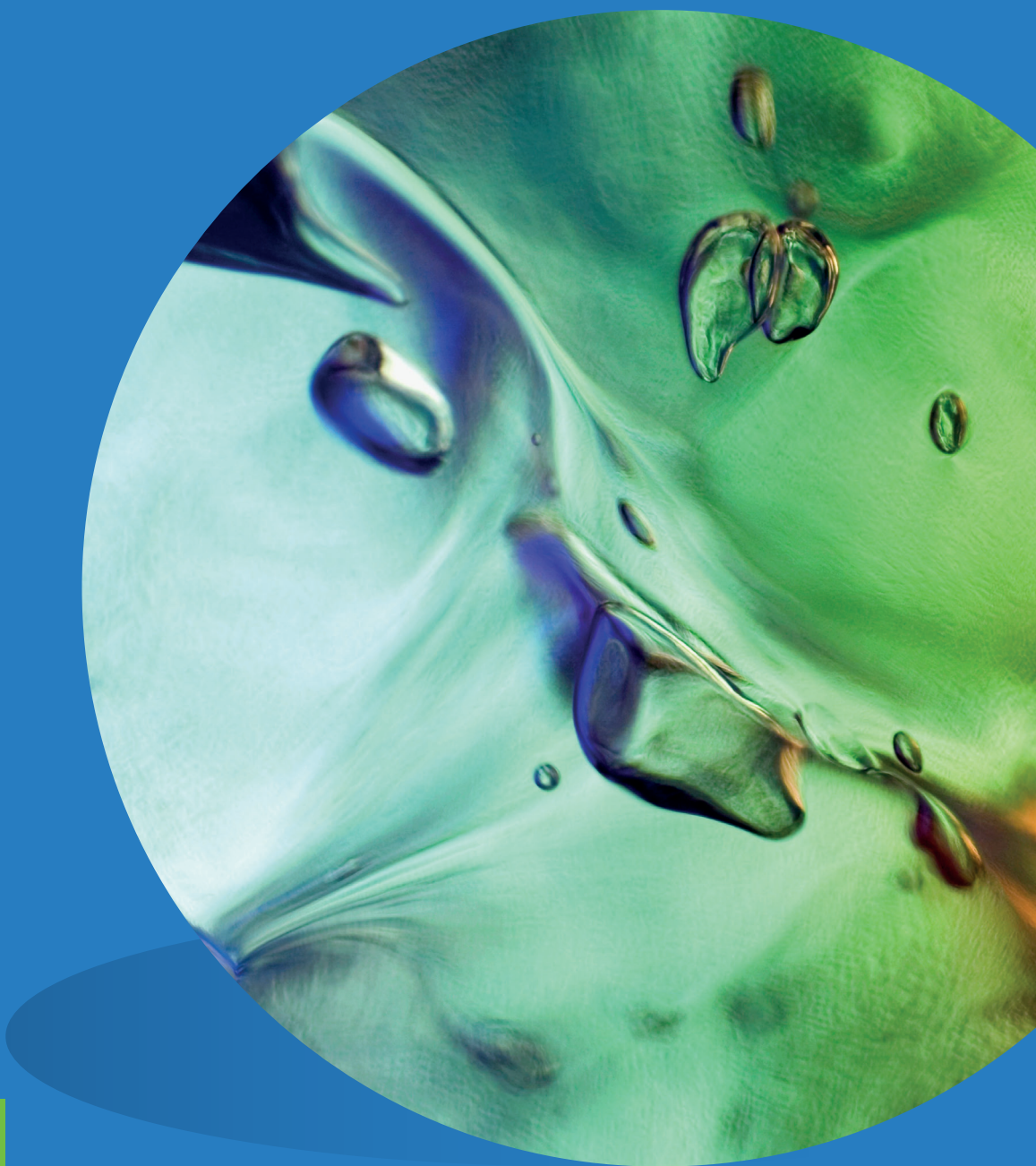
Jacek Moskalewicz
Esa Österberg
(eds.)

Changes in Alcohol Affordability and Availability

Twenty Years of Transitions in Eastern Europe

REPORT



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INTRODUCTION

Alcohol Measures For Public Health Research Alliance (AMPHORA) was a four-year research project running from 2009 to 2012 co-financed by the Seventh Framework Programme of the European Commission. The project was split into nine areas of research in the form of work packages. A full description of the work undertaken within the project can be found in published article Alcohol Policy in Europe: Evidence from AMPHORA (Anderson et al. 2013).

AMPHORA's Work Package 5, entitled Economic and Physical Availability of Alcohol, was dedicated to the study of changes and effects of alcohol availability in Europe. Measures changing the availability of alcohol can be divided into three categories. First, there are measures affecting economic availability, such as excise duties, value added taxes, import duties, minimum prices, discount promotions and so forth. The second category contains measures affecting alcohol affordability, including both alcohol prices and consumers' disposable incomes. The third category includes measures affecting the physical availability of alcohol, such as an alcohol monopoly or licensing systems for the on- and off-premise retail sale of alcoholic beverages, opening hours and sales days of alcohol outlets, as well as sales practices and legal age limits or other personal controls for alcohol sales (Karlsson et al. 2013).

A wealth of research has shown that restrictions on the physical and economic availability of alcohol belong to the most effective and cost-effective policy measures when trying to lower total per-capita alcohol consumption and to reduce levels of alcohol-related harms (see e.g. Anderson 2009; Babor et al. 2010; WHO 2011; Anderson et al. 2012). In dealing with these restrictions, AMPHORA's Work Package entitled Economic and Physical Availability of Alcohol dealt with a highly central topic that in one way or another affects health and welfare in every country in Europe.

