

Original Research

The affordability of beer and the level of its sale in Russia

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- Sale
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Abstract

Background: beer is an alcoholic beverage, the use of which is associated with numerous adverse consequences, including an increased risk of injury, violence, chronic somatic diseases.

Aims: a comparative analysis of the dynamics of the level of affordability of beer and the level of its sale in Russia.

Methods: statistical analysis (Spearman correlation analysis, linear regression analysis) was carried out using the Statistica 12. StatSoft package.

Results: the level of beer sales is closely correlated with the level of its economic affordability ($r = 0.71$; $p < 0.000$). Calculations carried out using a linear regression model showed that with an increase in the price affordability of beer by 1%, the level of its sale grows by 0.61%.

Conclusions: the results of this study indicate that the demand for beer in Russia is elastic in relation to price. The data obtained confirm the existing view that reducing the affordability of beer is a real way to reduce the level of its consumption.

INTRODUCTION

Beer is an alcoholic beverage, the use of which is associated with numerous adverse consequences, including an increased risk of injury, violence, chronic somatic diseases (alcoholic liver disease, alcoholic cardiomyopathy, some types of cancer) [1,11]. The results of epidemiological studies conducted in Russia indicate that beer is consumed by two-thirds of men and about a third of women [2]. The average daily dose of beer in 2010 was about 1 liter for men and 0.6 liters for women. At the same time, drinking large doses of beer is most common among young men aged 20-29 [3]. The scale of beer alcoholism among young people is a matter of concern. The results of sociological surveys indicate that the age of the first consumption of alcoholic products is decreasing every year. So, if in 1991 young people began to drink alcohol on average from 15.5 years, then in 2001 - from 11 years old [9]. Every third adolescent at the age of 12 drinks beer, and among 13-year-old adolescents, the prevalence of beer consumption reaches 70% [9]. It is with the use of beer that teenagers' acquaintance with alcohol usually begins. Therefore, beer plays a key role in introducing young people to alcohol consumption [1].

The growth in the level of beer consumption in Russia at the end of the last century and the beginning of this century was accompanied by an increase in the number of people suffering from beer alcoholism [3]. One of the features of this form of alcoholism is the rapid development of somatic pathology

(alcoholic liver disease, alcoholic cardiomyopathy (beer heart) [3]. Therefore, those suffering from beer alcoholism, falling for the first time in the field of view of therapists with somatic complaints, are not recognized as alcohol-dependent patients. Local therapists report an increase in recent cases of diagnostics in young people of chronic somatic diseases caused by drinking beer.

The results of econometric studies carried out in different countries of the world convincingly indicate that the economic availability of alcohol is one of the main factors that determine the level of its consumption [11-14]. Therefore, reducing the affordability of alcohol by increasing alcohol excise taxes is considered an effective strategy to reduce the level of alcohol-related problems [5,6,10]. Since beer is the cheapest alcoholic product that is popular among young people, who for the most part have modest financial resources, the decline in the economic affordability of beer will help prevent alcohol problems among young people. Taking into account the growth of the level of problems associated with beer consumption, the purpose of this study was a comparative analysis of the dynamics of the level of affordability of beer and the level of its sale in Russia.

MATERIALS AND METHODS

The data on the level of beer sales (in liters of absolute alcohol per capita), beer prices, as well as the level of average wages from 1970 to 2015 are obtained from the annual reports

of Rosstat. The affordability of beer was calculated as the number of liters of beer that can be purchased for an average monthly salary. It should be noted that a more adequate indicator for assessing the affordability of alcohol is the level of real disposable income of the population. In the present study, the average monthly salary was used as its surrogate, which may be one of the methodological limitations of this work. Statistical analysis (Spearman correlation analysis, linear regression analysis) was carried out using the Statistica 12. StatSoft package. To describe the dependence of the level of alcohol sales on changes in its price, economists use the concept of price elasticity of demand, which is defined as the change in the level of alcohol sales in percent in response to a 1% price change [14]. For example, an elasticity of demand of -0.5 means that an increase in the price of alcohol by 1% will lead to a decrease in alcohol consumption by 0.5%. The coefficient of price elasticity of demand for beer was calculated using the following equation: $E = y'x (x / y)$.

