

## Selected Aspect of the Microbreweries Boom

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### Anotace

Článek si klade za cíl na základě tří kvantitativně deklarovaných hypotéz podchytit důvody vzniku minipivovarů v ČR, jejichž počet narůstá setrvale od roku 1991. V hypotézách definovanými vysvětlujícími aspekty jsou nárůst koncentrace a tedy i pokles počtu výrobních jednotek v segmentu průmyslových pivovarů, kvantitativní vliv spotřeby piva a konečně opět kvantitativně definovaný demografický aspekt. Na závěr jsou výsledky zobecněny.

### Klíčová slova

Minipivovar, pivo, průmyslový pivovar, demografie, CAMRA.

### Abstract

This article aims to use three quantitatively stated hypotheses to determine the reasons for the rise of microbreweries in the Czech Republic, whose numbers have been growing constantly since 1991. The explanations defined by the hypotheses are concentration growth, and thus the fall in the number of units of production in the industrial brewery segment, the quantitative impact of beer consumption, and finally again a quantitatively-defined demographic aspect. The results are summarised and elaborated on in the conclusion.

### Key words

Microbrewery, Beer, Industrial Brewery, Demography, CAMRA.

### Introduction

The aim of this article is to identify and analyse the reasons for the appearance of a large number of microbreweries in the Czech Republic.

The above-stated aim will be achieved by verifying or rejecting these three hypotheses:

1. there is a statistical significance between the number of microbreweries and industrial breweries,
2. there is a statistical significance between the number of microbreweries and beer consumption,
3. there is a statistical significance between the number of microbreweries and the number of males between the ages of 25 and 39 years.

Beer consumption has a powerful cultural role in many societies (Carroll, Swaminathan, 2000; Kirkby, 2003; McAllister, 2003, 2006). Today,

microbreweries are doing well, not just in the Czech Republic, but also in many countries worldwide. The United States is without doubt the pioneer in microbrewing, as evidenced in particular in the fact that the concentration of the brewing industry there achieved extremely high values, while at the same time there was also a massive product harmonisation. In the eyes of many consumers, these huge and now multinational brewing companies had lost their identity. The producer's identity may very well be the primary attraction for consumers. (Boisard, 2003; Guy, 2003). The American brewing industry witnessed a spurt of new foundings beginning in the late 1970s (Swaminathan, 1998).

The first American microbrewery was opened in 1976 and was called New Albion Brewing. It was founded by Jack McAuliffe. It was in fact the first completely new brewery to open since the end of prohibition in the USA in 1933.

Only top-fermented beer was produced. Although the brewery had to close in 1982 for economic reasons, it triggered a revolutionary change in the brewing industry in the USA. The United States also came up with the term 'craft brewery'. Because of the huge size of the American market in particular, many of its microbreweries were so successful that they grew to sizes more typical for industrial breweries, although their spectrum of customers did not undergo much change. It is these breweries for which the term 'craft brewery' is used. A typical example is Samuel Adams, which currently has an annual production of around 3m hl.

Also important would be Anchor Brewing Company, the pioneer of American microbreweries (Carrol, Wheaton, 2009). Its story begins in 1896, and in the 1960s it was one of the last breweries which hadn't been swallowed up by one of the large brewing companies. It was protected by Fritz Maytag when he purchased a 51 % controlling interest in the company in 1965. The price for this transaction can no longer be found, but Yenne (2007) states that it was for the 'price of a second-hand car'. A completely new era of the brewery began; in 1971 the first batches of bottled Anchor Steam Beer were produced and over time another half-forgotten beer style was remade. In 1995 there were over 100 microbreweries operating at very small scales. (Pinkse and Slade, 2002). By 2006 there were an estimated 1390 microbreweries, brew-pubs and craft brewers in the United States, making up 3.6% of the market volume (Tremblay, Iwasaki, Tremblay, 2005).

Nearly every one of the breweries founded in the intervening period associated itself in some way with the self-labelled „microbrewery“ movement, a group of brewers and consumers concerned with craftsmanship and taste in brewing beer. (Carroll, Dobrev and Swaminathan, 2002). The mass production brewers had already seen much of the market for their high-end products, the so-called superpremium beer category, erode because of competition from the microbreweries (Van Munching, 1997). Consider again the American beer brewing industry - its market was virtually stagnant before the microbrewery movement. Specialty brewers tapped new beer business, bringing in new customers for as much as half of their markets (Backus, 1999).