Two stages of the work package

The work package involved researchers from Finland, Poland and Sweden working on the subject of alcohol availability in two stages. In brief, the first stage focused on studied cases of changes regarding alcohol availability, meaning the documentation and mapping of published research and literature on the subject of alcohol availability from all over Europe. Altogether 383 publications were collected, from which a number of con-

clusions could be drawn. One interesting feature that emerged from the gathered material was that different types of study interest could be identified in different corners of Europe. Many of the studies dealing with the Nordic countries were for example dominated by the physical availability of alcohol, whereas studies from Eastern Europe to a larger extent dealt with alcohol consumption and related harms (Karlsson et al. 2011).

In the second stage, attention was focused towards unstudied cases, which refers to policy changes that have occurred in Europe during the last decade that had not yet been scientifically documented or analysed. These cases were identified through extensive searches that included national and international media, NGO's newsletters and mailing lists, web portals, and information offered by Governmental and European institutions and by other networks. We also received valuable contributions from national experts and researchers in the alcohol field (Lindeman et al. 2012).

A total of 76 recent instances of changed alcohol availability were found. Of these measures, only 13 were changes in a more liberal direction, meaning that the majority of recent European policy changes have been restrictive in nature. An interesting geographical distinction can also be made: 37 of the 63 changes moving towards a stricter policy and 6 of the 13 changes moving towards a more liberal policy had taken place in Eastern Europe (Lindeman et al. 2012).

Among these restrictive changes we found for example minimum pricing in Russia and Ukraine, excise duty increases in Czech Republic and Belarus, new sales restrictions in Estonia and Latvia, but also changes brought along by external influences that are not concrete alcohol-specific policies. For example, alcohol consumption in Romania has decreased due to economic recession. Among liberal measures, for example, Lithuania has introduced longer opening hours for beer sales, Hungary has eased taxation for home-produced spirits and Poland has increased alcohol affordability. With few exceptions, changes towards facilitating better access to alcohol appeared in the earlier years of transitions in the Eastern European countries, while more restrictive measures have been adopted in more recent years.

As it became apparent that the alcohol policy scene in Eastern Europe was active, dynamic and vibrant, those of us working in AMPHORA's Work Package 5 felt that a more in-depth analysis of the Eastern European situation regarding alcohol policies, consumption and related harms would contribute to a broadened perspective and extended knowledge of our work in AMPHORA. Moreover, this book also strives to cast light on larger structural changes within the alcohol control systems in ten Eastern European countries, and even to give some insight as to why alcohol policy making should be seen in wider social terms. In other words, it is not enough to just know which alcohol control measures are effective and cost effective. It is also of utmost importance to understand how and when these effective measures can be implemented and what forces are at work for and against their implementation, or even for the abolishment of already implemented effective alcohol control measures.

Eastern Europe

The concept of Eastern Europe in a political sense emerged after the Second World War to label the countries which *nolens-volens* happened to be in the Soviet sphere of influence. As a result of the Second World War, Estonia, Latvia and Lithuania lost their independence and became republics of the Soviet Union. The Soviet republics of Belarus and Ukraine maintained their status but their territories increased remarkably as they incorporated into their land area parts which earlier had belonged to Poland. All remaining countries preserved their position as independent states but they adopted one party systems and centrally planned economies. They were perceived as satellites of the Soviet Union, but the level of dependence varied greatly in time and space, e.g. Yugoslavia broke its alliance with the Soviet Union three years after the end of the Second World War, in 1948, and in the 1960s Romania distanced itself from the Soviet Union. Albania withdrew its membership from the Warsaw Pact in practice in 1961 and formally in 1968.

Human development and industrial output were accelerated in Eastern Europe through the introduction of centrally planned economies, substantial investments in heavy industry, and housing schemes, which practically solved the problem of structural unemployment. Alongside these changes, substantial developments were made in social services, including free education and health services, which further accelerated industrial output and also human development. By the late 1960s, the major indicators of human development such as life expectancy, infant mortality and literacy levels in Eastern Europe were similar to those in the western part of the continent, where a market economy prevailed (Hardt & Kaufman 1995).

In the late 1960s, however, simple developmental reserves had become exhausted. The East-West gap started to grow again. In all the countries concerned, attempts were made to identify sources of problems and to reform their economies.

Economic slowdown and alcohol's role as a revenue source and a social burden

Despite the symptoms of economic slowdown, demand for many consumer goods had still been on the rise, including that for alcoholic beverages. Alcohol monopolies that had emerged or re-emerged after the Second World War did their best to provide budget revenues on the one hand and to contribute to balancing a domestic market where other commodities were in short supply (Moskalewicz 1985). Political, economic and ideological ties had brought cultural homogenisation, which was reflected in the alcohol field in reinforcement or the appearance of a drinking pattern where the major feature was infrequent occasions of heavy vodka consumption (Zatoński 1998; Popova et al. 2007; Pomerleau et al. 2008). This drinking pattern had already prevailed in Belarus, Poland, Russia and Ukraine as well as in the Baltic Countries and had tended to spread all over the Soviet bloc countries. By the end of the 1970s the Eastern European countries be-

longed to the highest consumers of spirits in Europe (Iontchev 1998; Ramstedt 2002). In addition to cultural factors, economic considerations had stimulated consumption of distilled spirits. Alcohol monopolies, as important components of the centrally planned economies, were very likely to prioritise distilled spirits, which offered the best per unit profit. In the economies of shortage and the underdeveloped network of retail outlets, distilled spirits were among the least demanding commodities in terms of storage, refrigeration and manpower (Lehto 1997; Litmanowicz & Moskalewicz 1986).

Budget revenues and other profits represented one side of the coin. It was eventually realised that the alcohol burden may outweigh these benefits through disastrous impacts on health and productivity. Efforts to reduce the alcohol burden were made already in the 1950s, with the focus on developing alcohol treatment. Despite substantial investments in alcohol treatment and its development towards an autonomous treatment sector, the alcohol burden was not alleviated. On the contrary, it had contributed to or could be blamed for the inefficiency of socialist economies (Moskalewicz 1993a).

