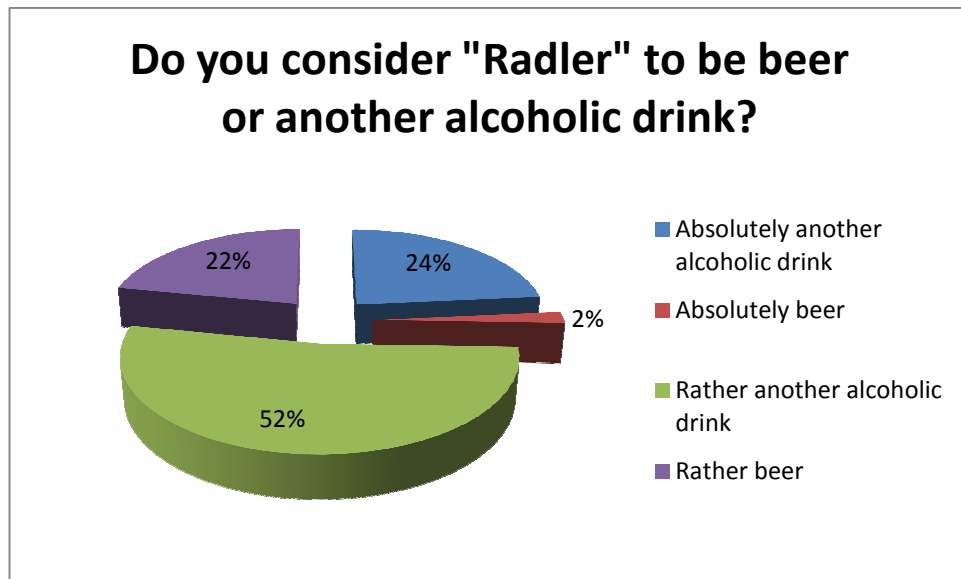
An obvious domination of pale type beer is mostly a Czech phenomenon, which is connected with the popularity of lagers, draft beers and elevens. These grades are in fact mostly in form of pale beers and that is the reason why this category has such a major part in the graph.



**Graph 30 Situation of Radler beer among Czech consumers [Author]**

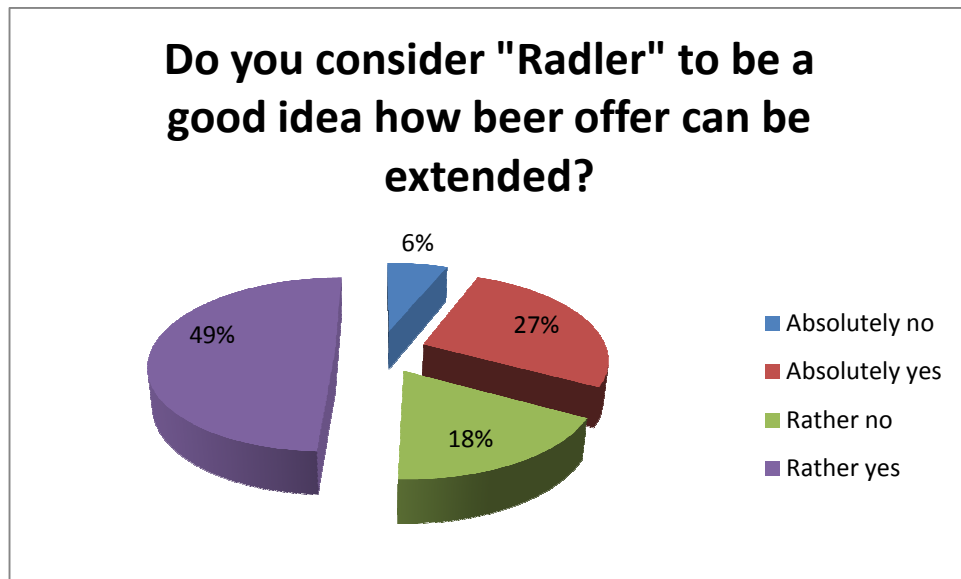
An important fact, which results from this graph, is that almost every respondent at least tried new flavoured beers called Radler. Answer “No, I have never tasted it” was chosen predominantly by older part of consumers.





**Graph 31**Opinion on Radler as a drink type [Author]

The major part of Czech beer consumers does not consider Radler to be beer, but to be some another alcoholic drink. This could be caused by a few aspects. At first alcohol content of Radler is a very low in comparison to beer (maximum content of Radler is about 2% of alc. and “the weakest” draft beers have around 3.7%) and other possibility is that Czech consumers are proud patriots who strictly prefer the classical form of beer (the classical flavour based on brewing) and refuse to call “beer” some other flavoured mutations.



**Graph 32 Opinion on Radler as an extension of beer market [Author]**

The expression of this graph shows that the Czech consumers generally consider Radler to be a good idea how to extend the beer offer, which is an important fact that shows important characteristics about current beer drinkers. If Czech consumers are able to consider Radler in this way, it shows that they should not be considered as closed minded old-time drinkers, who are afraid of experimenting with new potential products.

## 7.2 Categorical data analysis of survey results

For analysis of categorical data collected by questionnaire survey SAS 9.2 software was used. Data, which were in form of spreadsheets (default output from Google forms), were downloaded as MS Excel file (\*.xls) and imported right into SAS.

Example which follows is the main part of the code used for analysis and construction contingency table for testing the first hypothesis group (Table 4).

```
PROC FREQ DATA = WORK.SORTTempTableSorted
/* proc freq produces a one-way frequency table for each
variable */
    ORDER=INTERNAL;
/* specifies the order for reporting variable values */
    TABLES what_beer_grade_do_you_prefer_ *
do_you_consider_your_lifestyle_ /
/* Assignment of variables (names are taken from questionnaire
survey) */
    NOROW
    NOPERCENT
    EXPECTED
    NOCUM
    CHISQ
    SCORES=TABLE
    ALPHA=0.05;
/* Assignment of required adjustments and test (Chi-square test)
with 0.05 confidence level */
RUN;
/* starting command code */
```

### Analysing beer grade choice dependency on gender, lifestyle, education, income and advertising influence

Choice of beer grade					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Sex	3	25.9778	<.0001	Yes	0.2169
Lifestyle	3	9.3427	0.0251	Yes	0.1301
Education	3	7.4583	0.0586	No	
Income	18	33.6648	0.0139	Yes	0.1426
Advertising inf.	6	7.1828	0.3043	No	

Table 4 Choice of beer grade results [Author]

Significant dependencies among question answers and respondents' gender, lifestyle and income were found statistical by the Chi-square test.

As was already said, in the part related to overall sample characteristics, the category education must be merged from three choices into two of them, because of very low number of respondents with primary education.

Based on Cramer's V, the powers of dependencies are very low at all proven dependencies. Zero hypotheses could not be rejected in case of education level and a potential advertisement influence.

Female respondents mostly chose lighter grades as draft beer (63%) and "eleven" as well as the older part of respondents. Lagers and specials were slightly preferred (61%) by respondents with higher income (32 001, - and more).

From the lifestyle aspect the active part of respondents chose mostly beers with lower grade (55%), which was obvious especially in comparison of specials stronger beers consumption, where the major part of consumption was based on sedentary respondents.

**Analysing beer type choice dependency on all possible determined factors**

Choice of beer type					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Sex	4	81.6811	<.0001	Yes	0.3847
Lifestyle	4	4.6682	0.3231	No	
Education	4	5.4542	0.2438	No	
Income	12	29.4346	0.0034	Yes	0.1333
Advertising inf.	8	44.3864	<.0001	Yes	0.2005
Age	8	23.0032	0.0034	Yes	0.1443
Recommendation inf.	4	10.5754	0.0318	Yes	0.1384

Table 5 Choice of beer type results [Author]

Usage of Chi-square test again proved statistically significant dependency of beer type choice on gender, income, advertising influence, age and potential recommendation influence. For fulfilling of Chi-square test assumptions the last two highest income levels must be aggregated into one because the frequencies were too low.

