

Effect of Tax Increase on Alcohol Consumption in Russia and Belarus

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Abstract: The aim of this study was to estimate the effect of alcohol tax increase on alcohol consumption in Russia and Belarus. Trends in the excise tax rates on spirits and per capita vodka sales, total alcohol sales, total level of alcohol consumption, unrecorded alcohol consumption between 2008 and 2015, were compared. During the period under consideration the excise tax rates in Russia and Belarus increased correspondingly 2,9 and 9,7 times; per capita vodka sales decreased by 44,7% u 25,9%; total alcohol sales decreased by 26% u 27,4%; total level of alcohol consumption decreased by 13,3% u 17,2%; unrecorded alcohol consumption increased by 24,3% u 16,2%. A Spearman's correlation analysis suggests an inverse relationship between the excise tax rates and vodka sales per capita, as well as alcohol consumption per capita in Russia. In Belarus the excise tax rates correlate negatively with the level of alcohol consumption per capita. So, the rapid growth in the excise tax rates has resulted in the substantial decrease in the level of alcohol sale in Russia and Belarus. However, the excise tax rates increase has provoked the rapid growth in the unrecorded alcohol consumption. As a result, the total level of alcohol consumption has decreased not substantially.

Key words: excise tax, alcohol, consumption, Russia, Belarus.

1. INTRODUCTION

International experience in the field of alcohol policy shows that reducing the economic availability of alcohol through taxation of alcohol products is one of the most effective ways to reduce the level of alcohol consumption [1, 2]. A number of studies using the example of different countries have shown that an increase in the excise tax rate is associated with a decrease in the level of alcohol consumption and, accordingly, the level of alcohol-related problems [3, 6].

The level of alcohol consumption in the former Soviet republics of Russia and Belarus is one of the highest in the world [7-10]. These countries occupy leading positions in the world rating of alcohol consumption largely due to its high physical and economic accessibility [5, 11]. Joint experience in the field of alcohol policy, which took place in the mid-1980s the past century, has shown that a decrease in the physical and economic availability of alcohol was accompanied by a sharp and synchronous decrease in the level of alcohol consumption, as well as the level of alcohol-related problems in both countries [3]. In the post-Soviet period, the dynamics of alcohol consumption in Russia and Belarus differed significantly, which was

probably due to differences in the socio-economic situation, as well as in the degree of state control over the alcohol market [3]. In both countries, excise policy was used as a way to regulate the economic availability of alcohol, but the increase in the excise tax rate was always delayed in relation to the increase in the rate of inflation, as a result of which the availability of alcohol increased [5,11].

The conditions of the so-called natural experiment, when there are sharp changes in the availability of alcohol, allow us to assess the effectiveness of various measures of alcohol policy. Such a unique situation has developed in Russia and Belarus due to the fact that as part of the harmonization of excise policy within the common economic space (CES), in the period from 2010 to 2015, excise rates for alcohol products began to grow rapidly every year, which led to a significant increase in the price of alcohol [4]. In this regard, the purpose of this work was a comparative analysis of the effect of a sharp increase in the excise tax rate on the level of alcohol consumption in Russia and Belarus.

2. MATERIALS AND METHODS

In comparative aspect was analyzed the dynamics of the rates of excise tax rate on spirits

and dynamics of the sales of vodka in overall sales of alcohol, level of alcohol consumption and level of consumption of unregistered alcohol in the period from 2008 to 2015. The data of excise tax rate (in rubles per liter of absolute alcohol without taking into account inflation), the level of vodka sales (liters of pure alcohol per capita), and level of sale of alcohol (in litres of pure alcohol per capita) was obtained from official publications of statistical agencies of Russia and Belarus. The overall level of alcohol consumption was calculated using an indirect method using the death rate from acute alcohol poisoning [12,13]. Statistical data processing (descriptive statistics, Spearman correlation analysis) was performed using the software package “Statistica 12. StatSoft”.

3. RESULTS

In the period under review, the excise tax rate in Russia and Belarus grew by 2.9 times (from 173 to 500 rubles) and 9.7 times (from 14 to 136 rubles); the level of vodka sales fell by 44.7% (from 5.3 to 2.9 liters) and 25.9% (from 5.8 to 4.3 liters); overall alcohol sales fell by 26% (from 9.7 to 7.1 liters) and 27.4% (from 12.4 to 9.0 liters); the level of alcohol consumption

decreased respectively by 13.3% (from 12.9 to 11.2 liters) and 17.2% (from 16.1 to 13.3 liters); the level of unregistered alcohol consumption increased by 24.3% (from 3.3 to 4.1 liters) and 16.2% (from 3.7 to 4.3 liters), respectively.