Anti-alcohol campaigns in the 1980s

Further attempts to reduce alcohol consumption were undertaken and alcohol control was tightened in the late 1970s in Poland and soon after in the Soviet Union. In the 1980s alcohol suddenly had become a political issue (Wald & Moskalewicz 1984). In Poland, the first independent trade union in Eastern Europe called Solidarity used the alcohol question in its struggle for democratic reforms, blaming the regime for pushing alcohol and strengthening its power over a drunken society. In response, the government reduced the supply of alcohol and then introduced alcohol rationing to secure access to alcohol for its consumers. Political debate on alcohol led to the adoption of a new alcohol law which imposed a highly centralised system of alcohol control--including upper limits for alcohol retail outlets, both at the regional and national level, with the obligation to adjust alcohol prices with inflation--a ban on alcohol sales until 1:00 p.m., and a ban on alcohol advertising (Moskalewicz 1993a; Świątkiewicz 1997).

A few years later, the Soviet authorities made restrictive alcohol policy a benchmark of radical political reforms called *perestroika* (restructuring) and glasnost (openness or transparency) (Nemtsov & Shkolnikov 1995; Nemtsov 2000; Nemtsov 2005; Treisman 2010). The Soviet alcohol reform was even more far-reaching than the Polish one. The supply of alcohol was drastically reduced, vines were eradicated and an intensive state-induced anti-alcohol campaign was launched. The Soviet alcohol policy which affected all its republics was adopted to a much lesser extent, however, in other Eastern European countries, spreading from the Baltic Sea to the Black Sea.

Despite their positive impact on the health of the population, the Soviet top-down crusade as well as the Polish attempts at alcohol control eventually failed, in particular after the introduction of market economies in all these countries in the 1990s (Treisman 2010; Simpura et al. 1997). More importantly, these campaigns had a long-lasting impact on health-oriented public policies for alcohol in the region, as alcohol control

had become associated with the previous, restrictive political regime with its inefficient economy (Moskalewicz 1993b; Lehto & Moskalewicz 1994; Moskalewicz & Zieliński 2003). As with the long shadow of the alcohol prohibition in the USA (Moore & Gerstein 1981; Room 1984), the anti-alcohol reforms in Eastern Europe excluded alcohol control from the available political options for almost two decades.

Countries

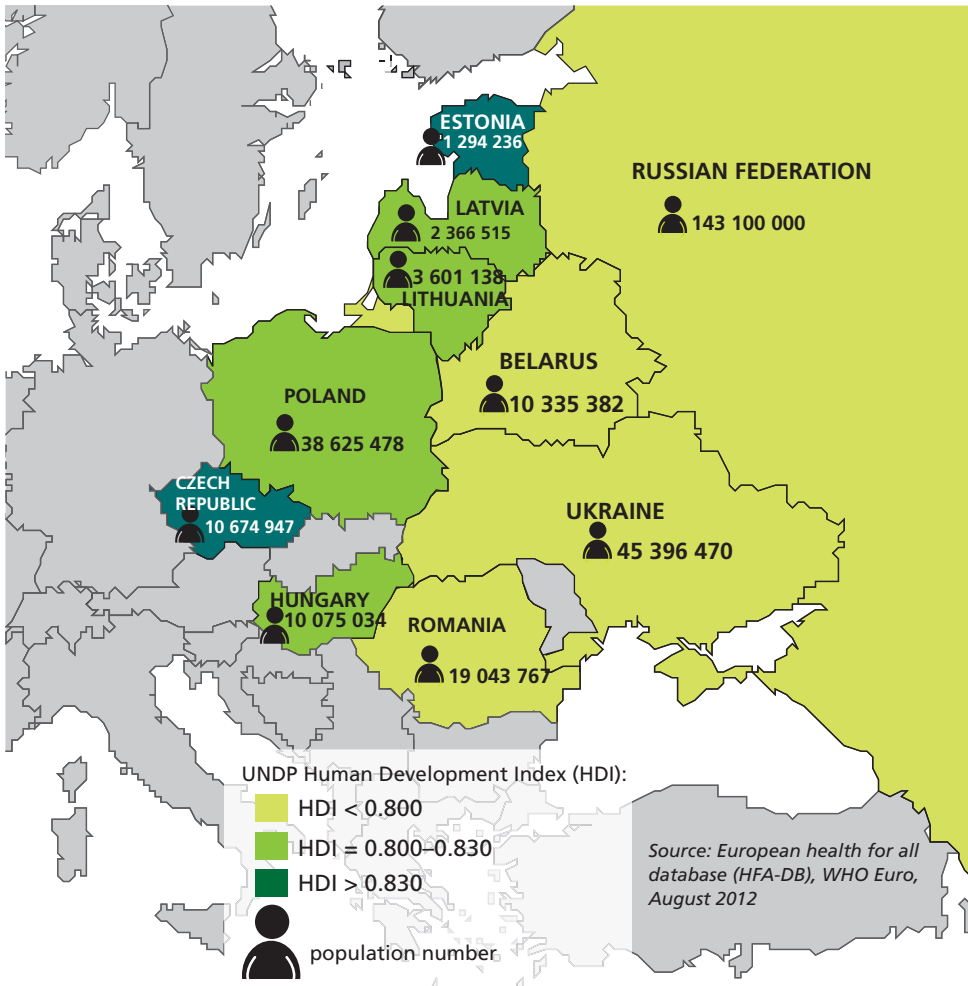
A total of ten countries are represented in this book. Seven of them are members of the European Union (EU) and joined the union in 2004 or 2007 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Romania) and three remain outside the EU (Belarus, Russia and Ukraine). All these countries experienced political and economic changes, commonly referred to as 'transition' in regard to the Eastern European countries. It should be noted that the term Eastern Europe has more political than geographical connotations, as it also covered countries located in Central, South-eastern and North-eastern Europe.