Cramer's V shows very low power of dependencies except of the gender situation where power could be considered as medium strong. That actually testifies about really different distribution among responses of male and female consumers. Dark and Radler beers are significantly preferred by female respondents (38%); on the other hand major part of male choice distribution consists of pale beer (76%, female only 48%).

Income of respondents influenced their choice really slight but there is visible difference between consumers with lower income, which drinks mostly pale beer, but with increasing of income there is also increasing of variety choice (20% wheat beer of 32 001,- and more).

There is also an interesting relation between an advertising influence and amount of Radler consumers, because the major part of these respondents admitted that they were "rather" influenced by advertisement. Radler and wheat beers are also preferred by younger half (18 - 45) of respondents (13% wheat and Radler beer). Radler and mixed beers were also more frequent in answers of respondents who stated that they followed friends' recommendations (13% wheat and Radler beer).

**Analysing opinions related to beer price development dependency on income, lifestyle, education, age and gender**

Opinion of beer price development					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Income	8	26.3660	0.0009	Yes	0.1545
Lifestyle	2	3.3655	0.1859	No	
Education	2	6.9446	0.0310	Yes	0.1122
Age	6	19.2549	0.0038	Yes	0.1321
Sex	2	6.6429	0.0361	Yes	0.1097

**Table 6 Opinion on beer price development results [Author]**

In case of testing dependency of beer price development opinion, statistically significant dependency on income, education age and gender was proved, but Cramer's V was also in all cases very low.

Also in case of income dependency it was crucial to aggregate three highest income groups into one (32 001, - and more). In these groups where respondents stated higher incomes, there were reactions to potential increase of price mostly the same (73%) as before in case of price increase in the opposite lowest income groups (53% same reaction) where most of concurrencies were related to switching of preferred brand for another cheaper ones.

University educated respondents mostly remained true to their favourite brand even after price increase (72%). Opposite situation in respondents' behaviour could be found in the group of respondents of older age, which could be related to lower incomes of pensioners.

Interesting influence of gender on opinion of beer price development is that in the spectre of female respondents there was a bigger part related to searching of different beer, but from the same producers (7.5%).

### Analysing mini and micro breweries likeness dependency on gender, lifestyle, education and age

Mini and Micro breweries likeness					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Sex	2	25.7009	<.0001	Yes	0.2158
Lifestyle	2	3.8137	0.1486	No	
Education	2	6.3592	0.0416	Yes	0.1073
Age	6	10.2922	0.1129	No	

Table 7 Mini and Micro breweries likeness results [Author]

Likeness of mini and micro breweries is dependent on education and gender of respondents, but there is again a low power of dependency, especially in case of education influence, where surprisingly positive expression could be found on the side of secondary educated respondents slightly more than on the side of university educated ones. Because of a very low frequency of answer “Absolutely no”, this category must be aggregated with “Rather no”.

In case of gender differences, interesting phenomena is that female respondents are less strictly against (16%) the 1 mini and micro breweries potential development and growth, than male respondents (9%).

### Analysing beer brand (origin) choice dependency on income, lifestyle, education, age, advertising influence and recommendation influence

Choice of beer brand (origin)					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Income	15	42.8768	0.0002	Yes	0.1609
Lifestyle	3	3.4445	0.3280	No	
Education	3	23.9735	<.0001	Yes	0.2084
Age	9	25.8460	0.0022	Yes	0.1249
Advertising inf.	6	32.3747	<.0001	Yes	0.1712
Recommendation inf.	3	35.2150	<.0001	Yes	0.2526

Table 8 Choice of beer brand (origin) results [Author]

Testing beer brand (origin) choice dependency showed statistically significant dependency in every tested relation except of the lifestyle case. Persisting phenomenon is still low power of dependency, only in case of recommendation influence there is the highest power dependency, which is actually still considered as a low.

The only needed aggregation of categories was performed on the highest income level which was aggregated with the previous category.

Respondents with high income levels significantly preferred small local breweries contrary to the big Czech known ones. In categories with a low income level there is major the part of respondents, who chose proven brands.

A similar situation happened in case of education categories. University educated respondents had similar preferences as categories with higher incomes. This phenomenon could also be confronted with age categories, where older ones (60 and more 46% for big Czech known breweries) had similar preferences to respondents with lower incomes and only secondary education level.

Advertising influence also showed affecting in favour of big Czech known breweries, because respondents who admitted influence of advertising on themselves mostly chose these proven brand preferences.

The expression of recommendation influence is also interesting, because respondents who stated that they did not follow friend's recommendations chose the big known Czech breweries (49%) in most cases than the other category (24%).



### Analysing high national consumption opinion dependency on income, lifestyle, education, age and gender

Opinion of high national consumption					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Income	8	10.8395	0.2110	No	
Lifestyle	2	6.7180	0.0348	Yes	0.1103
Education	2	0.6396	0.7263	No	
Age	6	10.9690	0.0893	No	
Sex	3	20.6877	<.0001	Yes	0.1936

Table 9 Opinion on high national consumption results [Author]

Statistically significant dependency of high national consumption opinion on lifestyle and gender was proven with dependency power of low values too. Again there was needed aggregation of the highest level group into 32 001, - and more especially, because of a low frequency of “shame” answers.

Active lifestyle respondents were ashamed in more cases (6%) than the sedentary ones (2%). There was an interesting difference between genders, because much bigger part of male respondents was proud of the high national consumption (42%) than the female respondents (26%).

### Analysing new Radler trend opinion dependency on lifestyle, education, age and gender

Opinion of new trend of flavoured "Radler" beer on Czech market					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Lifestyle	3	2.3186	0.5090	No	
Education	3	0.6818	0.8775	No	
Age	9	10.2743	0.3287	No	
Sex	3	9.9549	0.0190	Yes	0.1343

Table 10 Opinion on new trend Radler beer on Czech market results [Author]

In this case, there was found only one statistically significant dependency in case of genders and no aggregation of categories was needed. Although the power of dependency was again low.

Answer “Absolutely yes” was chosen by 25% of male and 29% female. Summarisation of negative reactions (“Absolutely no” and “Rather no”) showed analogical difference between gender; 28% male and 16% female.

### Analysing average week consumption dependency on income, lifestyle, education, age, advertising influence and gender

Amount of average week consumption					
	DF	Test criterion $\chi^2$	P-value	Dependency	Cramer's V
Income	15	42.0695	0.0002	Yes	0.1594
Lifestyle	3	20.2533	0.0002	Yes	0.1915
Education	3	12.9768	0.0047	Yes	0.1533
Age	9	19.3277	0.0225	Yes	0.1080
Advertising inf.	6	14.7450	0.0223	Yes	0.1156
Sex	3	131.9493	<.0001	Yes	0.4889

Table 11 Amount of average week consumption results [Author]

In case of testing the amount of average week consumption dependency on income, lifestyle, education, age, advertising influence and gender, statistically significant dependency was found in every single case. Although the higher number of possible optional answers did not need any category aggregations.

Powers of dependencies were mostly in lower values but in case of gender dependency there was detected a medium strong dependency.

From the aspect of income, the highest average week consumption (14 beers and more) belonged to the income group “24 001,- up to 32 000,-” (25%). The group with the second lowest income (8 001,- up to 12 000,-) had analogically major participation on lower consumption categories; 34% of “0 up to 2” beers and 34% of “3 up to 7” beers.

Active respondents had lower frequency in the highest consumption category 14 and more beers (7%) than sedentary respondents (20%).

Similar situation between two educational categories where 8.4% university educated respondents drank 14 and more beers weekly but 18% secondary educated respondents usually drank the same amount of beer weekly.

The same highest amount of week consumption was the most frequent in age category from 30 to 45 years (20%).

Respondents who admitted possible advertising influence on themselves drank less (5%) than respondents who did not allow this influence (20%). We are talking again about the highest consumption category of more than 14 beers weekly.

The distribution of frequencies of answers was remarkably different. For example, male consumption categories were similarly represented, with a slight predominance of “3 up to 7” category (41%). On the other hand female respondents had one dominating category of the lowest consumption (66%) and only a really small participation of “7 up to 14” (3.8%) and “14 and more”(1.9%) groups.