The Russian standard vodka sales, overall sales of alcohol and its consumption have decreased since 2008, the gradual growth of the excise tax rate (figure 1). The rate of decline in the level of vodka sales increased sharply after 2012, which coincided with a sharp increase in the excise tax rate. The level of alcohol sales, after a slight increase in 2012 and 2013, continued to decline in subsequent years. However, this decrease was largely offset by a sharp increase in the consumption of unregistered alcohol, resulting in virtually no change in the level of alcohol consumption. In General, simultaneous growth of rates of excise duty on alcohol in Russia and Belarus was accompanied by a nearly identical decrease in sales in both countries, a more significant decrease in the level of consumption in Belarus, more significant decline in vodka sales, as well as more significant increase in the level of consumption of unregistered alcohol in Russia.

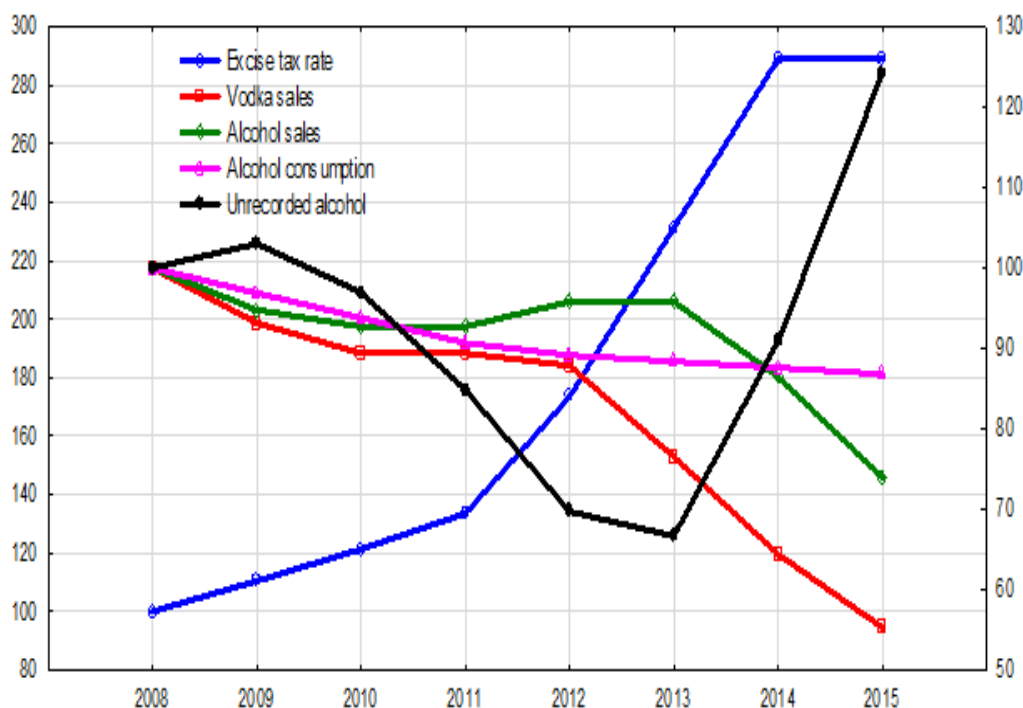


Figure 1: Dynamics of the excise tax rate (left scale), the level of vodka sales (right scale), the General level of alcohol sales (right scale), the level of alcohol consumption (right scale), the level of unregistered alcohol consumption (right scale) in Russia in the period from 2008 to 2015 (2008 – 100%).

In Belarus, a sharp increase in the excise tax rate in 2012 was accompanied by a significant decrease in both the level of sales and the level of alcohol consumption (figure 1). Over the next three years, sales declined at a rapid pace as the

excise tax rate increased, while the rate of decline in alcohol consumption slowed due to increased consumption of unregistered alcohol. The level of vodka sales after significant growth in 2011 and 2012 began to decline rapidly.