In addition to the USA, a number of other countries are experiencing a boom in microbreweries, countries such as the United Kingdom. Here,

however, the situation was somewhat different to that in the USA. Traditional British ales were slowly losing out to lagers, especially those produced by multinational companies. In the UK, an indication is the emergence of the Campaign for Real Ale (CAMRA) in reaction to the loss of traditional (handpumped) beers (Wells, 2013). CAMRA was founded in 1971. It is a consumer organisation and as such we can conclude that while in the USA the trigger for the microbrewery revolution came from the supply side, in the United Kingdom it was clearly demand. In 2011 the UK Society of Independent Brewers reported membership had doubled since 2002 to reach 463 enterprises offering 2500 cask beers, with 3500 seasonal beers and 1750 bottled brands (SIBA, 2011). As with the US microbreweries, there is a very different market proposition involved with high priced, often seasonal beers, of high quality, often alongside local food, made by and for enthusiasts (Schnell and Reese, 2003). These small-scale breweries mostly serve local and regional markets. Equally, Baldacchino (2010) observes that many island economies have their own breweries. Local patriotism is a phenomenon specific for certain commodities, such as – in our case – beer or football clubs (Chmelíková, 2013)

It would be appropriate to first of all define the expression 'microbrewery' under Czech conditions. Czech law does not recognise the term – 'microbrewery'. 'Microbreweries with an annual production capacity of up to 10 000 hl of beer and which are small independent breweries in accordance with Section 82 of Act 353/2003 Coll. on excise duties' are able to become members of the Bohemian-Moravian Association of Microbreweries, which was founded in 2011 as a professional organisation defending the interests of microbreweries in the Czech Republic. Nevertheless, **the typical microbrewery can be defined in somewhat more detail as follows:**

1. Production of no more than 1 000 hl/year,
2. Does not have its own distribution network
3. Does not export its products
4. Its products are not available in standard stores.
5. Most of its production is usually consumed in its own restaurant and bar premises.
6. It is not owned by a larger company, with the owner usually one person, or a legal entity made up of a small number of people.

7. The owners are not just involved economically in the sector, but are also enthusiasts
8. The business strategy is not just dependent on economic interests
9. Beer is only very rarely bottled in glass bottles; PET plastic bottles are much more commonly used.

Industrial breweries, which can be considered the opposite of microbreweries, began to appear during the industrial revolution, gradually displacing small breweries. The last small brewery in the Czech Republic was closed at the time economy was centrally-planned. The only small brewery, a microbrewery, to survive this period was U Fleků microbrewery. Sometimes the U svatého Tomáše brewery is incorrectly said to have done so, but this stopped producing beer in 1951 and this misinformation probably comes about because a celebrated dark beer was later served here. This beer, however, was imported first from Nusle brewery, and later from Braník brewery.

The first microbrewery subsequent to 1989 was opened in 1991 in Svinišťany and was called Meloun; it closed down in 1998 for economic reasons. In the same year as Meloun, a microbrewery was opened in Babice, but this closed down in 2002; in this case, however, it was more of a home-brewing set-up. The oldest microbrewery still working today founded after 1989 is Pivovarský dvůr Chýně, which was founded in 1992, the same year the microbreweries Pegas in Brno and Kvasar in Sentic were founded.