### ***7.3 Comparison of results with CVVM reports***

The final part of statistical analysis elements of this diploma thesis is to compare some of the results from the questionnaire survey with CVVM reports.

The objects of comparison are four different values related to drinking of beer and non-alcoholic beer from the aspect of male and female consumers, so the four zero hypothesis.

**H<sub>0</sub>: We assume that 88% of men drink beer.**

Due to the equation of test criterion (2.6) for one sample test of proportion we need these variables:

$$f_i = 0.95$$

$$p_0 = 0.88$$

After substitution of these values to the equation of test criterion we calculate  $z$  value.

$$z (4.07) > z_{\alpha} (1.96) \Rightarrow \mathbf{H_0}$$

Zero hypothesis was rejected.

**H<sub>1</sub> : Statistical testing proved that 88% of men don't drink beer.**

**H0: We assume that 62% of women drink beer.**

Due to the equation of test criterion (2.6) for one sample test of proportion we need these variables:

$$f_i = 0.86$$

$$p_0 = 0.62$$

After substitution of these values to the equation of test criterion we calculate  $z$  value.

$$z (7.9) > z_\alpha (1.96) \Rightarrow \mathbf{H_0}$$

Zero hypothesis was rejected.

**H1 : Statistical testing proved that 62% of women don't drink beer.**

**H0: We assume that 55% of men drink non-alcoholic beer in situation when alcoholic beer is prohibited.**

Due to the equation of test criterion (2.6) for one sample test of proportion we need these variables:

$$f_i = 0.46$$

$$p_0 = 0.55$$

After substitution of these values to the equation of test criterion we calculate  $z$  value.

$$z (3.5) > z_\alpha (1.96) \Rightarrow \mathbf{H_0}$$

Zero hypothesis was rejected.

**H1 : Statistical testing proved that 55% of men don't drink non-alcoholic beer in situation, when alcoholic beer is prohibited.**

**H0: We assume that 27% of women drink non alcoholic beer in situation when alcoholic beer is prohibited.**

Due to the equation of test criterion (2.6) for one sample test of proportion we need these variables:

$$f_i = 0.32$$

$$p_0 = 0.27$$

After substitution of these values to the equation of test criterion we calculate  $z$  value.

$$z (1.67) > z_\alpha (1.96) \Rightarrow \mathbf{H_0}$$

Zero hypothesis was accepted.

Confidence interval  $p \in (25.8\%; 38.4\%)$ .

Difference among counted results from questionnaire survey and results from published reports of CVVM studies are probably caused by different size and composition of analysed population sample.

## **7.4 Conclusion**

After performing all planned statistical analysis, the results describing situation among beer consumers based on published questionnaire survey were obtained. The first analytical part of results in form of pie charts showed distributions of individual answers in every question.

Tools provided by Google drive cloud application were extremely useful for long term working and preparation of questionnaire survey and elaboration of diploma thesis itself. The only weakness of Google drive applications was that it worked with spreadsheets, because the manipulation capabilities were still limited, especially when we were working with bigger sets of cells, which could really extend working time needed for completing some desired operations.

The first important fact was that 92% of all respondents at least occasionally drank beer, specifically 95% of male and 86% of female respondents. Surprisingly the highest proportion of respondents who did not drink beer was from the age category 60 years and more (27%). It was not a surprise that those who stated that they drank beer also liked it absolutely (67%) or rather liked it (27%). The rest of beer consumers who did not like beer they potentially drank it because of some social affiliation reasons.

In case of non-alcoholic beer which did not have such a big consumer base especially in female spectre of consumers, this spectre was a part of testing and the only one proved zero hypothesis in section of testing similarity between results obtained by author's questionnaire survey and the results published by statisticians from CVVM.

After the dependency analysing of average week consumption amount, it was found that statistically significant dependency was among all tested factors, but the powers of dependencies were low except of one factor – the gender, where the Cramer's V indicated value 0.49. Frequencies of male consumer categories were similarly distributed among all groups with slight prevalence of category "3 up to 7" beer (0.5liters) per week (41%). Female respondents strictly preferred moderate week drinking (0 up to 2) in a proportion of 66% and the highest category of consumption was represented by very low values. On the other hand this consumption category was the most represented (25%) by income category "24 001,- up to 32 000,-". This consumption category was also more represented by sedentary respondents with

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secondary education and age from 30 up to 45, which did not admit any influence of advertisement on them.

Other interesting dependency was found among opinions on high national consumption and lifestyle and gender, although both dependency powers were considered as low, gender dependency was higher than lifestyle. It was characterised by the fact that male respondents were more proud of the high Czech national consumption in more cases (42%) than female respondents (26%).

In case of potential production grow and extension of mini and micro breweries almost every respondent expressed enthusiasm and positive attitudes, but when this extension was conditioned by possible increase of provided products price, the distribution of firstly enthusiastic respondents was changed into two main groups with opposite opinions. This kind of attitude is characteristic for the Czech consumption nature.

Nevertheless testing of beer brand (origin) dependency in the situation, when there were available brands from big Czech-known and small local breweries, on chosen proved statistically significant dependency on income, education, age, advertising influence and recommendation influence. Generally sympathies for small local breweries dominated (69%). Respondents with only secondary education had similar preferences as respondents with higher incomes, which could be confronted with the oldest age group, where preferences of big Czech known breweries were around 46%. Respondents who admitted advertising influence also preferred these proven brands. The last interesting dependency with the strongest Cramer's V in this case was that respondents who did not follow friends' recommendations also preferred big Czech known brands (49%) in contrast to those who followed the recommendations (26%).

Questions related to the general interest of respondents in beer itself and events or things related to beer or beer culture did not shown any important results. Due to well known statements and "legends" about Czech consumers being beer experts or beer gourmands, it was interesting that only a minor part of respondents showed some particular interest in already mentioned beer elements.

91 % of respondents answered definitely "Taste" to the question "Which factor is most important for your beer choice in general?". Grade and price had both 4% and the lowest value was assigned to the advertisement (1%). However, there was a similar



situation as in case of mini and micro breweries potential growth. In this case respondents were confronted with the question consisting statements “Taste is more important than price/ Price is as important as taste/ Price is more important than taste” and the true preferences came out. The first statement obtained 51%, the second 47% and the third 2%, which showed that the dominance of taste preference was not so definite in every aspect of decision making.

These suggestions, were also confirmed by results from the graph 26, where 74% of respondents stated that current price of beer is “just” and only 5% expressed the opinion that price is cheap.

The graph 24 also showed that respondents preferred to buy different kinds of beer in the situation when they were buying this drink for home consumption in form of bottles. This indicated that the current consumer also tried to experiment or did not only want to drink “some” alcoholic beverage.

During testing of dependencies related to the question “If the price of your favourite beer increased by 15%, would your beer preferences change?”, there was found statistically significant dependency on income, education, age and gender, although the dependency powers were again considered as low. Generally we could state that university educated respondents in most of occasions stayed true to the same product (72%) even after the price increase and the opposite situation was related to the oldest part of respondents, who were mostly connected with lower incomes. Unsurprisingly the highest income category showed the most frequent occurrence of “They would be the same” answer (73%).

Another tested dependencies among beer grade choice (Graph 28) and observed factors resulted in detected dependencies on gender, lifestyle and income. The distribution of possible options was similar to the lowest representation of the strongest category of specials (13% and more). The prevailing problem of low dependency power also occurred in this case. The strongest (but still low) power was detected in relation to income, where respondents with the highest income preferred lagers and special in 61% of occasions. Female respondents preferred lighter beers (draft beers and “elevens”) in 63% of cases. Unsurprisingly the active lifestyle respondents preferred also lighter beers in most of occasions (55%).

