Analysis of selected demand factors of wine market of the Czech Republic

Analýza vybraných faktorů poptávky na trhu vína v České republice

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Abstract: This paper analyzes the data on the development of the main factors of the demand for wine and wine consumption in the Czech Republic. The average annual wine consumption, one of the wine demand factors, grew between1991 and 2005 from 14.8 l to 17 l per capita. Following this trend, we can expect the average annual wine consumption 17.4 l per capita in year 2010. However there are critical factors in the development of the demand for wine demand here. Specifically it is the daily feasible ratio of alcohol in wine and other alcoholic drinks, especially beer that we can treat as the substitute of wine. The ethanol consumption in beer accounts for 50% of the total ethanol consumption in alcoholic drinks in the Czech Republic. The negative influence on wine demand growth has been the price of other alcoholic drinks, especially beer that is the cheapest form of ethanol.

Key words: wine, wine consumption, beer consumption, alcoholic drinks, daily admissible ration of alcohol

Abstrakt: Příspěvek analyzuje 15letou časovou řadu hlavních ukazatelů vývoje poptávky na trhu vína v ČR. Průměrná roční spotřeba, jako ukazatel poptávky vína na jednoho obyvatele v ČR, se ve sledovaném období let 1991 až 2005 zvýšila ze 14,8 na 17 l a na základě dosavadního vývoje je predikován její nárůst na 17,4 l do roku 2010. Kritické faktory vývoje další spotřeby (poptávky) vína jsou zdravotně doporučená resp. přípustná horní hranice spotřeby etanolu a spotřeba ostatních alkoholických nápojů, a to především piva, které vystupuje na trhu vína v roli substitutu a v ČR se na celkové spotřebě etanolu podílí více než 50 %. Negativně na nárůst spotřeby vína působí i ceny alkoholických nápojů, neboť nejlevnější alkohol je možné koupit opět ve formě piva.

Klíčová slova: víno, produkce vína, spotřeba vína, spotřeba piva, alkoholické nápoje, denní dávka alkoholu

On one hand, wine market growth gives the consumers satisfaction because they have available a much greater wine supply with a rising level of wine quality and low prices but, on the other hand, producers suffer dissatisfaction and difficulties in connection with the increasing competition level and the bargaining position of consumers. There is an excess supply in the world wine market as well as in Europe. According to the available statistics, world wine production is approximately 275 million hectoliters per year in average and consumption is about 220 million hectoliters. The situation is similar in Europe, where about 160 millions of hectoliters are produced every year and about 130 millions of hectoliters are consumed. In the so-called "fertile years", the quantity of wine production is bigger. For example in 2004, there were produced 194 millions of hectoliters of wine in Europe. So it means that wine production in Europe in normal years is about 20 % higher than its consumption. (In 2004 it was about 49 %.) While in Europe the number of areas with vineyards and wine production is the same or is

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slightly reducing in recent years, in the areas outside Europe the number of both is still increasing. For example from 1996 till 2000 the area of vineyards was increased by 31.9% in Asia, 19.9% in Oceania, 6.7% in America and by 4.2% in Africa. In consequence of this growth, there is nowadays a much higher level of wine exports coming from the areas mentioned above to Europe, including the Czech Republic, in spite of the fact that Europe is the greater exporter. There are more and more globalised factors in the wine market as well as in others branches of industry, the result is that the area barriers disappear and the markets of various countries are more tightly integrated.

The excess supply in the world and European wine market influences the wine market in the Czech Republic, especially the area of wine imports. According to the Wine Producers Association of the Czech Republic, there was 940 thousand wine hectoliters imported to the CR in the period 2000/2001, but in the period 2004/2005 there was 1 278 thousand wine hectoliters coming from abroad. This represents a growth of 36%. In view of the fact that the wine production in CR is 0.4% of the whole European wine production and 1.2% its consumption, no wonder one hears of the Czech viniculture depression. The wine market in the Czech Republic is analysed by e.g. by Škorpíková (2004), Chládková (2006), Tomšík and Sedlo (2006). The viniculture and winegrowing background of the Czech Republic is the field of e.g. Kudová (2004) and Tomšík (2002). The question of the Czech viniculture's competitive strength was analysed by Pyšný and Žufan (2006) and the wine producers' strategy is the subject of a dissertation by Pošvář and Chládková (2004).