All these countries have undergone rapid transitions into a market economy and multi-party systems. Even though these transitions have been of varying intensity in different countries, with varying levels of democracy and marketisation of the economy, they have nevertheless had a profound impact not only on politics and economies but also on social and cultural life and on population health and welfare (White et al. 1993; Simpura 1995; Simpura 1997; Moskalewicz 2000; Moskalewicz & Simpura 2000).

As can be seen from Map 1, the countries whose alcohol control experiences are discussed in the following chapters differ remarkably in terms of their size and population. The largest and the most populous country is the Russian Federation whose teritory as well as population of over 140 million are larger than the territory and population of all the other countries combined. As for population size, the remaining countries can be divided into relatively large nations with 38 to 45 million inhabitants (Poland and Ukraine), medium sized ones with 10 to 20 million inhabitants (Belarus, Czech Republic, Hungary and Romania) and finally rather small countries on the Baltic shore (Estonia, Latvia and Lithuania) with 1 to 4 million inhabitants.

The size of a country is not related to its wealth and level of human development. As suggested by the United Nations Development Programme's Human Developmen Index (HDI),[1] Czech Republic and Estonia are the most advanced or developed countries, with HDIs above 0.830, followed by Hungary, Latvia, Lithuania and Poland (HDI 0.800–0.830). The most eastern countries, including Belarus, Romania, Russia and Ukraine, represent a slightly lower level of human development, with HDIs below 0.800 (Map 1).

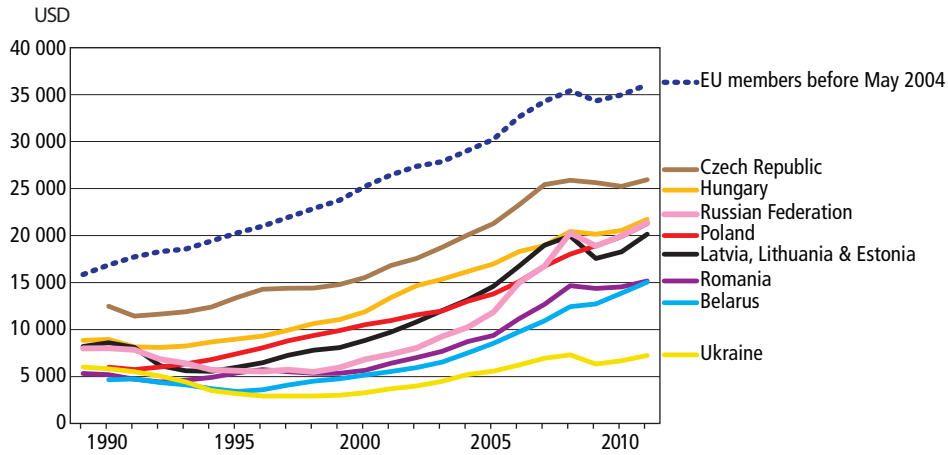
1 The Human Development Index (HDI) is a summary measure of human development. It measures the average achievements in a country in three basic dimensions of human development: a long healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalized indices measuring achievements in each dimension. For details on how the index is calculated, see the latest UNDP Human Development Report, available from http://hdr.undp.org.



MAP 1.
Countries contributing to the AMPHORA Eastern Europe book

Czech Republic is the wealthiest country in Eastern Europe, as its Gross Domestic Product (GDP) per capita in 2011 was over USD 25 000, calculated in terms of purchasing power parity (PPP). The largest group of countries including the Baltic Countries, Hungary, Poland and Russia had a GDP around USD 20 000. Belarus's and Romania's GDP was approximately USD 15 000, while the lowest GDP of some USD 7 000 was found in Ukraine, whose GDP in 2011 was quite similar to that prior to the transitions.

Substantial economic development has in the last 20 years doubled or even trippled the GDP in all Eastern European countries with the exception of Ukraine. Despite this, their avarage GDP corresponded to about 50% of the average GDP in the EU member states as of 1995, also called the old EU member states, and the gap is not narrowing.



Source: European health for all database (HFA-DB), WHO Euro, August 2012

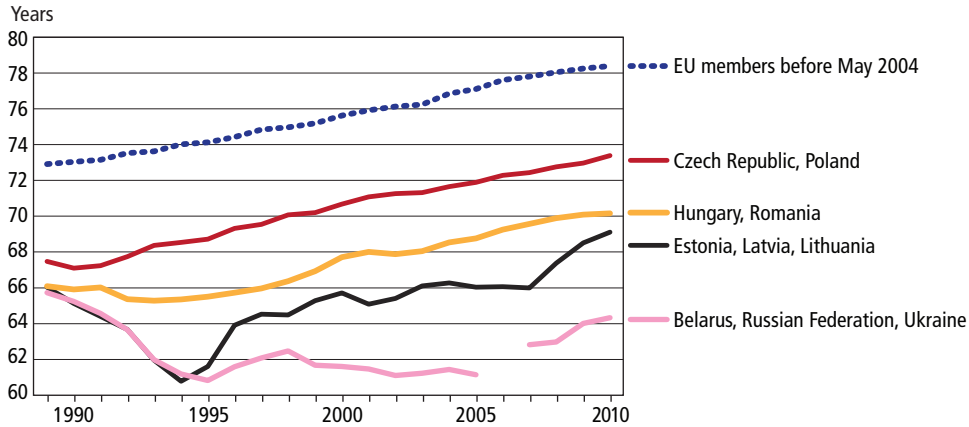
FIGURE 1. Real GDP in the study countries and in the EU as of 1995 in 1989–2011 in terms of USD PPP per capita in 2011 values

Even in Czech Republic its GDP is about ten thousand USD lower when compared with the average GDP of the old EU member states (Figure 1).