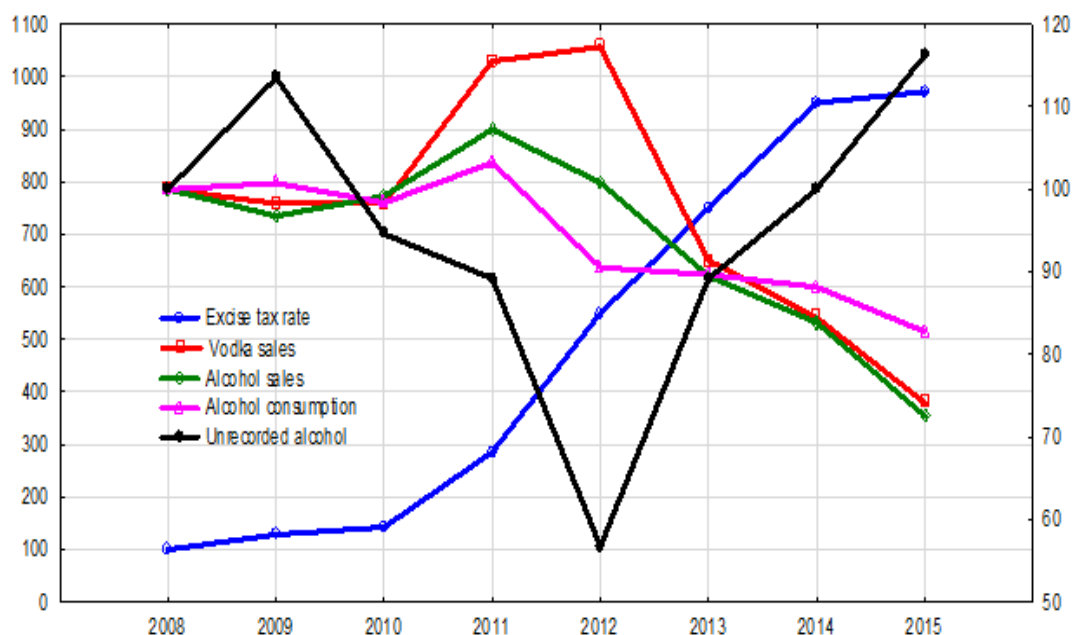


Figure 2: Dynamics of the excise tax rate (left scale), the level of vodka sales (right scale), the General level of alcohol sales (right scale), the level of alcohol consumption (right scale), the level of unregistered alcohol consumption (right scale) in Belarus in the period from 2008 to 2015 (2008 – 100%)

The results of the correlation analysis revealed the existence of a close positive relationship between the dynamics of the following indicators in Russia and Belarus: excise tax rate ($r=0.99$; $p<0.000$), alcohol consumption ($r=0.83$; $p<0.000$), consumption of unregistered alcohol ($r=0.92$; $p<0.000$). The relationship between the sale of vodka ($r=0.65$; $p<0.084$) and the overall level of alcohol sales ($r=0.52$; $p<0.188$) in Russia and Belarus is also positive, but not statistically significant.

The correlation analysis revealed a statistically significant close feedback between the excise tax rate and the level of vodka sales, as well as

Table 1: The results of correlation analysis. Relationship between the excise tax rate and the level of alcohol sales/consumption

Country	Sales of vodka	Sales of alcohol	Alcohol consumption	Unrecorded alcohol
Russia	-0,98*	-0,62	-0,99*	-0,22
Belarus	-0,61	-0,62	-0,83*	0,05

* $p < ,000$

4. DISCUSSION

The results of this study revealed an inverse relationship between the excise tax rate on strong alcohol and the level of alcohol consumption in Russia and Belarus. The data obtained indirectly indicate that the increase in the excise tax rate was the main driver of the decrease in alcohol consumption in the period under review in both countries. In general, these data confirm the general pattern, according to which an increase in the excise tax rate on alcohol leads to a decrease in the level of alcohol consumption [1, 2].

the level of alcohol consumption in Russia. There is also an inverse relationship between the excise tax rate and the level of alcohol sales, although it is not statistically significant (table 1). In Belarus the excise tax rate is statistically significantly negatively related to the level of alcohol consumption. The relationship between the excise tax rate and the sale of vodka/the overall level of alcohol sales is also negative, but it is not statistically significant. In both countries, there was no correlation between the excise tax rate and the level of consumption of unregistered alcohol (table 1).