The aim of this paper is to draw the attention to the critical factors in the development of the determinants of demand for wine in the Czech Republic. This paper is also a part of the PEF MZLU research project solution (MSM 6215648904).

MATERIALS AND METHODS

The subject of this analysis is secondary information used for the characteristics of demand development in the wine market in the Czech Republic, published by the Czech Statistical Office, Department of Agriculture and Viticulture of the Czech Republic. The main determinations of development in the wine market are identified on the basis of the15 year time lines analysis (1991–2005).

The development of demand is expressed as the average wine consumption per capita per year. The demand development in the EU, the product price in the Czech Republic and the importance of beer (as a subagent in the Czech Republic and abroad) are also taken into account. The detected data are processed in Microsoft Excel application with the use of statistical methods of regression analysis, the method of the least squares, dispersal indicators, covariance of signs and correlation coefficients.

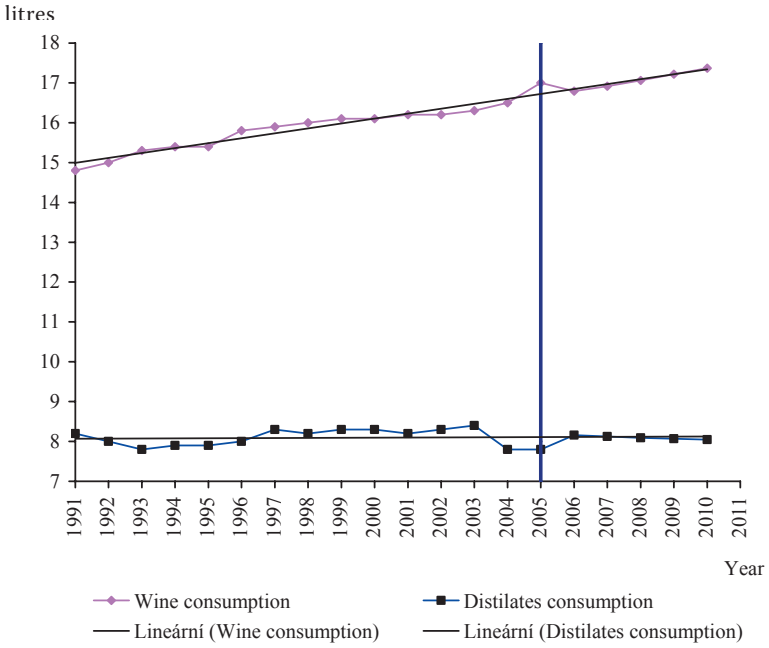

Figure 1. Development and predication of wine and spirits consumption in 1991–2010

Source: CSO (2004), MA (2006), Blee (2005), own calculation

RESULTS AND DISCUSION

The basic indicator of demand in the wine market is annual consumption per capita. Although some might take exception to this indicator, for finding out the development determinants and for international comparison, it works. Wine is a specific commodity, because wine demand depends on the consumer's age, education, health state, geographic area, tradition and preferences. Consumers want wine consumption to give them not just alcohol, but a certain satisfaction, make them feel good, facilitate communication and making new relationships and finally make them feel they belong to some social group and so on. The most important factors in connection with wine consumption are the disposable consumers' income, the product price and existence and accessibility of substitutes.

The annual wine consumption per capita is fluctuating and varies in every country. In many countries like Asia, Morocco, Mexico, Israel, the wine consumption is close to 1 liter per capita, while in the countries with the greatest wine consumption the amount often exceeds 50 liters.