In spite of the huge discrepancies between Eastern European countries, trends in their GDP over the last 20 years show visible similarities (Figure 1). All of them suffered a serious recession during the early part of the transition, which lasted several years and was followed by a decade of economic growth, with special impetus in the pre-accession and EU-accession periods. Finally, almost all were affected by the recent economic crisis started in 2008–2009, which led to a significant decline in GDP and population incomes in most of our study countries as well as in many of the old EU member states.

Population health changes as measured by male life expectancy have shown several patterns in Eastern European countries during the transition. Four of those patterns are presented in figure 2. The most favourable pattern is seen in Czech Republic and Poland. In both these countries male life expectancy increased by six years over the two decades of transition. In Hungary and Romania the transition brought less beneficial changes. Male life expectancy declined in the beginning of the 1990s but did return to the pre-transition levels by 1997. The next dozen years or so witnessed an upward trend that eventually brought about a four-year increase in male life expectancy.

The economic and political transitions had a dramatic impact in the three Baltic Countries as well as in Belarus, Russia and Ukraine. In the five years between 1989 and 1994, male life expectancy in those countries had fallen by five years on the average, from 66 years to 61 years. In Russia it dropped to well below 60 years. Since the mid-1990s the Baltic Countries have increased their life expectancy, yet achieving a pre-transition level only in 2003. That positive trend suddenly levelled off in the next few years before growing again rapidly in the period 2008–2010. All in all, in 2010 male life expectancy in the Baltic Countries was about 69 years, three years higher than that in the pre-transition period.



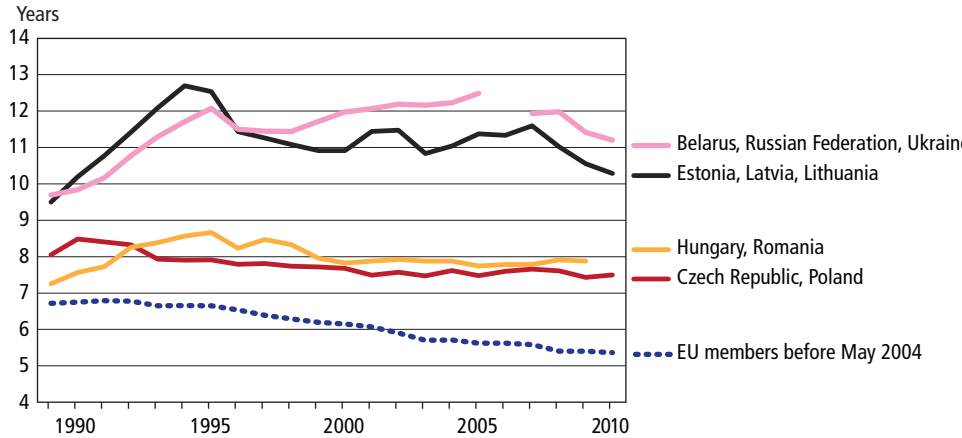
Source: European health for all database (HFA-DB), WHO Euro, August 2012

FIGURE 2. Male life expectancy at birth in the study countries and in the EU as of 1995 in 1989–2010, years

The transitions in the 1990s and 2000s had the most devastating impact in Belarus, Russia and Ukraine. After a sharp decline at the beginning of the transitions, male life expectancy fluctuated for about a decade, not showing an upward trend until 2006–2010. After twenty years of transition, life expectancy in those countries was 64 years on the average, which is two years lower than in the pre-transition period and 12 years less than in the old EU member states. In general, the East–West gap in male life expectancy has not closed, for some countries it has even increased.

The situation as regards life expectancy among women in Eastern Europe is much better than among men both as such and when compared to Western European countries, and contrary to men among woman the East–West gap has tended to become smaller. In 2010, female life expectancy in Eastern European countries varied from 75–81 years compared to 84 years in Western Europe. A large gender discrepancy is typical for Eastern Europe, in particular, in countries that formerly belonged to the Soviet Union, where this discrepancy surpasses ten years (Figure 3). In Czech Republic, Hungary, Poland and Romania it is seven to eight years compared with five years in the old EU member states.

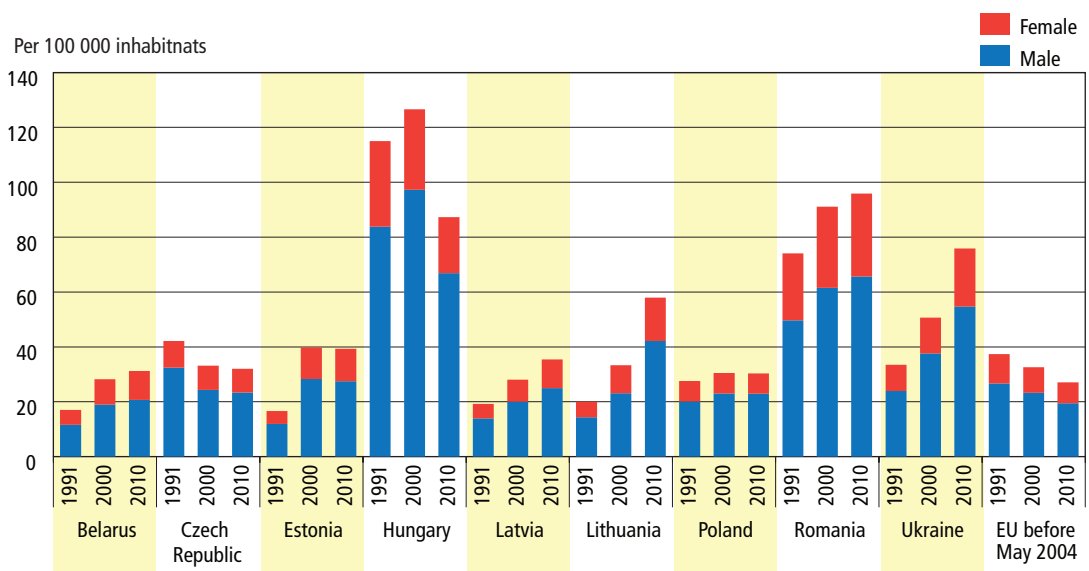
A large gender gap in life expectancy suggests a contribution to mortality from lifestyle factors. Among those, drinking alcohol may have played a particularly lethal role. The contribution of alcohol in the Eastern European countries has been assessed and calculated in numerous publications, beginning with descriptions of a Russian mortality crisis (Bobadilla 1997; Moskalewicz et al. 2000). Nevertheless, almost all Eastern European countries have suffered a growth in alcohol-attributable deaths, which is well illustrated by deaths due to chronic liver diseases and cirrhosis. As figure 4 shows, mortality due to these causes increased between 1991 and 2010 in all study countries with the exception of Czech Republic and Hungary. Even despite the lack of increase in Hungarian