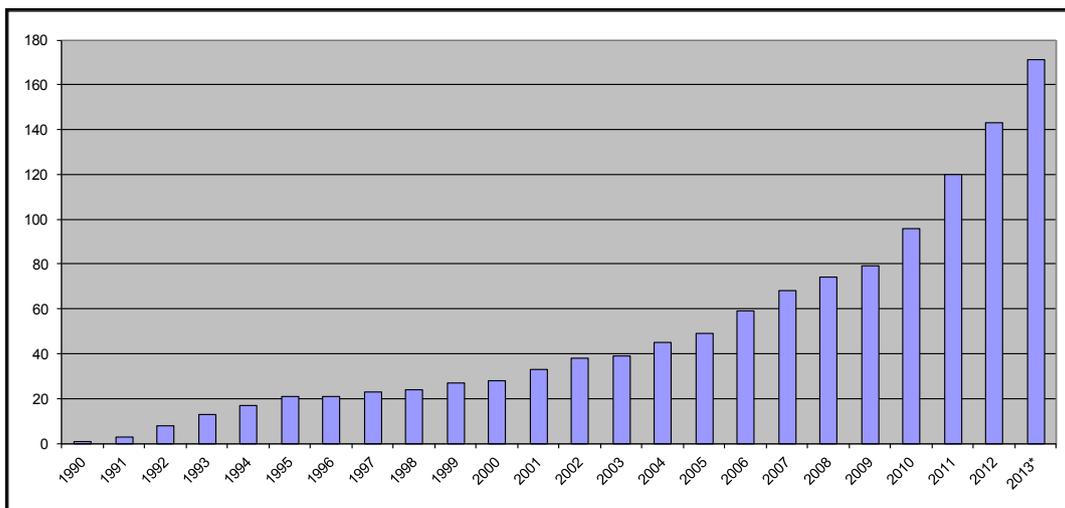
Graph 1 shows the growth in the number

of microbreweries in the Czech Republic, not taking account of numbers of breweries closed. The data for the number of microbreweries for 2013 is valid to the end of July, so it can be expected that by the end of 2013 the number will be around 190. As such, the Czech Republic is the country with the highest growth in microbrewery numbers in the world.

**The most common cases where owners set up microbreweries are the following:**

1. a current home-brewer who has had some success and begins to brew beer commercially; an example is Staňkův rukodělný pivovárek in Prague,
2. a restaurant owner or operator who decides to provide his own beer in addition to traditional industrial brewery brands, either from an extra tap, or completely replacing the products previously offered; an example is Biovar microbrewery in Ostrava,
3. a former brewery employee who for one reason or another opens a brewpub; an example is Krkoška microbrewery in Liberec,
4. a business plan is made; an example is U krále Ječmínka microbrewery in Prostějov,
5. a part of a larger business plan; an example is Pivovarský dvůr in Plzeň,
6. a commercial brewery experiment; an example is Jeník or Litovel,
7. renewal of production; an example is Dalešice microbrewery.

Sometimes a combination of the above applies.



Source: Own calculations (\* means end of July 2013)

Graph 1: Number of microbreweries development in the Czech Republic after 1990.

The majority of the variation in the performance of microbreweries stems from differences in the management, organization, or market of individual breweries (Wesson and De Figueiredo, 2001). The rise of microbreweries and brewpubs resulted from the authenticity appeal of their organizational forms (Carroll and Swaminathan, 2000).

The market structure of microbreweries comparing to industrial breweries is very similar to polytopic. In case of industrial breweries is oligopolistic with strong price leader (company Plzeňský Prazdroj, member of SABMiller). The oligopoly means a market form in which a market or industry is dominated by a small number of sellers (Špička, 2013).

### Materials and methods

Regression analysis is used to quantify the relationship between variables both in linear form:

$$y = \gamma_1 + \gamma_2 x_2 \quad (1)$$

and power form:

$$y = \gamma_1 x_2^{\gamma_2} \quad (2)$$

where nevertheless using the standard least squares method to estimate the equation requires the use of a logarithmic transformation

$$\ln y = \ln \gamma_1 + \gamma_2 \ln x_2 \quad (3)$$

The parameter  $\gamma_2$  here expresses elasticity.

Data with an annual periodicity was used for quantification; for the first two hypotheses, time series with a length of 23 periods were used, and a length of 17 periods for the third hypothesis.

Data was obtained for the number of microbreweries and industrial breweries through my own research, and data on beer consumption and the number of males in the population was obtained from the Czech Statistical Office.

Quantitative estimates were made using the Gretl software package.

### Results and discussion

#### 1. Relationship between number of microbreweries and number of industrial microbreweries

In 1990, there were a total of 70 industrial breweries, and as mentioned above, just one microbrewery. By 2012 a total of 26 industrial breweries were closed, while the number of microbreweries rose to 142.