In the countries in Europe which are located close to Czech consumers, the annual consumption per capita (2001–2005) fell from 37.3 liters to 33.2 liters. In terms of wine consumption, countries in the EU can be divided into two basic groups (see Figure 1). The first is made up by countries in which the annual wine consumption per capita is still rising (Belgium, Hungary, Netherlands, Sweden, Denmark, Great Britain and the Czech Republic), the second one comprises countries with a falling level of the annual wine consumption per capita (France, Italy, Austria, Germany, Greece and Spain). The falling levels occur in countries in which wine consumption per capita is over 25 liters and the rising levels are characteristic of countries in which annual wine consumption per capita is less than 25 liters. The wine consumption development in the Czech Republic in comparison with beer and spirits (included 40% of alcohol) consumption development is demonstrated in Table 1. The wine consumption development is necessary to be looked at with respect to the consumption of other alcoholic drinks and aggregate ethanol consumption.

According to research results which say that drinking of alcohol (like wine or others) in some certain amount can be healthy, there are two basic recommendations about the upper limit of consumed alcohol per day. The first one (Fiala 2005) maintains that the allowable rate in connection with alcohol consumption a day comprises 20 grams of ethanol for men and just 10 grams of ethanol for women. So it means you can drink 0.2 liters of wine; 0.5 liters of bier or 0.05 liters of 40% distillate if you are a man and it is still healthy. The second one (Křístek 2006) says that to consume 20 grams of ethanol is just having an "ordinary drink" and to consume a healthy amount of alcohol per day is to have two such ordinary drinks for men (40 grams of ethanol) and one ordinary drink for women (20 grams of ethanol).In the first recommendation the average allowable rate of alcohol per day would be 15 grams of ethanol per capita with respect to gender ratio, in the second one it would be 30 grams of ethanol per capita.

There are some determinants implicit in the Table 2 and on the Figure 2 and 3: wine consumption in the period under consideration has risen from 14.8 liters in 1991 to 17.0 liters in 2005, bier consumption has increased from 146.9 liters to 162.0 liters in the same period and distillate consumption with 40% of alcohol has fallen by 4.9%.

If we measure in terms of ethanol the result is that in 1991 the daily average of ethanol consumption per capita was 29.14 grams comprising 13.9% in wine consumption, 55.3% in beer consumption and 30.8% in spirits. If these trends continue, the annual average consumption per capita in 2010 will be 17.4 liters of wine, 163 liters of bier and 8.2 liters

Table 1. Annual average consumption of wine, beer, and spirits in litres per one inhabitant in the Czech Republic

Sort of drinks			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Consumption	wine	l	14.8	15	15.3	15.4	15.4	15.8	15.9	16	16.1	16.1	16.2	16.2	16.3	16.5	17
		index	100	101.4	103.4	104.1	104.1	106.8	107.4	108.1	108.8	108.8	109.5	109.5	110.1	111.5	114.9
	beer	l	146.9	163.3	153.6	156.7	156.9	157.3	161.4	161.1	159.8	159.9	156.9	159.9	161.7	160.5	162
		index	100	111.2	104.6	106.7	106.8	107.1	109.9	109.7	108.8	108.8	106.8	108.8	110.1	109.3	110.3
	spirits	l	8.2	8	7.8	7.9	7.9	8	8.3	8.2	8.3	8.3	8.2	8.3	8.4	7.8	7.8
		index	100	97.6	95.1	96.3	96.3	97.6	101.2	100	101.2	101.2	100	101.2	102.4	95.1	95.1