It should be noted, however, that the sharp increase in the excise tax rate in Russia and Belarus is not a pure experiment in the field of alcohol policy, since it occurred against the background of different socio-economic conditions in both countries, which changed during the period under review. In particular, the increase in the level of alcohol sales and consumption against the background of an increase in the excise tax rate observed in 2011 in Belarus could be due to psychosocial distress caused by the socio-economic crisis [14]. In addition, the alcohol situation in both countries

(mostly in Russia) may have been affected by the global financial crisis of 2008.

An additional unrecorded variable that may have had an impact on the level of alcohol consumption is anti-alcohol measures, in addition to the increase in the excise tax rate, that were taken during the period under review. This is especially true in Russia, where since 2005 a number of laws have been passed that strengthen state control over the alcohol market [15]. Some researchers believe that the decrease in alcohol consumption after 2008 was partly due to the introduction of the EGAIS alcohol market regulation system [4]. Another measure to strengthen control over the alcohol market was the introduction of a minimum retail price for vodka in 2010 [16].

In 2012, a ban was introduced on the sale of all types of alcoholic beverages from 23 to 8 am [4]. It also banned the retail sale of alcohol in children's, educational and medical institutions, sports facilities and adjacent territories. In addition, the authorized capital for alcohol producers was increased by 40%, the ban on the sale of alcoholic products in kiosks was extended, the licensing of the transport of ethyl alcohol was introduced, and advertising of beer and wine was prohibited [4]. In 2013 a ban on the sale of beer in non-stationary retail facilities was introduced, the excise tax rates on alcohol were increased, and the minimum price for vodka was raised. However, in 2015, the minimum price for vodka was lowered, and advertising of beer and wine on television was allowed [15].

The overall level of alcohol consumption is a key indicator that characterizes the alcohol situation in the country, closely correlating with indicators of alcohol problems [13]. Therefore, the effectiveness of anti-alcohol measures should be evaluated by the dynamics of this indicator. The relatively modest decline in alcohol consumption in both countries with a significant growth rate of excise duty, says a lack of potential excise policy.

Unregistered alcohol has become a major obstacle to reducing alcohol consumption by reducing its economic availability the increase in alcohol consumption in recent years has largely offset the decline in official sales. It should be noted that the level of unregistered alcohol consumption decreased in Belarus and Russia until 2012 and 2013, respectively, and then sharply increased in the following years. Decrease in the level of this indicator against the

background of a decrease in the level of economic accessibility legal alcohol consumption is likely to be explained by an increase in the level of income of the population [11].

The sharp increase in the consumption of unregistered alcohol in recent years is obviously due to a sharp decrease in the availability of legal alcohol. The reason for the increase in the level of consumption of unregistered alcohol in both countries in 2015, with a slight (in Belarus) and even zero (in Russia) increase in the excise tax rate, was probably a decrease in real incomes of the population due to the beginning of the economic crisis. Changing preferences in favor of cheaper alcoholic beverages, as well as their surrogates, with a decrease in the level of income is a well-known phenomenon [17, 18, and 21]. The data obtained suggest that the scale of the shadow alcohol market in Russia and Belarus is approximately comparable. It can also be stated that a number of legislative measures taken recently in Russia to reduce the shadow turnover of alcohol were not effective enough.

Thus, a sharp increase in the excise tax rate for strong alcohol in Russia and Belarus has led to a significant decrease in the level of alcohol sales. This effect could be considered an example of successful use of the anti-alcohol potential of excise policy, if not for a sharp increase in the level of consumption of unregistered alcohol, which largely offset the decline in the level of official alcohol sales. A sharp increase in the level of consumption of unregistered alcohol begins when a certain threshold level of the excise tax rate is reached, after which illegal alcohol becomes more attractive than legal alcohol in terms of economic accessibility. The decline in the level of income of the population during the socio-economic crisis is an independent factor in the growth of the level of consumption of unregistered alcohol. The existence of a shadow alcohol market in Russia and Belarus is a serious problem that limits the ability of the state to influence the alcohol situation in the country by regulating the availability of alcohol. Therefore, the effectiveness of alcohol policy in countries with high levels of unregistered alcohol consumption, such as Russia and Belarus, largely depends on the ability of the state to control the shadow alcohol market.

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Citation: Razvodovsky Y.E Effect of Tax Increase on Alcohol Consumption in Russia and Belarus. *ARC Journal of Addiction*.; 4(2): 34-38.

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