RESULTS

In the period from 1970 to 2015 the beer sales level increased by 85.7% (from 1.2 to 2.2% liters). Beer sales in the 1970s and in the first half of the 1980s fluctuated between 1.2-1.5 liters per capita, after which it decreased significantly (-25.8%) in 1986 (Figure 1). Beer sales increased sharply (4.9 times) in the period from 1994 to 2007, reaching its peak (4.8 liters) for the entire period under review, after which it began to decline. The beginning of the so-called "beer revolution" in 1995 corresponds to the beginning of an aggressive advertising campaign for beer against the background of the introduction of a ban on advertising of vodka in the media. In the following years, international campaigns developed the Russian beer industry, making large investments and increasing production volumes.

The Soviet model of the structure of alcohol consumption was characterized by the domination of vodka, a relatively high proportion of fortified fruit and berry wine products and dry wines, and an insignificant proportion of beer. In the 1970s, the structure of alcohol sales was relatively stable and looked

as follows: vodka (58-63%), wine (20-25%), beer (14-16%). A significant decrease in the share of vodka in the structure of alcohol sales occurred during the anti-alcohol campaign due to a decrease in its physical and economic availability. At that time, the lost positions of vodka were occupied by beer, the share of which in the sales structure increased to 30%. In the first half of the 1990s, vodka more than won back its positions, reaching in 1994 the maximum for the entire period under consideration - 76%. In the subsequent period, up to 2008, the share of vodka in the sales structure decreased against the background of the growth in beer sales. The most significant growth in the share of beer in the structure of alcohol sales was noted in the period from 1994 to 2007, when this indicator increased from 14.2% to 41.2% (Figure 1)

During the period under review, there was a significant increase in the level of affordability of beer. A sharp rise in the level of this indicator began in 1999 and continued until 2008 (Figure 2). As a result, the level of affordability of beer in the period from 1999 to 2008 increased 4.3 times (95.1 to 409.2 liters). In subsequent years, the level of this indicator began to decline.

Analysis of graphical data (Figure 2) suggests that in the period under review, the trends in the affordability of beer and the level of its sale were quite similar. According to the results of Spearman's correlation analysis, the level of beer sales is closely correlated with the level of its economic affordability ($r = 0.71$; $p < 0.000$). Given the close correlation between the studied variables, a linear regression model was used for further analysis. The resulting linear regression equation describes more than half of the total variance of the beer sales indicator and is highly reliable ($p < 0.000$). Thus, the relationship between the variables is optimally described by a linear regression model of the following form: $y = B_0 + B_1 * x$, where $B_0 = 1.03$; $B_1 = 0.007$. According to calculations based on a linear regression model, the coefficient of price elasticity of demand for beer in terms of its economic affordability was 0.61. In other words, with an increase in the price availability of beer by 1%, the level of its sale grows