As Table 1 makes clear, there is a strong statistical significance between the number of microbreweries and industrial breweries at a significance level of better than 0.00001. This is a power dependency, so the structural parameter 5.77 (after rounding to two decimal places) can be interpreted as the percentage of opened microbreweries for each one percent of closed industrial breweries. The co-efficient of determination also has a good value, achieving a value of 0.75, or 0.74 after correcting for the number of degrees of freedom.

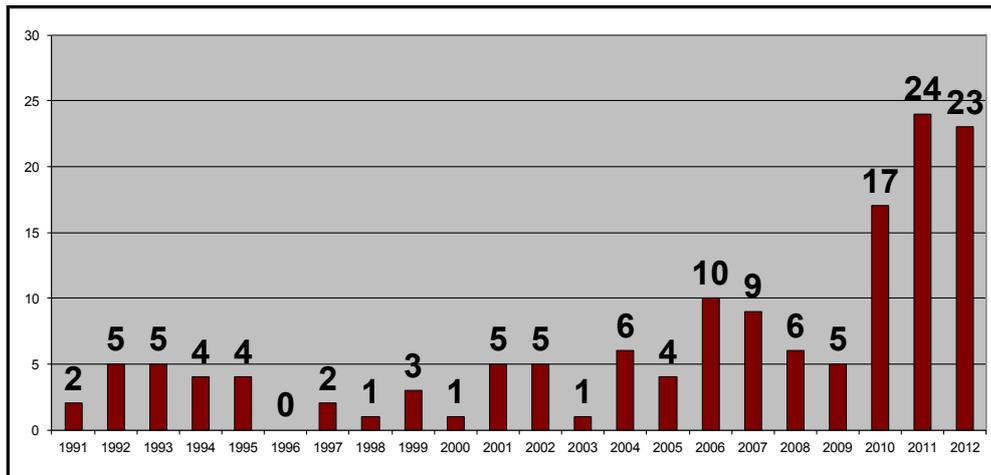
#### 2. Relationship between number of microbreweries and consumption

Until roughly 2009, beer consumption per head was more or less stable, significantly falling in 2008, more so in 2009. This is the exact time when there was a massive growth in the number of microbreweries.

	Coefficient	Std. Error	t-ratio	p-value	
const	26.4106	2.90693	9.0854	<0.00001	***
industrial	-5.76797	0.727325	-7.9304	<0.00001	***
Mean dependent var	3.377214		S.D. dependent var	1.126267	
Sum squared resid	6.985689		S.E. of regression	0.576760	
R-squared	0.749675		Adjusted R-squared	0.737755	
F(1, 21)	62.89107		P-value(F)	9.47e-08	
Log-likelihood	-18.93183		Akaike criterion	41.86367	
Schwarz criterion	44.13466		Hannan-Quinn	42.43482	
rho	0.508074		Durbin-Watson	0.464481	

Source: own processing

Table 1: OLS, using observations 1990-2012 (T = 23) Dependent variable: microbreweries.



Source: Own calculations

Graph 2: Numbers of breweries – year-on-year differences.

	Coefficient	Std. Error	t-ratio	p-value	
const	602.214	162.996	3.6946	0.00135	***
consumption	-3.56976	1.04303	-3.4225	0.00256	***
Mean dependent var	44.78261		S.D. dependent var	37.09932	
Sum squared resid	19437.81		S.E. of regression	30.42384	
R-squared	0.358062		Adjusted R-squared	0.327494	
F(1, 21)	11.71346		P-value(F)	0.002559	
Log-likelihood	-110.1396		Akaike criterion	224.2792	
Schwarz criterion	226.5502		Hannan-Quinn	224.8504	
rho	0.777719		Durbin-Watson	0.421612	

Source: own processing

Table 2: OLS, using observations 1990-2012 (T = 23) Dependent variable: microbreweries.

It is clear to see (Graph 2) that the quantitative period of extreme growth in net number of microbreweries unequivocally corresponds with the fall in beer consumption. The net number of breweries means the number of microbreweries from the previous period (year) plus the number of microbreweries opened during the year in question, minus the number of microbreweries closed during the year.