Source: European health for all database (HFA-DB), WHO Euro, August 2012

FIGURE 3. Difference in life expectancy between females and males in the study countries and the EU as of 1995 in 1989–2010, years

mortality rates of liver diseases and cirrhosis, they were still among our study countries the second highest after Romania, surpassing 80 deaths per 100 000 inhabitants which is nearly four times the average level in the old EU member states. Trends in Eastern European countries are in contrast with Western Europe, where mortality level due to chronic liver diseases and cirrhosis has clearly diminished since the beginning of the 1990s and was in 2010 about 50% lower than the level in 1991.



Source: European health for all database (HFA-DB), WHO Euro, August 2012

FIGURE 4. Standardized death rate of chronic liver deceases and cirrhosis in the study counties and in the EU as of 1995 in 1991, 2000 and 2010 per 100 000 inhabitants

Summary

Twenty years of transition has brought mixed results as regards economic and health developments in Eastern Europe. Periods of economic growth were interrupted by periods of recession or economic slowdown. If life expectancy is treated as a proxy for health status, a health gap still exists between the old EU member states and the Eastern European countries and it is particularly larger among males than among females. For all the countries participating in this study except Czech Republic and Poland, the gap for males has even grown, from about seven years to fourteen years in Belarus, Russia and Ukraine when taken together, to ten years in the case of the Baltic Countries, and about eight years for Hungary and Romania.

Despite clear improvement in recent years, gender discrepancy in life expectancy is still high, suggesting lifestyle causes are affecting male excess mortality. Alcohol seems to be an important factor, as mortality due to liver diseases and cirrhosis has been on the rise in Eastern Europe in contrast to Western Europe, where a declining trend has prevailed in the last twenty years.

Eastern Europe appears to be a unique laboratory for tracing the interplay between social change, alcohol policy and alcohol consumption and related harms. Despite its specific geographical focus, this book contributes to the European and global reflection on alcohol in contemporary societies. We succeeded in winning precious contributions from Russia, Belarus and Ukraine, which emerged as independent states after the dissolution of the Soviet Union yet remain outside the European Union, from the three Baltic Countries, which regained independence in the beginning of the 1990s and joined the European Union in 2004, and from Czech Republic, Hungary, Poland and Romania, which also broke with their former political affiliations and economic ties with the Soviet Union in the early 1990s and joined the EU either in 2004 or 2007.

This publication is not only a book on Eastern Europe, it is also a step forward in trying to better understand why scientific knowledge on the effectiveness of different alcohol policy measures is not enough when implementing public health-oriented alcohol policy measures. Successful prevention of alcohol-related harms also requires an understanding of how and when control measures can be implemented, and what external factors, such as general political, economic and cultural developments, may hinder or facilitate their implementation and success.

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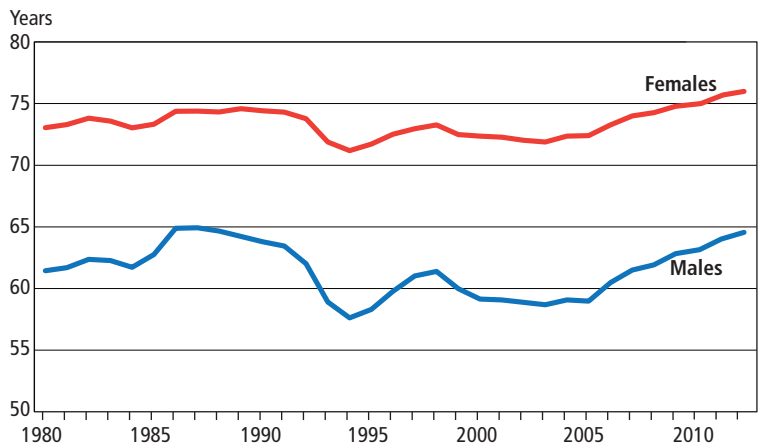
Alcohol consumption in Russia: affordability of alcohol, changes and effects of alcohol control policy and future prospects

Background

The size of Russia's population has been in overall decline since 1992, largely as a consequence of a mortality rate that rose steeply in the early 1990s. In 1998, the World Health Organization (WHO) described the public health crisis in Russia as unprecedented for an industrially developed country in peace time. From 1987 to 1994 the life expectancy at birth among Russian males fell by more than 7 years, down to 57.6 years. The life expectancy of females also fell, but to a lesser degree, meaning that in 1995 there was a more than 13-year difference in life expectancy between males and females standing at 12 years in 2009, and 11.3 years in 2012, which is one of the greatest known gender divides in life expectancy of any country (Figure 1). Alcohol has been implicated as the main driver of the historically unprecedented fluctuations in mortality, especially among males of working age (Leon et al. 1997; 2007; Notzon et al. 1998; Leon 2009; Zaridze et al. 2009).