Source: CSO (2004), MA (2006), own calculation

Table 2. Relation between beer and wine consumption in the monitored countries

Country	Beer consumption per capita		Wine consumption per capita		Ethanol consumption per capita		Beer share on ethanol consumption (%)
	(l)	ethanol (g)	(l)	ethanol (g)	together (g)	daily (g)	
Italy	28	1 120	53	5 300	6 420	17.60	17.40
France	36	1 440	57	5 700	7 140	19.60	20.20
Greek	39	1 560	28	2 800	4 360	11.90	35.80
Sweden	56	2 240	16	1 600	3 840	10.50	58.30
Portugal	62	2 480	47	4 700	7 180	19.70	34.50
EU	73	2 920	35	3 500	6 420	17.60	45.50
Spain	74	2 960	35	3 500	6 460	17.70	45.80
Finland	79	3 160	7	700	3 860	10.60	81.90
Netherlands	80	3 200	21	2 100	5 300	14.50	60.40
Slovakia	90	3 600	11	1 100	4 700	12.90	76.60
Australia	92	3 680	20	2 000	5 680	15.60	64.80
Belgium	98	3 920	25	2 500	6 420	17.60	61.10
Denmark	99	3 960	29	2 900	6 860	18.80	57.70
Great Britain	99	3 960	17	1 700	5 660	15.50	70.00
Luxemburg	102	4 080	59	5 900	9 980	27.30	40.90
Austria	108	4 320	31	3 100	7 420	20.30	58.20
Germany	123	4 920	24	2 400	7 320	20.10	67.20
Ireland	125	5 000	12	1 200	6 200	17.00	80.60
Czech Republic	162	6 480	17	1 700	8 180	22.40	79.20