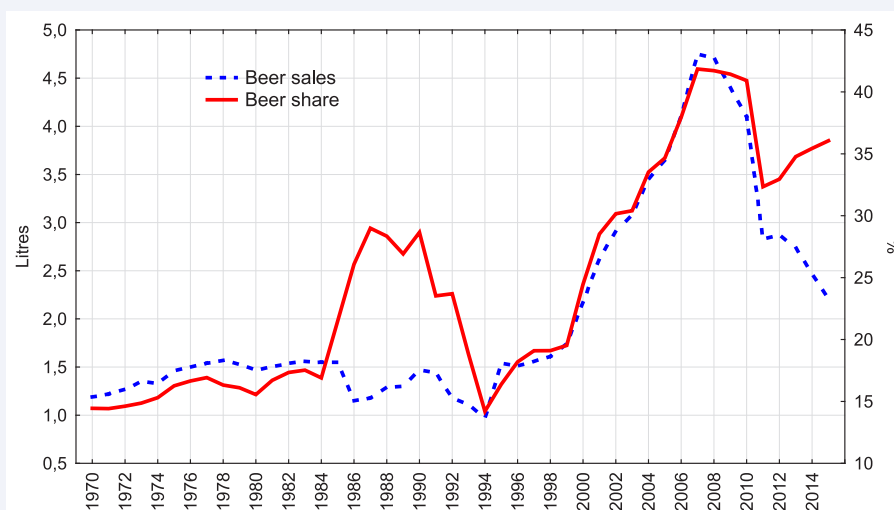


Figure 1 Dynamics of the beer sales level (left scale) and the share of beer in the sales structure (right scale) in Russia in the period from 1970 to 2015.

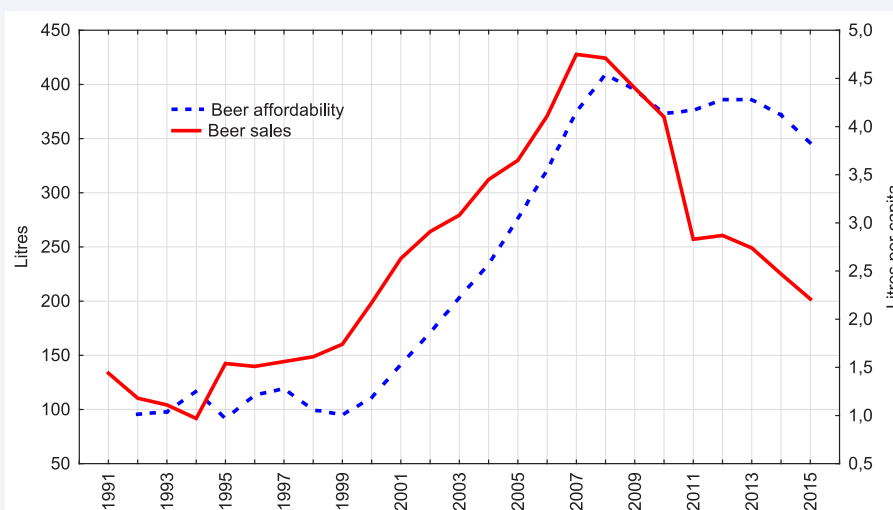


Figure 2 Dynamics of economic affordability of beer (left scale) and the level of beer sales (right scale) in Russia in the period from 1991 to 2015.

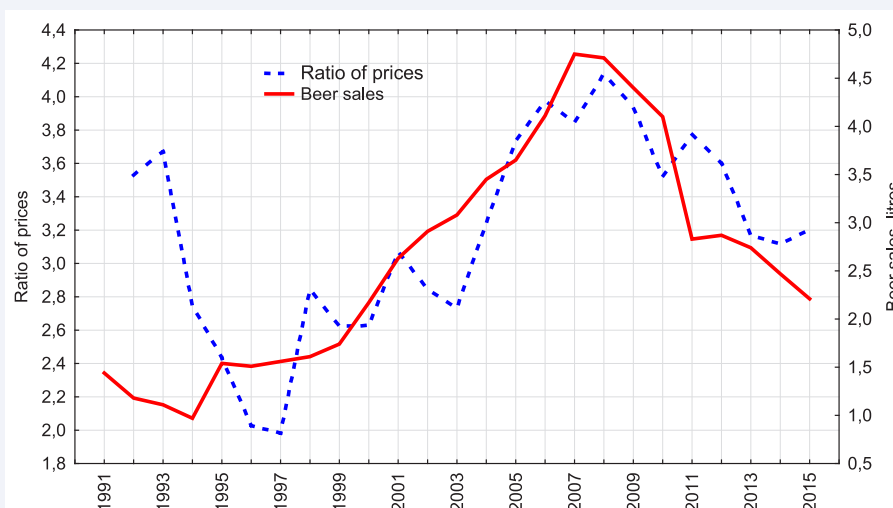


Figure 3 Dynamics of the ratio of prices of beef and beer (left scale) and the level of beer sales (right scale) in Russia in the period from 1991 to 2015.