Source: Goskomstat/Federal Service of State Statistics (RosStat) 2012

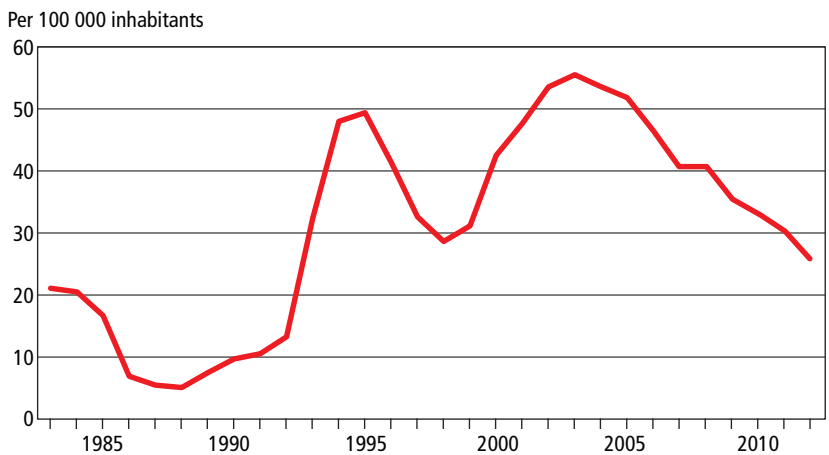
FIGURE 1. Life expectancy at birth in years by gender in the Russian Federation, 1980–2012

The scale of the alcohol problem in Russia

For the past 35 years the lowest estimated per capita alcohol consumption in Russia occurred during Gorbachev's anti-alcohol campaign in 1986–1987, when it fell to 3.9 litres of 100% alcohol per capita as registered by the State (Nemtsov 2009) and 10.8 litres as calculated by A.V. Nemtsov, who added to State figures estimations of unrecorded alcohol production, which consisted mainly of home-made alcohol, such as samogon and braga (Nemtsov 2000).

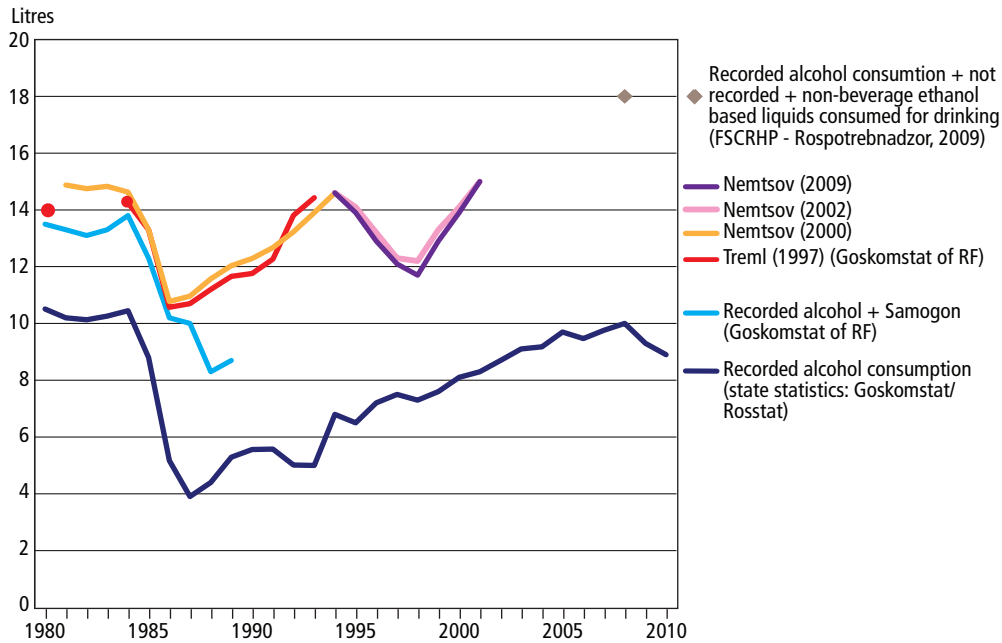
In the early 1990s, after the breakup of the Soviet Union, the State monopoly on alcohol production and sale was abandoned, the alcohol industry was privatised and the alcohol market was liberalised, with authorities putting little or no restrictions on the privatised alcohol industry. This resulted in the emergence of multiple poorly controlled private alcohol producers and retailers. As a result of these changes, alcohol consumption increased dramatically, reaching 14.6 litres of pure ethanol per capita in 1994. At the same time, morbidity for first-time registered alcoholic psychosis, an indirect indicator of alcohol consumption in the country, increased nearly ten-fold during the period 1988–1995, a clear indicator of the increased alcohol-related problems in the country (Figure 2).

Various estimates of per capita alcohol consumption over the period 1980–2010 have been made (Figure 3) (Nemtsov 2009; Federal Bureau of State Statistics 2013; Rospotrebnadzor 2009; Treml 1997). Recorded per capita alcohol consumption in Russia from the 1980s onwards are, however, only weakly related with the ups and downs of the all-cause standardised mortality rate (Figure 4). Slightly stronger correlations have been observed between recorded alcohol consumption and the incidence of alcoholic psychosis up until the early 1990s (Figure 5). Thereafter, following the liberalisation of the alcohol