Source: CSO (2004), MA (2006), Blee (2005), own calculation

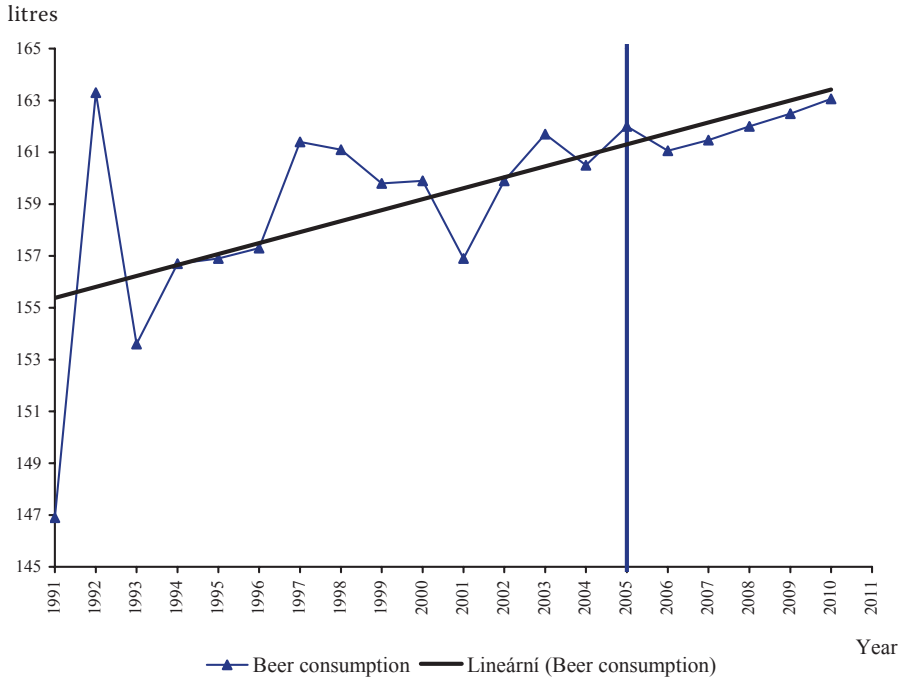

Figure 2. Development and prediction of beer consumption in 1991–2010

Source: CSO (2004), MA (2006), Blee (2005), own calculation

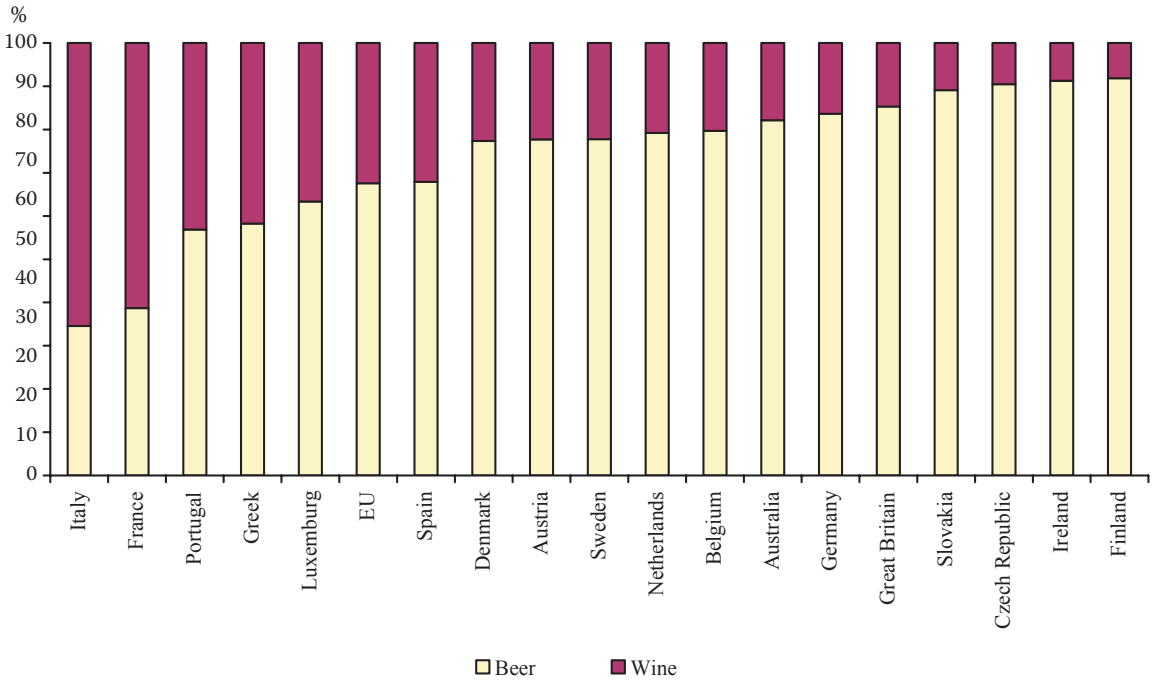

Figure 3. Beer and wine share in the ethanol consumption

Source: CSO (2004), MA (2006), Blee (2005), own calculation

of distillate and the total ethanol consumption per capita will be 31.62 grams. It means it will be higher by 8.5% than in 1991 and it will be made up by 15.1% of wine, 56.5% of bier and 28.4% of distillate. The positive development of wine consumption will be influenced by beer consumption, because beer is a substitute and beer consumption has a long tradition and popularity.

There is a connection between beer and wine consumption; according to the results of analysis from 18 countries, the bigger is wine consumption in some countries the less is beer consumption and vice versa. This mutual dependence is demonstrated in the Figure 4. Use of a simple correlation coefficient for monitoring of the linear relation between two statistical signs and applied to the set file of countries proves the thesis about the inverse dependence of wine and bier consumption. Correlation of these characteristics can be interpreted as half intensity of negative dependence.

Two of the most important factors influencing demand are the product price and disposable income. In the Table 3, it is demonstrated, that from 1991 till 2005 the average rate of gross income has grown