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Similar set of dependency testing related to beer type choices, in which pale beers were definitely dominating, resulted in the statistically significant dependency on income, advertising influence, age, recommendation influence and gender. In general the dependency powers were low, but in case of gender medium power of dependency (0.38) was found. Specifically female respondents preferred dark and Radler beers (38%) and pale beer was definitely favourite (76%) with male respondents. Other interesting fact associated with the second most powerful dependency was related to advertising influence, because a significant part of Radler consumers stated that they were “rather” influenced by advertisements.

The final part of survey was dedicated to the new trend of flavoured beers, which began to be significant about two years ago. Generally the proportions of respondents who drank and did not drink Radler beer are almost equal, but only 9% have never tasted the flavoured beers. Also a major part of respondents did not consider Radler to be beer, but some different alcoholic drink (76%).

The last tested dependency was related to the opinion whether Radler was a good idea how to extend the provided beer market. The only one proved dependency was in relation with the gender of respondents, where the answer “Absolutely yes” was chosen by 25% of males and 29% of females. Analogically the negative attitude to this question was expressed by 28% of male and only 16% of female respondents.

Due to published reports of CVVM, in a case of analysing current situation on beer market, this diploma thesis added new potential factors (lifestyle, advertising influence and recommendation influence) which were found in some cases as dependent, but power of dependency in all cases did not cross the level of at least medium dependency power. Bigger and more representative sample of respondents would be needed for better and more accurate results of these factor influences. Also much more specifically created questions related to these factors, especially psychological analysis and theoretical preparation would be suitable for these purposes.

## 8. References

- [1] *Výběr piva českými konzumenty v roce 2012* [online]. 2012 [Accessed 2012]. Available: <http://cvvm.soc.cas.cz/ostatni-ruzne/vyber-piva-ceskymi-konzumenty-v-roce-2012>.
- [2] *Obliba a konzumace piva v České republice 2011* [online]. 2011 [Accessed 2012]. Available: <http://cvvm.soc.cas.cz/ostatni-ruzne/obliba-a-konzumace-piva-v-ceske-republice-v-roce-2011>.
- [3] Google Drive. In: *Wikipedia: the free encyclopedia* [online]. San Francisco (CA): Wikimedia Foundation, 2001-2013 [Accessed 2012]. Available: [http://en.wikipedia.org/wiki/Google\\_Drive](http://en.wikipedia.org/wiki/Google_Drive).
- [4] *Pivo v české společnosti 2012* [online]. 2012 [Accessed 2012]. Available: <http://cvvm.soc.cas.cz/ostatni-ruzne/pivo-v-ceske-spolecnosti-v-roce-2012>.
- [5] Cloud computing. In: *Wikipedia: the free encyclopedia* [online]. San Francisco (CA): Wikimedia Foundation, 2001-2013 [Accessed 2012]. Available: [http://cs.wikipedia.org/wiki/Cloud\\_computing](http://cs.wikipedia.org/wiki/Cloud_computing).
- [6] SAS: SAS Česká Republika [online]. 2013 [Accessed 2013]. Available: <http://www.sas.com/offices/europe/czech/>.
- [7] *Centrum pro výzkum veřejného mínění* [online]. 2001 [Accessed 2013]. Available: <http://cvvm.soc.cas.cz/>.
- [8] *Radler na českém pivním trhu 2012* [online]. 2012 [Accessed 2013]. Available: <http://cvvm.soc.cas.cz/ostatni-ruzne/radler-na-ceskem-pivnim-trhu-v-roce-2012>.
- [9] SAS Institute. In: *Wikipedia: the free encyclopedia* [online]. San Francisco (CA): Wikimedia Foundation, 2001-2013 [Accessed 2013]. Available: [http://en.wikipedia.org/wiki/SAS\\_Institute](http://en.wikipedia.org/wiki/SAS_Institute).
- [10] AGRESTI, Alan. *Categorical data analysis*. 2nd ed. Hoboken: Wiley, 2002, xv, 710 s. Wiley series in probability and statistics. ISBN 04-713-6093-7.
- [11] BÁRTOVÁ, Hilda. *Marketingový výzkum trhu*. 1.vyd. Praha: Economia, 1991, 107 s. ISBN 80-853-7809-4.
- [12] GEOFF DER, Brian S. *Basic statistics using SAS Enterprise Guide a primer*. Cary, N.C: SAS Institute, 2007. ISBN 15-999-4715-3.
- [13] HEBÁK, Petr. *Vícerozměrné statistické metody*. Vyd. 1. Praha: Informatorium, 2005, 155. ISBN 80-733-3039-3.
-

- [14] HENDL, Jan. *Přehled statistických metod: analýza a metaanalýza dat*. 3., přeprac. vyd. Praha: Portál, 2009, 695 s. ISBN 978-80-7367-482-3.
- [15] HENDL, Jan. *Přehled statistických metod zpracování dat: analýza a metaanalýza dat*. 1. vyd. Praha: Portál, 2004, 583 s. ISBN 80-7117-8820-1.
- [16] JACKSON, Michael. *Pivo: průvodce světem piva pro laiky i odborníky : více než 500 klasických piv*. 1. vyd. Praha: Fortuna Print, 2001, 544 s. ISBN 80-861-4417-8.
- [17] JACKSON, Michael. *Encyklopedie piva*. Vyd. 1. Překlad Ladislav Šenkyřík. Praha: Volvox Globator, 1995c1994, 256 s. ISBN 80-857-6937-9.
- [18] KÁBA, Bohumil a Libuše SVATOŠOVÁ. *Statistické nástroje ekonomického výzkumu*. Plzeň: Vydavatelství a nakladatelství Aleš Čeněk, 2012, 176 s. ISBN 978-80-7380-359-9.
- [19] KHAN, M. *Consumer Behaviour*. New Age International, 2007, 240 s. ISBN 8122415318.
- [20] KOTLER, Philip a Gary ARMSTRONG. *Principles of marketing*. 14th ed. Boston: Pearson Prentice Hall, 2012, xxiv, 613, [97] p. ISBN 01-321-6712-3.
- [21] KOUDELKA, Jan. *Spotřební chování a segmentace trhu*. Vyd. 1. Praha: Vysoká škola ekonomie a managementu, 2006, 227 s. Edice učebních textů. Marketing. ISBN 80-867-3001-8.
- [22] KOZEL, Roman. *Moderní marketingový výzkum: nové trendy, kvantitativní a kvalitativní metody a techniky, průběh a organizace, aplikace v praxi, přínosy a možnosti*. 1. vyd. Praha: Grada, 2006, 277 s. ISBN 80-247-0966-X.
- [23] LLOYD, Chris J. *Statistical analysis of categorical data*. New York: Wiley, c1999, xii, 468 p. Wiley series in probability and statistics. ISBN 04-712-9008-4.
- [24] MARHOUNOVÁ, Jana a Karel NEŠPOR. *Alkoholici, fetišáci a gambléři*. 1. vyd. Praha: Empatie, 1995, 110 s. ISBN 80-901-6189-8.
- [25] MIŠOVIČ, Ján. *V hlavní roli otázka: (průvodce přípravou otázek v sociologických a marketingových výzkumech)*. Praha: Aldis, 2001, 67 s. ISBN 80-238-6500-5.
- [26] PERNER, PH.D., Lars. CONSUMER BEHAVIOR: THE PSYCHOLOGY OF MARKETING. *Consumer research methods* [online]. 2010 [Accessed 2013]. Available: <http://www.consumerpsychologist.com/>.
- [27] PŘIBOVÁ, Marie. *Marketingový výzkum v praxi*. 1. vyd. Praha: Grada, 1996, 238 s. ISBN 80-716-9299-9.
-

- [28] ŘEZANKOVÁ, Hana. *Shluková analýza dat*. 1. vyd. Praha: Professional Publishing, 2007, 196 s. ISBN 978-80-86946-26-9.
- [29] ŘEZANKOVÁ, Hana. *Analýza kategoriálních dat*. Vyd. 1. Praha: Oeconomica, 2005, 99 s. ISBN 80-245-0926-1.
- [30] SCHLOTZHAUER, Sandra D. *Elementary statistics using SAS*. Cary, N.C: SAS Institute, 2009. ISBN 16-076-4426-6.
- [31] SVATOŠOVÁ, Libuše a Bohumil KÁBA. *Statistické metody II*. Vyd. 1. V Praze: Česká zemědělská univerzita, 2008, 107 s. ISBN 978-802-1317-369.