In this case (Table 2), the dependency is given by a linear relationship, so you can say that a fall in consumption of one litre per head results in the opening of 3.57 microbreweries.

### 3. Relationship between number of microbreweries and number of males in the age category 25 – 39 years

The basis for this quantitative relationship is the assumption that the greatest consumer group

for microbreweries is comprised of men between the ages of 25 and 39. They are sufficiently old to be economically independent, and also sufficiently young to want to experiment and not just stick to the well-established brands of large industrial breweries. According to the Czech Public Opinion Research Centre, 90% of males and just 57 % of females consumed beer between 2004 and 2014. Furthermore, the President of the Bohemian-Moravian Association of Microbreweries (Českomoravský svaz minipivovarů) estimated in 2012 that the strongest consumer group is comprised of people between the ages of 25 and 45 years.

Again (Table 3), a power function appears most appropriate due to the very close correlation of 0.92. The regression is significant even at a very high significance level, and it can be interpreted that a one-percent growth in males between 25 and 39

	Coefficient	Std. Error	t-ratio	p-value	
const	-63.4019	4.98451	-12.7198	<0.00001	***
men_25_39	4.95731	0.367306	13.4964	<0.00001	***
Mean dependent var	3.868676		S.D. dependent var	0.595844	
Sum squared resid	0.432190		S.E. of regression	0.169743	
R-squared	0.923917		Adjusted R-squared	0.918845	
F(1, 21)	182.1525		P-value(F)	8.54e-10	
Log-likelihood	7.090929		Akaike criterion	-10.18186	
Schwarz criterion	-8.515432		Hannan-Quinn	-10.01621	
rho	0.637548		Durbin-Watson	0.737696	

Source: own processing

Table 3: OLS, using observations 1996-2012 (T = 17) Dependent variable: microbreweries

years of age would result in a 4.96% percent growth in the number of microbreweries. The number of males in this category rose over the whole of the period monitored except for 2012.

## Conclusion

The process of founding breweries in the Czech Republic has been going on for more than two decades now, although there was a significant acceleration in 2010, and in 2012 and 2013 the Czech Republic has had the greatest rate of growth in the world. Somewhat paradoxically, this boom has fully expressed itself during a period of global economic crisis, but the reason may well be that consumers are trying ever more to consider their outgoings, and it can also relate to a greater identification of consumers with regional production. So the greatest acceleration in the number of microbreweries has coincided with a fairly significant decrease in beer consumption.

Demographically, the growth in the number of microbreweries is to a large extent influenced by the very strong generation of consumers aged between 25 and 39 years, who are not afraid to experiment and who basically from adulthood have had the opportunity to travel freely and as such take note of the microbrewery boom in the West which took place during the 1980s and 1990s. It is this age group in particular which demands a greater extent of beer styles than that offered by industrial breweries. *The microbrewery movement resembles a true social movement in many respects (Carroll, 1997; Swaminathan, Wade, 2001)*. An example would be wheat beer, which about 150 years ago was the most common on the territory of today's Czech Republic, but which was very quickly supplanted by Czech lager, making Bavaria the home of wheat beer. Today,

thanks in no small part to travel, this beer style is undergoing a major renaissance here.

Microbreweries will never be fully-fledged competitors to industrial breweries; their average production costs per unit are too high, which is why microbreweries generally don't try to compete price-wise with industrial breweries. As such, these are two more-or-less autonomous sectors, which do, however, influence each other, and it can be said that it is industrial breweries which are more influenced by microbreweries than vice-versa, at least in terms of product innovation. This is because microbreweries are much freer to experiment, and microbrewery's consumers are much more likely to overlook sensory imperfections in their products than is the case for industrial breweries.

Another major trigger for the founding of new microbreweries is the stagnation of the conventional market for beer and its oligopolistic structure, which a section of consumers have always perceived somewhat negatively, just as was the case in the United States, where in the 1970s in particular there was even greater product harmonisation than in the Czech Republic.

Although some speculation is required, it may not be too much of an exaggeration to claim that the Czech market for beer is now slowly approaching what it would look like if the natural development of the market had not been interrupted by nationalisation and subsequent central planning.

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