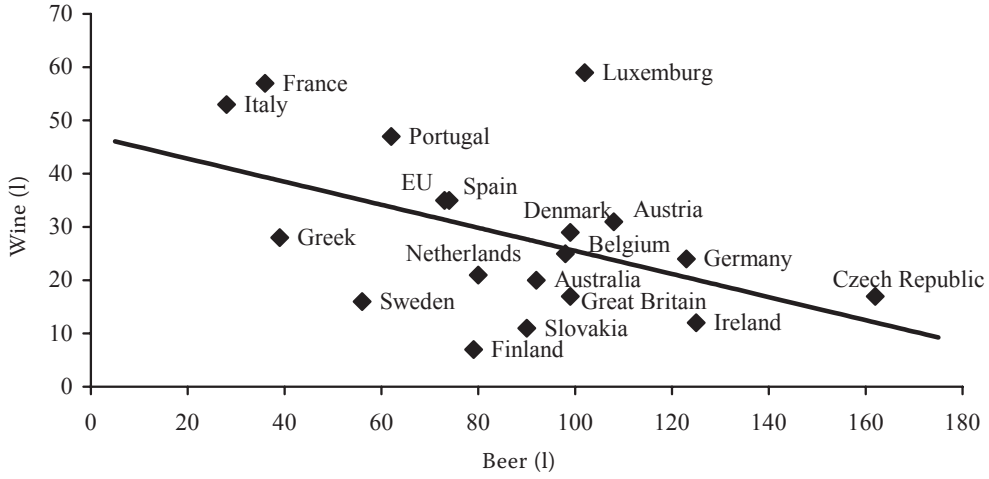

Figure 4. Wine and beer consumption relation in the analysed countries

Source: CSO (2004), MA (2006), Blee (2005), own calculation

Table 3. Price of wine, beer and spirits and average gross monthly salary in the Czech Republic

Year	Beer, light				White wine, quality				40% spirit in retail		Average gross monthly salary	
	bottled		draught		retail		restaurant					
	CZK	index	CZK	index	CZK	index	CZK	index	CZK	index	CZK	index
1991	8	100.0	10	100.0	36.10	100.0	58.00	100.0	104.80	100.0	3 792.00	100.0
1992	9.6	120.0	11.6	116.0	35.60	98.6	62.50	107.8	122.20	116.6	4 644.00	122.5
1993	11.6	145.0	14.2	142.0	41.40	114.7	73.00	125.9	130.10	124.1	5 811.00	153.2
1994	11.8	147.5	14.8	148.0	43.40	120.2	76.00	131.0	136.60	130.3	6 894.00	181.8
1995	12.4	155.0	16	160.0	47.30	131.0	89.00	153.4	138.60	132.3	8 172.00	215.5
1996	13	162.5	17.4	174.0	50.10	138.8	94.90	163.6	140.70	134.3	9 676.00	255.2
1997	13.8	172.5	19.2	192.0	54.30	150.4	103.50	178.4	140.60	134.2	10 691.00	281.9
1998	14.4	180.0	21.2	212.0	55.20	152.9	108.50	187.1	160.90	153.5	11 693.00	308.4
1999	15.2	190.0	21.8	218.0	54.20	150.1	109.50	188.8	158.80	151.5	12 655.00	333.7
2000	15.2	190.0	24.2	242.0	57.40	159.0	112.50	194.0	165.50	157.9	12 918.00	340.7
2001	15.6	195.0	25.4	254.0	66.10	183.1	117.85	203.2	166.80	159.2	13 996.00	369.1
2002	16.8	210.0	28.1	281.0	63.40	175.6	119.80	206.6	166.90	159.3	14 999.00	395.5
2003	17.2	215.0	29.2	292.0	61.40	170.1	122.00	210.3	169.40	161.6	15 936.00	420.3
2004	17	212.5	32.1	321.0	62.30	172.6	127.90	220.5	176.60	168.5	17 030.00	449.1
2005	16.8	210.0	33.4	334.0	59.60	165.1	129.85	223.9	186.10	177.6	18 258.00*	481.5

Source: CSO (2004), MA (2006), own calculation (* prediction)