## 9. Appendix

### Supplement n. 1

#### Statistical data analysis of beer consumption preferences – Diploma thesis

I would like to thank in advance all the respondents for careful and truthful filling of this questionnaire, which, as a part of the author's diploma thesis, is focused on statistical data analysis of beer consumption in the Czech Republic. This anonymous questionnaire is intended for people who are older than 18 and its filling should not take longer than 5 minutes.

#### **Do you drink beer?**

At least once in a while. In case you chose "no", please proceed to the questions related to your personality at the end of the questionnaire).

- Yes
- No

#### **Do you like beer ?**

- Absolutely no
- Rather no
- Rather yes
- Absolutely yes

#### **How much beer do you approximately drink a week?**

We are interested in beer you drink at home, in restaurants and pubs as well. "One beer" is meant half a litre.

- 0 up to 2
- 3 up to 7
- 7 up to 14
- more than 14

#### **Do you prefer non-alcoholic beer to other soft drinks in case you cannot have an alcoholic beer?**

For example in case of driving.

- Absolutely no
- Rather no
- Rather yes
- Absolutely yes

**What is your attitude to the high beer consumption in the Czech Republic?**

We talk about the Czech first place in beer consumption of a person per year.

- I do not mind
- Shame
- Pride

**What do you think the future of the Czech brewing will be like?**

Considering current situation.

- Absolutely negative
- Rather negative
- Rather positive
- Absolutely positive

**What do you think the future of the Czech mini and micro breweries will be like?**

Considering present development.

- Absolutely negative
- Rather negative
- Rather positive
- Absolutely positive

**Would you appreciate bigger extension of mini and micro breweries?**

- Absolutely no
- Rather no
- Rather yes
- Absolutely yes

**Would you mind price increase of tapped beer, if it meant extension of beer offer in Czech restaurants and pubs?**

Price increase includes installation costs and costs associated with long-term quality upkeep of offered beer.

- Absolutely not
- Rather not
- Rather yes
- Absolutely yes

**Are you interested in beer itself?**

For example, history, beer curiosities, ways of brewing and serving, et.

- Absolutely no
- Rather no
- Rather yes
- Absolutely yes

**Are you interested in beer tourism?**

The question also includes interest in trying new unknown beer and beer beverages.

- Absolutely no
- Rather no
- Rather yes
- Absolutely yes

**Do you visit festivals and beer events?**

- Yes
- No

**Do you know term "Homebrewing"?**

- Yes
- No

**What is essential for your choice of beer in case you can choose from different brands?**

- Absolutely small local brewery
- Rather small local brewery
- Rather big Czech known brewery
- Absolutely big Czech known brewery

**Which factor is the most important for your beer choice in general?**

- Taste
- Price
- Advertisement
- Grade



**Which factor is the most important for you when you are choosing beer in restaurant or pub in general?**

- Taste
- Price
- Advertisement
- Grade

**Which factor is the most important for you when you are choosing bottled beer for home consumption in general?**

- Taste
- Price
- Advertisement
- Grade

**What are your bottled beer preferences for home consumption?**

Suppose that you choose for example ten or more pieces.

- I choose the same kind
- I choose different kinds because of beer variety

**What do you think of beer price in general? Is it .....**

- cheap
- just
- expensive

**Which statement is true for you?**

- Price is more important than taste
- Price is as important as taste
- Taste is more important than taste

**If the price of your favourite beer increased by 15%, would your beer preferences change?**

For example half a litre of beer which costs 30 crowns would rise in price to 34.5 crowns.

- They would be the same
- I would chose cheaper kind of the same brand
- I would find another convenient brand

**What beer grade do you prefer?**

Percentage is not content of alcohol!

- Draft beers (10%)
- "Eleven" (11%)
- Lagers (12%)
- Specials (13% and more)

**What kind of beer do you prefer?**

- Pale
- Dark
- MIXed beer
- Wheat
- Flavoured (Radler)

**Do you drink flavoured beer - so called "Radler"?**

- Yes, I drink it quite often
- Yes, I sometimes drink it
- No, but I have tasted it a few times
- No, I have never tasted it

**Do you consider "Radler" to be beer or another alcoholic drink?**

- Absolutely another alcoholic drink
- Rather another alcoholic drink
- Rather beer
- Absolutely beer

**Do you consider "Radler" a good idea how beer offer can be extended?**

- Absolutely not
- Rather not
- Rather yes
- Absolutely yes

**Are you male or female?**

- Male
- Female

**Which age group do you belong to?**

- 18 - 29
- 30 - 45
- 46 - 59
- 60 and more

**Which income level do you belong to?**

(Gross income.)

- 0,- up to 8 000,-
- 8 001 ,- up to 12 000,-
- 12 001,- up to 18 000,-
- 18 001,- up to 24 000,-
- 24 001,- up to 32 000,-
- 32 001,- up to 40 000,-
- 40 001,- and more

**What is your highest level of education?**

Training courses are considered as secondary here.

- Primary
- Secondary
- University

**Do you consider your lifestyle .....**

Active lifestyle is conditioned by doing sport or exercise regularly.

- Sedentary
- Active

**Do you follow your friends' recommendation in your beer choices?**

Here we mean a recommendation of particular kind of beer or brand.

- Yes
- No

**Are you influenced by advertisement in your choice of beer?**

- Absolutely no
- Rather no
- Rather yes
- Absolutely yes

Thank you very much for your time which you spend filling this questionnaire. In case you are willing to forward this questionnaire to as many people of different demographical characteristics as possible, it will significantly influence my final evaluation and completing my diploma thesis.

Regards

Bc. Tomáš Vlk

**Source: Author**

## Supplement n. 2



OR121121a

**TISKOVÁ ZPRÁVA**

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## Pivo v české společnosti v roce 2012

### Technické parametry výzkumu

<i>Výzkum:</i>	<i>Naše společnost, v12-09</i>
<i>Realizátor:</i>	<i>Centrum pro výzkum veřejného mínění, Sociologický ústav AV ČR, v.v.i.</i>
<i>Projekt:</i>	<i>Naše společnost – projekt kontinuálního výzkumu veřejného mínění CVVM SOÚ AV ČR, v.v.i.</i>
<i>Dílčí projekt:</i>	<i>Pivo v české společnosti</i>
<i>Autor projektu:</i>	<i>Jiří Vinopal</i>
<i>Termín terénního šetření:</i>	<i>3. – 10. 9. 2012</i>
<i>Výběr respondentů:</i>	<i>Kvótní výběr</i>
<i>Kvóty:</i>	<i>Kraj (oblasti NUTS 3), velikost místa bydliště, pohlaví, věk, vzdělání</i>
<i>Zdroj dat pro kvótní výběr:</i>	<i>Český statistický úřad</i>
<i>Reprezentativita:</i>	<i>Obyvatelstvo ČR ve věku od 15 let</i>
<i>Počet dotázaných:</i>	<i>1036</i>
<i>Metoda sběru dat:</i>	<i>Osobní rozhovor tazatele s respondentem</i>
<i>Výzkumný nástroj:</i>	<i>Standardizovaný dotazník</i>
<i>Otázky:</i>	<i>OR.96a, OR.188, OR.89, OR.93</i>
<i>Počet respondentů od 18 let:</i>	<i>992</i>
<i>Zveřejněno dne:</i>	<i>21. listopad 2012</i>
<i>Zpracoval:</i>	<i>Jiří Vinopal</i>

V září 2012 CVVM SOÚ AV ČR, v.v.i., zopakovalo některé otázky s tematikou piva, které jsou součástí výzkumného projektu Pivo v české společnosti probíhajícího od roku 2004. Tato tisková zpráva přináší základní výsledky o vývoji konzumace piva, o postavení nealkoholického piva, postojích české veřejnosti k vysoké spotřebě piva v České republice a o očekáváních týkajících se budoucnosti českého piva a pivovarnictví. Analýzy jsou prováděny na souboru respondentů s dosaženým věkem minimálně 18 let.