by 0.61%. The presented data are consistent with the results of previous studies, which showed that the demand for beer is elastic in relation to its price [11-14].

An important variable influencing the level of alcohol sales is the ratio of prices for alcohol to staple foods [11]. The graphical data presented in Figure 3 indicate that the dynamics of the beer sales level is quite similar to the dynamics of the ratio of prices for beef and beer. The results of Spearman's correlation analysis indicate the existence of a positive, statistically significant relationship between these indicators ($r = 0.61$; $p < 0.000$). Based on these data, it can be said that the sharp decline in the price of beer in relation to the prices for basic food products was one of the factors behind the sharp increase in the level of beer sales at the end of the last century, the beginning of this century.

DISCUSSION

The analysis of the results of opinion polls is consistent with the official data on the level of beer sales. The share of

beer consumers rose sharply (from 24 to 58%) in the period from 1996 to 2000, after which it stabilized in 2001-2005, and then slightly decreased after 2006 [8]. Based on the results of the survey of the population, we can say that after 2002 Russia turned into a "beer" country.

The change in the structure of alcohol consumption in Russia took place in the context of changes in alcohol preferences by various social and age groups. It was noted that representatives of the younger generation prefer beer [9]. It should be also emphasized that the growth of the share of beer in the structure of alcohol sales is a reflection of the European trend of recent decades, which consists in the homogenization of styles of alcohol consumption with the displacement of strong alcoholic products from the structure of consumption by low-alcohol ones [4].

Over the past decades in many countries traditionally considered "vodka", there has been an increase in the share of beer in the structure of alcohol sales [7]. Some experts consider

this trend to be a positive phenomenon, since beer is pushing hard alcohol out of the sales structure. However, upon a detailed examination of this phenomenon in the experience of the Scandinavian countries, the grounds for such an optimistic point of view turn out to be illusory. For example, the goal of the reform in Finland in 1969 was to replace the local intoxication-oriented style of vodka consumption with the style of beer consumption (the so-called substitution economy) [11].

Medium-strength beer began to be sold in all grocery stores, while vodka could only be bought in special state stores. It was assumed that the availability of low alcohol products will lead to a decrease in the consumption of hard alcohol. However, contrary to expectations, the Finns did not abandon the “festival” style of consumption, and the aggregate level of alcohol consumption per capita more than doubled, which led to a proportional increase in alcohol-related problems [7]. After the liberalization of alcohol policy in Finland, there was an even greater spread of the traditional intoxication-oriented style of drinking not only vodka, but also beer. Thus, the proportion of men who drank to a severe degree of intoxication at least once a week from 1968 to 2000 increased from 14% to 30%, and among women this indicator increased from 2% to 13% [11].

In other Scandinavian countries, it was also assumed that the new style of drinking (drinking small amounts of alcohol more regularly) would gain popularity among young people and gradually replace the traditional style of drinking (drinking large doses of alcohol irregularly). Contrary to expectations, it turned out that the level of alcohol consumption among young people increased [11]. The increase in beer availability in these countries resulted in a sharp decline in the number of teetotalers. Thus, in Norway, from the mid-50s to the mid-70s, the number of teetotalers among men decreased from 25% to 12%, and among women from 37% to 18% [11]. In Finland, over the same period, the number of teetotalers among men decreased from 14% to 8%, and among women from 40% to 20% [7]. The decrease in the number of teetotalers in the Nordic countries indicates a departure from teetotal ideas, that is, the “soaking” of culture. In general, the experience of the Scandinavian countries does not allow us to say that the change in the structure of alcohol consumption in favor of beer has a positive effect on the alcohol situation in the country. In this context, the attempt by some experts to explain the decrease in the level of alcohol-related problems, noted in Russia in recent years, by an increase in the share of beer in the structure of alcohol consumption, seems unfounded.