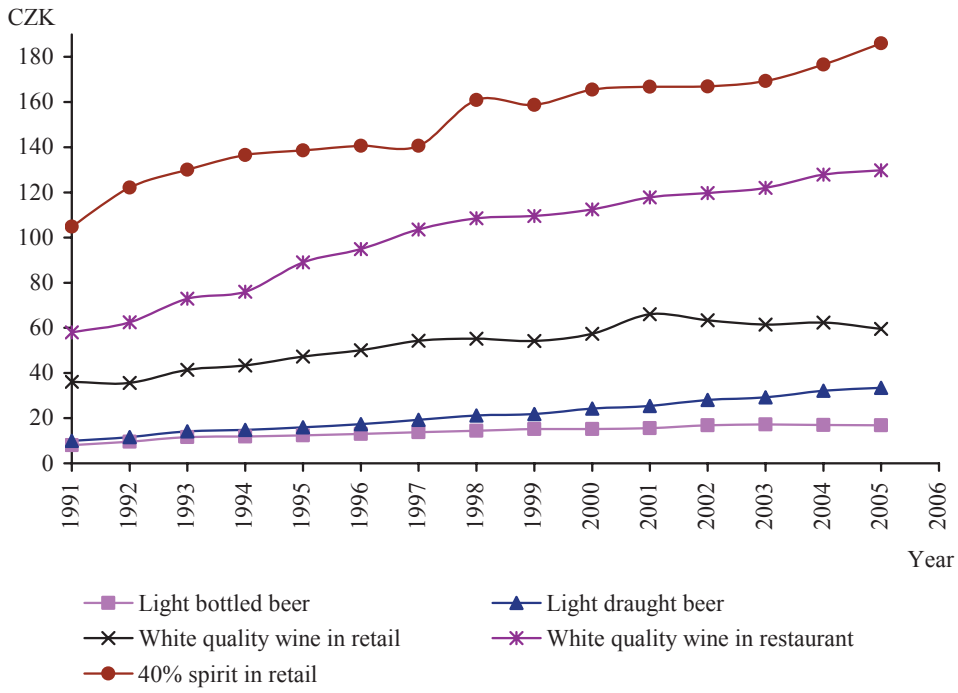

Figure 5. Price development of beer, wine and distillates

Source: CSO (2004), MA (2006), Blee (2005), own calculation

from 3 792 CZK (1991) to 18 258 CZK (2005). It meant that in this period under consideration, the average gross wage rate had been five times higher, while the commodities price in view had been higher just two times.

The price development of the alcoholic drinks under consideration including price index numbers is shown in Table 3 and Figure 5. The items included in the price index are those used by the Czech Central Statistical Office and comprise a draught light beer, bottled beer, white wine, wine in bottles sold in retail and restaurants and rum representing spirits with 40% of alcohol sold in retail. All prices of drinks in review in the period under consideration (15 years) have increased sharply. The price of bottled beer has increased by 210%, the price of barrel bier by 334%, the price in retail was increased by 165.10 CZK, the price of wine in restaurants by 223.9% and the distillate price was higher by 177.6%. The interdependence between bier and wine consumption was probably an influence on the price and on the ethanol amount in these alcoholic drinks. In 1991 it was possible to buy 100 grams of ethanol in the lowest price in the form of bottled beer for the price 20 CZK, in barreled beer for the price 25 CZK, in distillates for the price 26.20 CZK, in bottled wine in retail for the price 36 CZK and in bottled wine in restaurants for the price 58 CZK. In 1991 it was possible to buy 100 grams of ethanol in the lowest price again in the form of bottled beer with price 42 CZK. The price of 100 grams of ethanol was 46.50 CZK in distillates, 59.00 CZK in bottled wine in retail, 83.50 CZK in barreled bier and 129.85 CZK in bottled wine in retail. It is very interesting that there was a decline in the price of bottled wine price from 66.10 CZK in 2001 to 59.60 CZK in 2005 on the one hand and there was also the growth of wine consumption from 16.2 liters in 2001 to 17 liters in 2005 on the other, when the price dropped by 10% and consumption increased by 4.9%.

CONCLUSION

In consequence of these results, the average consumption of alcohol in the Czech Republic is at a higher level than the upper limit for healthy alcohol consumption. So it is clear that to increase the current rate of average consumption is not desirable from the social point of view. For global, social and trendy reasons, it would be better to reduce the consumption of alcoholic drinks with a higher amount of alcohol and to increase the consumption of "long" or "soft" drinks like e.g. wine with a high level of quality (attributive wines). According to results in the Table 2 dealing with the amount of beer in connection with ethanol consumption, there is demonstrated a negative dependence between beer and wine consumption. With regard to the high consumption of beer in the Czech Republic, we can identify an opportunity for increasing wine consumption also in that consumers' segment. But the question is the sensibility of costumers in terms of beer price, because high-quality wines are always more expensive. Follow the Table 1 and see how the Czech Republic covers wine consumption by its production (from 40%), because it is a very significant opportunity to increase wine production and its realization in wine market of the Czech Republic. But if it really works, it will be finally determined by customers.