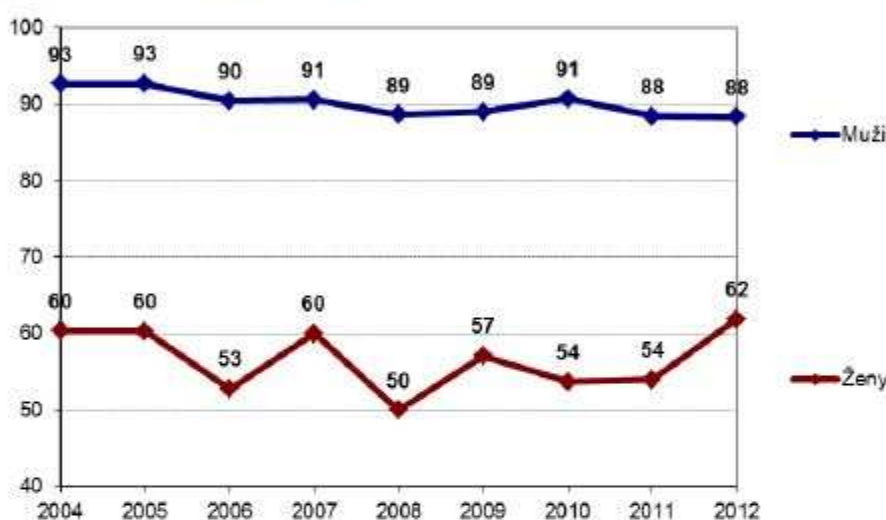


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## 1. Konzumace piva<sup>1</sup>

Podíl lidí, kteří pijí pivo, se v České republice dlouhodobě výrazně nemění. Podobně jako v předešlých letech je to hodnota blízká 90 % u mužů, mezi ženami se v roce 2012 k alespoň občasnému pití piva přihlásily zhruba tři pětiny (62 %). To je o něco více než v předchozích čtyřech letech, nicméně z dlouhodobého hlediska tato hodnota ještě nijak výrazně nevybočuje (v letech 2004, 2005 a 2007 byl tento podíl srovnatelný - 60 %).

Graf 1. Podíly konzumentů piva mezi muži a ženami v letech 2004 – 2012



Zdroj: CVVM SOÚ AV ČR, v.v.i., *Naše společnost* 09/2004, 09/2005, 09/2006, 09/2007, 09/2008, 10/2009, 09/2010, 09/2011, 09/2012.

Je zřejmé, že přinejmenším od roku 2004, kdy proběhl první výzkum na toto téma, v populaci mírně ubývá mužských konzumentů piva. Z detailnějších analýz přitom vyplývá, že tento velmi pozvolný pokles se týká všech věkových skupin mužů s výjimkou těch nejstarších (tj. nad 60 let), zatímco u žen lze v posledních letech pozorovat mírný růst počtu konzumentek v mladších ročnících (18-29 let a také 30-45 let). V případě snižování počtu mužů konzumujících pivo, nejspíše hrají roli také ekonomické důvody, neboť k viditelnému a stabilnímu poklesu dochází zejména u mužů patřících do skupiny s nejnižšími příjmy.

<sup>1</sup> Znění otázky: OR.96a „Pijete někdy pivo? Pokud ano, jak je to za běžných okolností často? (Obvykle každý nebo téměř každý den, asi tak pětkrát až šestkrát za týden, asi tak třikrát až čtyřikrát za týden, asi tak jednou až dvakrát za týden, asi tak jednou až dvakrát za 14 dní, asi tak jednou až dvakrát za měsíc, méně než jednou za měsíc, nepijete pivo nikdy nebo téměř nikdy.)“

OR121121a

I přes tyto dílčí posuny ovšem i nadále můžeme pivo označit za univerzální nápoj, který přinejmenším čas od času pijí téměř všichni čeští muži a více než polovina českých žen. O poměrně univerzálních vzorcích konzumace piva svědčí tradičně také skutečnost, že podíly mužů a žen pijících alespoň někdy pivo se mezi skupinami různého věku, vzdělání nebo příjmů nijak významně neliší (pro přiblížení, v každé z příjmových skupin se podíl konzumentů piva nachází v rozmezí 84 % až 91 %)

## 2. Nealkoholické pivo jako náhrada běžného piva<sup>2</sup>

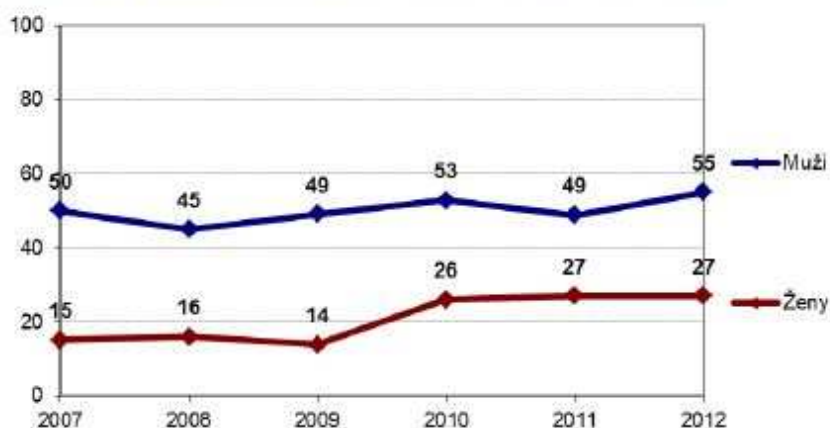
Pravidelně od roku 2007 je zjišťováno, do jaké míry je, či není, nealkoholické pivo pro obyvatele České republiky samozřejmou náhradou piva běžného. Dotaz konkrétně zní tak, zda by respondent preferoval nealkoholické pivo, anebo jiný nealkoholický nápoj, v situaci, kdy si např. kvůli řízení automobilu nemůže dopřát běžné pivo.

Výsledky ukazují, že i přes jeho objektivně rostoucí spotřebu se v průběhu posledních pěti let vnímání nealkoholického piva nijak dramaticky neproměnilo a stále tedy platí, že nealkoholické pivo pro české obyvatele samozřejmou náhradou běžného piva není. V situaci, kdy si normální pivo dát nemůže, automaticky zvolí nealkoholické pivo přibližně polovina mužů (55 %), mezi ženami by tak podle svých slov v roce 2012 učinila přibližně čtvrtina (27 %). Ostatní si namísto nealko piva dají raději jiný nealkoholický nápoj, přičemž podíl těchto lidí je vcelku pochopitelně vyšší zejména mezi méně pravidelnými konzumenty. Současně také nepřekvapí, že nealko pivo si objednávají ve větší míře ti muži a ženy, kterým pivo jako takové chutná, a že s menší oblibou běžného piva klesá také pravděpodobnost, že si lidé objednají pivo nealkoholické.

<sup>2</sup> Znění otázky: OR.188 „Představte si situaci, ve které byste si za normálních okolností dal pivo. Tentokrát si ho ale dát nemůžete, například protože řídíte. Dáte si tedy raději nealkoholické pivo, anebo nějaký jiný nealkoholický nápoj? (Rozhodně nealkoholické pivo, spíše nealkoholické pivo, spíše nějaký jiný nealkoholický nápoj, rozhodně nějaký jiný nealkoholický nápoj.)“

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Graf 2. Nealkoholické pivo jako náhrada piva běžného v letech 2007 až 2012 u mužů a u žen (součet podílů odpovědí „rozhodně...“ a „spíše nealkoholické pivo“)



Zdroj: CVVM SOÚ AV ČR, v.v.i., Naše společnost 09/2007, 09/2008, 10/2009, 09/2010, 09/2011, 09/2012.