Thus, the results of this study indicate that the demand for beer in Russia is elastic in relation to price. The data obtained confirm the existing view that reducing the economic affordability of beer is a real way to reduce the level of its consumption. High economic availability of beer, its relative cheapness in relation to basic food products, along with its high physical availability (sale in numerous outlets almost around the clock), as well as aggressive advertising became the main reasons for the sharp increase in the level of beer sales at the end of the last century

and the beginning of this century. The growth in the level of beer sales, stimulated by the increase in its availability, was primarily due to the growth in the level of its consumption among young people, which cannot but cause concern. International experience in the field of anti-alcohol policy does not allow us to consider increasing the availability of beer in order to replace it in the structure of strong alcohol consumption as a rational strategy.

REFERENCES

1. Golovin AA, Arshin KV, Karpachev AA, Razvodovsky YE, Ivanov VA. The state of consumption of tobacco, alcohol and drugs in Russia and promising approaches to their prevention. Expert report of civil society institutions on the causes, consequences, potential for protecting the health of an individual, society, and the state. 2017: 152.
2. Denisova I. Alcohol consumption in Russia: impact on health and mortality. Analytical reports and developments CEFIR / NES. 2010: 31.
3. V.P. Nuzhny, V.V. Rozhanets Beer in the Russian Federation: a new reality. *Narcology*. 2007; 3: 30-41.
4. Radaev V, Kotelnikova Z. Changes in the structure of alcohol consumption in the context of state alcohol policy in Russia. *Economic policy*. 2015; 5: 92-117.
5. Razvodovsky YE. Financial availability of alcohol and the level of its sale in Belarus. *Issues of organization and informatization of healthcare*. 2009; 4: 63-69.
6. Razvodovsky YE. Economic availability and volumes of alcohol sales in the Republic of Belarus. *Questions of Narcology*. 2012; 1: 30-40.
7. Razvodovsky YE. Alcohol policy from a European perspective. *ZhSMU*. 2005; 1: 21-24.
8. Roshchina YM. Dynamics and structure of alcohol consumption in modern Russia // *Bulletin of the Russian monitoring of the economic situation and health of the population of the Higher School of Economics*. 2012; 2: 238-257.
9. Tapilina V. How much does Russia drink? Volume, dynamics and differentiation of alcohol consumption // *Sociological studies*. 2006; 2: 85-94.
10. Khalturina DA, Korotaev AV. The alcohol catastrophe and the possibilities of state policy in overcoming alcohol supermortality in Russia. M: LENAID, 2008: 376.
11. Edwards G, Anderson P, Babor TF, Casswell S, Ferrence R, Giesbrecht N, et al. *Alcohol policy and the public good*. Oxford: Oxford University Press. 1994.
12. Gil A, Khaltourina D, Korotaev A. Alcohol consumption in Russia: affordability of alcohol, changes and effects of alcohol control policy and future prospects. In: *Changes in alcohol affordability and availability. Twenty years of transition in Eastern Europe*. 2016. 18-50.
13. Moskalewicz J, Osterberg, Razvodovsky YE, Moskalewicz J and Osterberg E. Summary. In: *Changes in alcohol affordability and availability. Twenty years of transition in Eastern Europe*. Juvenes Print. 2016: 157-168.
14. Wagenaar AC, Salois MJ, Komro KA. Effects of beverage alcohol price and tax levels on drinking: A meta-analysis of 1003 estimates from 112 studies. *Addiction*. 2009; 104: 179-190.

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