REFERENCES

Blee M. (2005) Global Forces and the European Brewing Industry. In: Johnson G., Scholes K., Whittington R.: Exploing Corporate Strategy. Prentice Hall, Harlow, pp. 108–114; ISBN 0-273-68734-4.

Czech Statistical Office (2004). Statistická ročenka české republiky (Yearbook of Czech Republic 2004). Scientia, Praha; ISBN 80-250-0853-3.

Fiala J. (2005): Alkohol jako součást výživy a vliv na zdraví. Pít či nepít? (Alcohol a Part of Food and Its Influence over Health. To drink or not to drink?). Výživa a potraviny, *60* (6): 146–149.

Chládková H. (2006): Situace na trhu vína v ČR (Situation on the Czech Wine Market). Mendel University of Agriculture and Forestry, Brno; ISBN 80-7157-968-8.

Křístek M. (2006): Nové poznatky o vztahu vína a zdraví (Wine and Health Relation in News). Wine scope, (4): 104.

Kudová D. (2004): Analýza prostředí vinařské firmy (Environment Analysis of Wine Producer). In: Development Perspectives and Suggestions of Winegrowing and Viniculture Policy Disposals and Countryside Development in South Moravian Region. Mendel University of Agriculture and Forestry, Brno, pp. 25–31; ISBN 80-7157-830-4.

Ministry of Agriculture (2006): Situační a výhledová zpráva Réva vinná a víno (Grapevine and Wine Report). Ministry of Agriculture of the Czech Republic, Prague; ISBN 80-7084-508-2, ISSN 1211-7692.

Pošvář Z., Chládková H. (2004): Strategie výrobců vína při vstupu ČR do EU (Strategies of Wine Producers in Relation to the Entry of the Czech Republic to the European Union). In: Development

Perspectives and Suggestions of Winegrowing and Viniculture Policy Disposals and Countryside Development in South Moravian Region. Mendel University of Agriculture and Forestry, Brno, pp. 53–67; ISBN 80-7157-830-4.

Pyšný T., Žufan P. (2006) Konkurenceschopnost českého vinařství (Competitivenes of Czech Wine Production). In: Firm and competitive environment – Session 3. Management in the New Environment. Konvoj, spol. s r.o., Brno, pp. 181–189; ISBN 80-7302-122-6.

Škorpíková A. (2004): Analýza společné organizace trhu s vínem a její vliv na vinohradnictví a vinařství v ČR (Analysis of Joint Organization in Wine Market and Its Influence on Winegrowing and Viniculture in the Czech Republic). In: Development Perspectives and Suggestions of Winegrowing and Viniculture Policy Disposals and Countryside Development in South Moravian Region. Mendel University of Agriculture and Forestry. Brno, pp. 53–67; ISBN 80-7157-830-4.

Tomšík P. (2002): Analýza vnějšího prostředí vinohradnicko vinařského odvětví (Environmental Analysis in the Winegrowing Industry). In: Firm and competitive environment – Session 2. Management v konkurenčním prostředí. Konvoj, spol. s r.o., Brno, pp. 279–287; ISBN 80-7302-032-7.

Tomšík P., Sedlo J. (2006): Odvětví vinohradnictví a vinařství v České republice a jeho atraktivita ve fázi adaptace na jednotný trh Evropské unie (Attractiveness of Czech Winegrowing and Wine-production in the Stage of Adaptation to the United Market of the European Union). In: Firm and competitive environment 2006. MUAF, Brno, pp. 259–270; ISBN 80-7302-117-X.

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