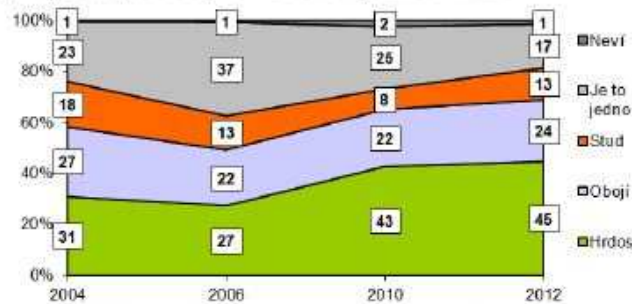
Pozn.: Hodnoty vypovídají o respondentech, kteří uvedli, že pivo alespoň někdy pijí (N v roce 2012 = 725).

### 3. Postoje ke spotřebě piva v České republice

Češi jsou dlouhodobě na špičce celosvětového žebříčku konzumace piva, tento fakt ovšem jimi samotnými není nutně přijímán jako něco, čím by se měli chlubit. Hrdost na toto prvenství vyjadřují v roce 2012 dvě pětiny mužů a přibližně každá šestá žena. Oproti tomu, spíše stud je při zmínce o českém prvenství v konzumaci piva hlavním pocitem pro čtvrtinu žen a přibližně jednoho z deseti mužů. Přibližně čtvrtina mužů a třetina žen má v této souvislosti smíšené pocity a co je také důležité, téměř každému šestému muži a každé čtvrté ženě je tato záležitost takřikajíc jedno.

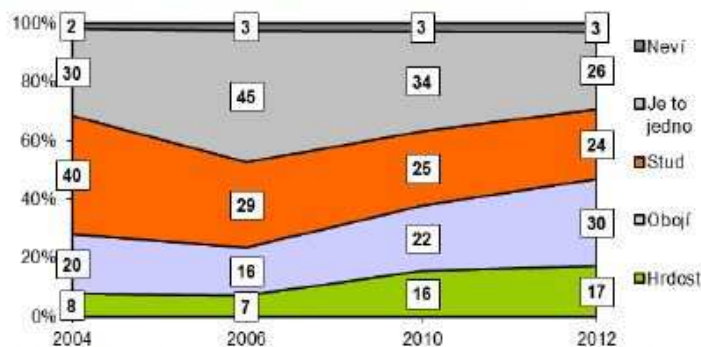


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Graf 3. Postoj k vysoké spotřebě piva v České republice - muži<sup>3</sup>

Zdroj: CVVM SOÚ AV ČR, v.v.i., Naše společnost 09/2004, 09/2006, 09/2010, 09/2012.

Graf 4. Postoj k vysoké spotřebě piva v České republice - ženy



Zdroj: CVVM SOÚ AV ČR, v.v.i., Naše společnost 09/2004, 09/2006, 09/2010, 09/2012.

Pocity vůči faktu vysoké spotřeby piva se vcelku pochopitelně odvíjí především od skutečnosti, kolik piva sám člověk konzumuje. Konkrétně pro muže i ženy platí, že čím více piva pijí, tím spíše jsou na vysokou konzumaci v České republice hrdí. Zatímco u žen pak také opačně platí, že ty s nižší mírou konzumace častěji pociťují stud, u mužů se s menším objemem konzumace spíše zvětšují podíly takových, kteří mají smíšené pocity nebo je jim tato věc zkrátka jedno.

V případě věku nebo vzdělání jsou rozdíly jen málo výrazné: z hlediska věku se od ostatních liší jen skupina nejstarších nad 60 let, která méně často zažívá pocit hrdosti a naopak je jí při zmínce o českém prvenství v množství konzumovaného piva častěji

<sup>3</sup> Znění otázky: OR.89 „Pociťujete Vy osobně hrdost nebo stud, když se dozvídáte, že se v České republice ze všech zemí vypije nejvíce piva na hlavu? Pociťujete rozhodně hrdost, spíše hrdost, tak trochu obojí, spíše stud, rozhodně stud, je Vám to jedno, anebo pociťujete něco jiného, co?“  
Pozn.: Odpovědi „něco jiného“ byly ze zpracování vypuštěny kvůli jejich zanedbatelnému počtu (méně než 0,5 %).

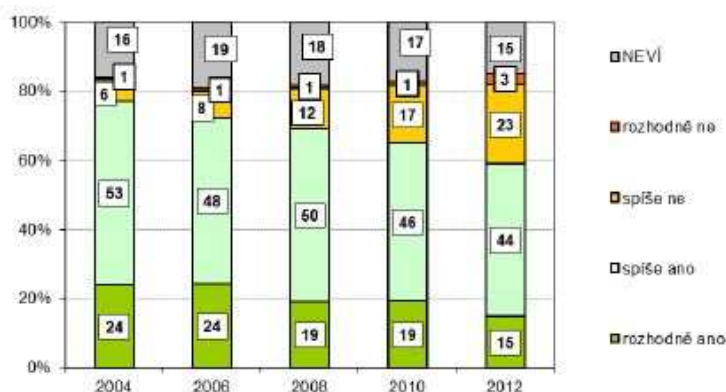
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vlastní stud. Pocit hrdosti také ubývá s růstem vzdělání a na jeho úkor nastupují smíšené pocity nebo přímo stud.

#### 4. Budoucnost českého piva a pivovarnictví očima veřejnosti<sup>4</sup>

Pohled veřejnosti na budoucnost českého piva a pivovarnictví je dlouhodobě celkově optimistický, nicméně již lze pozorovat pozvolný nárůst méně příznivých očekávání. Většina obyvatel České republiky kupříkladu stále věří, že české pivovary prorazí v zahraničí. V roce 2012 jsou to přibližně tři pětiny (59 %) lidí ve věku od 18 let, přičemž k opaku se přiklání zhruba čtvrtina populace (26 %). Dlouhodobějšímu trendu mírného poklesu optimismu nasvědčují v této otázce jednak zvyšující se podíl lidí, kteří v průnik českých pivovarů do zahraničí nevěří (ze 7 % v roce 2004 na 26 % v roce 2012), a také úbytek takových, kteří jej naopak očekávají (ze 77 % na 59 %).

Graf 5. Názory české veřejnosti na to, zda některé české pivovary prorazí na zahraničních trzích



Zdroj: CVVM SOÚ AV ČR, v.v.i., *Naše společnost* 09/2004, 09/2006, 09/2008, 09/2010, 09/2012.

V podobném duchu lze komentovat také výsledky otázky na obavy z toho, že by české pivo bylo z domácího trhu vytlačeno zahraničními značkami. Také zde celkově jednoznačně dominuje optimistický pohled (73 % v roce 2012), ovšem zároveň je patrné

<sup>4</sup> Znění otázek: OR.93 „Co se podle vás stane s českým pivem a pivovarnictvím v následujících 10 letech? Myslíte, že

a) ceny piva porostou (rozhodně ano, spíše ano, spíše ne, rozhodně ne),

b) některé české pivovary prorazí na zahraničních trzích (rozhodně ano, spíše ano, spíše ne, rozhodně ne),

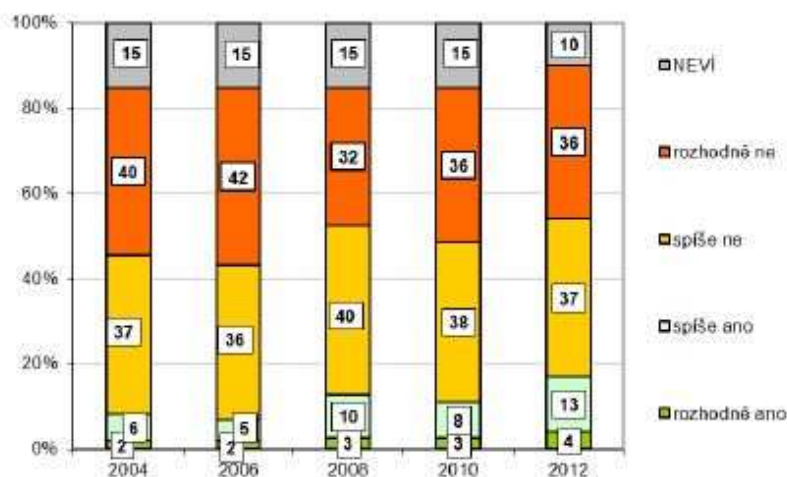
c) zanikne většina menších pivovarů (rozhodně ano, spíše ano, spíše ne, rozhodně ne),

d) české pivo bude z trhu vytlačeno zahraničními značkami? (rozhodně ano, spíše ano, spíše ne, rozhodně ne).“

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posilování názoru opačného (17 % v roce 2012). Zajímavostí v jinak nepřilíš výrazných rozdílech v postojích různých skupin obyvatelstva u této otázky je, že čím více lidé sami piva pijí, tím jistější postavení domácích pivovarů v konkurenci zahraničních očekávají.

**Graf 6. Názory české veřejnosti na to, zda české pivo bude z trhu vytlačeno zahraničními značkami**

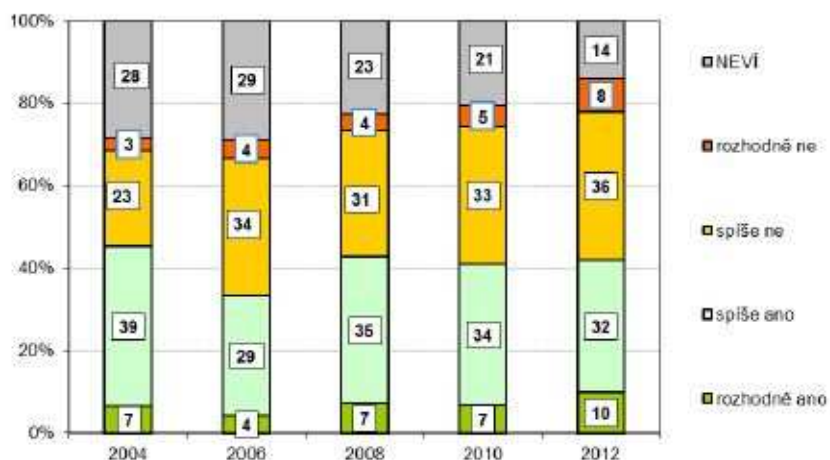


*Zdroj: CVVM SOÚ AV ČR, v.v.i., Naše společnost 09/2004, 09/2006, 09/2008, 09/2010, 09/2012.*

Slabý náznak trendu lze sledovat i v otázce budoucnosti menších pivovarů, když čím dál více lidí se v této otázce dokáže vyjádřit a současně s tím posiluje podíl těch, kteří takové obavy nesdílejí. Fakt, že od roku 2006 se plynule snižuje podíl takových, kteří se k této otázce nedokázali vyslovit, stojí jistě za zmínku. Tuto skutečnost lze vysvětlit například tím, že téma malých pivovarů od té doby proniká stále častěji do obecnější známosti jednak s rozšiřující se nabídkou pivních stylů, jednak v návaznosti na rozvoj restauračních pivovarů a čeští obyvatelé tak mají více možností učinit si v této věci jasno.

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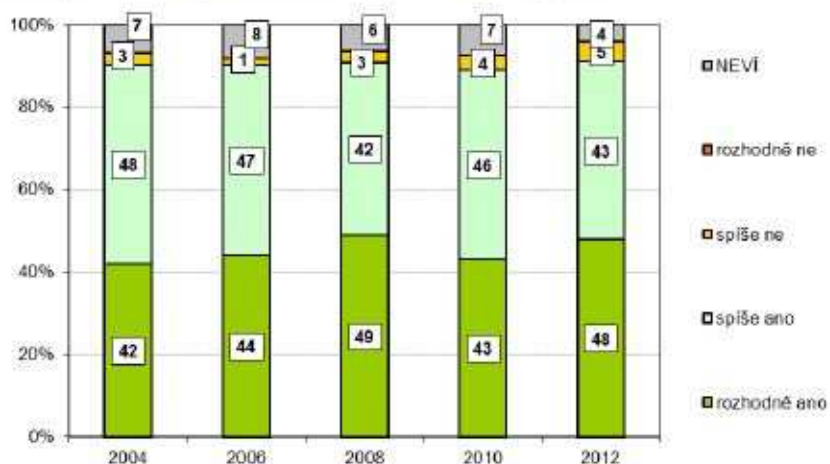
Graf 7. Názory české veřejnosti na to, zda zanikne většina menších pivovarů



Zdroj: CVVM SOÚ AV ČR, v.v.i., Naše společnost 09/2004, 09/2006, 09/2008, 09/2010, 09/2012.

Prakticky stejná jako v předchozích letech jsou očekávání stran vývoje ceny, která je pro české pivo jedním z jeho významných atributů. S dalším růstem ceny piva i v roce 2012 počítá naprostá většina obyvatel České republiky, přičemž přibližně polovina je o dalším růstu dokonce přesvědčena rozhodně.

Graf 8. Názory české veřejnosti na to, zda porostou ceny piva



Zdroj: CVVM SOÚ AV ČR, v.v.i., Naše společnost 09/2004, 09/2006, 09/2008, 09/2010, 09/2012.

## Supplement n. 3

## List of countries by beer consumption per capita

From Wikipedia, the free encyclopedia

This is a list of countries ordered by annual per capita consumption of beer. Most of the values in this table reflect 2010 data.

Rank	Country	Consumption per capita <sup>(1)</sup> (litres)	2009–2010 change (633-ml bottles)	Total national consumption (10 <sup>6</sup> L) <sup>(2)</sup>	Year
1	 Czech Republic	132	-21.1	1708	
2	 Germany	107	-3.7	8787	
3	 Austria	106	-1	888	
4	 Ireland	104	-2.8	479	
5	 Australia <sup>(3)</sup>	98.08	N/A	1794	
6	 Estonia	91	-8.8	117	
7	 Lithuania	88	12.7	304	
8	 Poland	84	-0.3	3215	
9	 Venezuela	83	-4.7	2259	
10	 Finland	83	-8.2	435	
11	 Slovenia	83	-6.2	165	
12	 United States	78	-2.6	24138	
13	 Belgium	78	-4.7	844	
14	 Croatia	78	-7.6	350	
15	 Romania	77	-4	1700	
16	 Panama	75	1	256	
17	 Netherlands	74	1.4	1224	
18	 United Kingdom	74	-3.4	4587	
19	 Bulgaria	73	-0.6	521	
20	 New Zealand	71	-3.6	300	
21	 Hungary	70	-7.1	700	
22	 Spain	70	-1.1	3251	
23	 Canada	68	-1.9	2311	
24	 Denmark	67	-10.2	372	
25	 Latvia	67	5.4	149	
26	 Russia	66	-6.8	9389	
27	 Brazil	65	10	12170	
28	 Slovakia	64	-11.5	352	
29	 South Africa	63	4.4	3095	
30	 Switzerland	57	0	463	
31	 Mexico	57	-2.9	6419	
32	 Portugal	55	-3.2	590	
33	 Angola	53	5	898	
34	 Norway	52	-3.1	244	
35	 Sweden	52	-2.2	472	
36	 Argentina <sup>(3)</sup>	49		1980	
37	 Japan	45	-2.4	5813	
38	 Iceland <sup>(4)</sup>	45		14	
39	 Namibia <sup>(5)</sup>	40			
40	 China	32	2.1	44683	
41	 Vietnam <sup>(6)</sup>	19			
42	 Turkey <sup>(7)</sup>	13			
43	 Kenya <sup>(8)</sup>	12			
44	 Uzbekistan <sup>(9)</sup>	11			
45	 Tanzania <sup>(8)</sup>	8			
46	 Uganda <sup>(8)</sup>	6			
47	 Sri Lanka <sup>(10)</sup>	2		50	
48	 India <sup>(11)(12)</sup>	2		1400	2008

Source: [http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_beer\\_consumption\\_per\\_capita](http://en.wikipedia.org/wiki/List_of_countries_by_beer_consumption_per_capita)