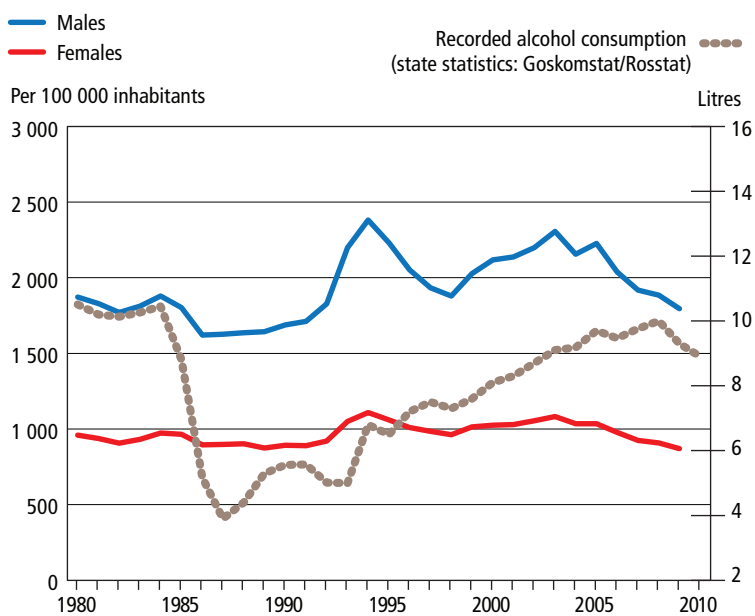
Source: Goskomstat/Federal Service of State Statistics (RosStat) 2012

FIGURE 2. Incidence of alcoholic psychosis in the Russian Federation per 100 000 inhabitants, 1983–2012



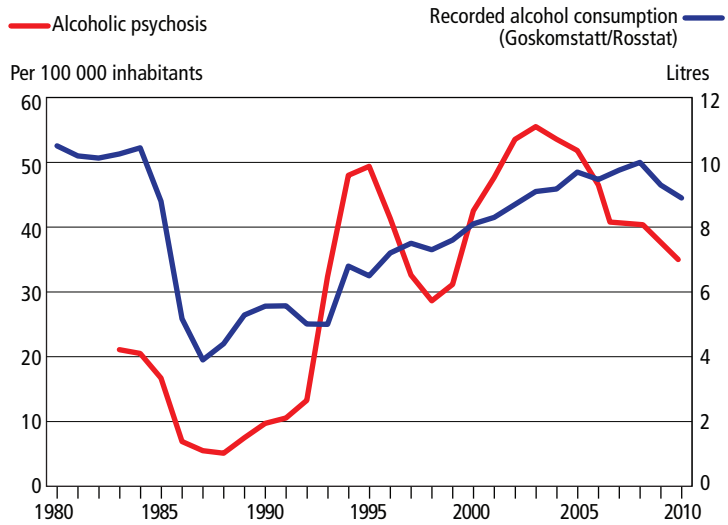
Source: Goskomstat/RosStat; Treml V.G. (based on RosStat data) 1997; Rospotrebnadzor 2009

FIGURE 3. Estimates of alcohol consumption in litres of 100% alcohol per capita in the Russian Federation by different sources, 1980–2010



Source: Goskomstat/Federal Service of State Statistics (RosStat); WHO HFA

FIGURE 4. Recorded alcohol consumption in litres of 100% alcohol per capita by Goskomstat/Rosstat and standardised mortality from all causes and among all ages by gender per 100 000 inhabitants by WHO HFA in the Russian Federation, 1980–2010



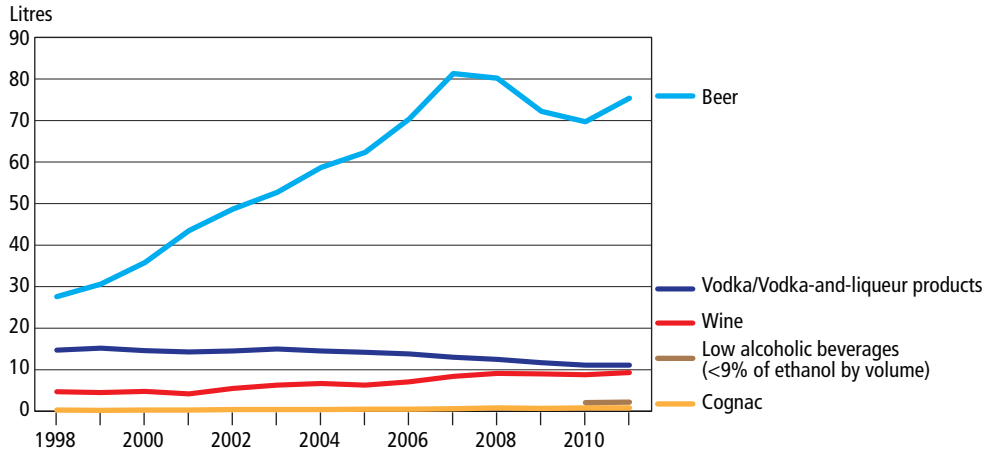
Source: Goskomstat/Federal Service of State Statistics (RosStat); Federal Service of State Statistics (RosStat)

FIGURE 5. Recorded alcohol consumption in litres of 100% alcohol per capita by Goskomstat/Rosstat and incidence of alcoholic psychosis per 100 000 inhabitants in the Russian Federation, 1980–2010

market and the decrease in controls for in-country production of ethanol and ethanol-containing products, the per capita recorded alcohol consumption on a year-by-year basis was no longer related to the observed fluctuations in alcoholic psychosis rates. This strongly suggests that the fluctuations were driven by changes in consumption from unrecorded sources of ethanol, including illegal and non-beverage alcohol.

Russia, along with some other post-Soviet countries, such as Belarus, Latvia and Ukraine, belongs to a group of countries in which high alcohol consumption is aggravated by a hazardous pattern of drinking that significantly impacts mortality, especially among working age males. Although per capita sales statistics testify to the fact that recorded consumption of beer during the past decade has been growing and in terms of volume of end product, it is higher than the recorded consumption of vodka and other distilled spirits (Figure 6), the major proportion of consumed ethanol up to now has still been from strong spirits like vodka and other hard liqueurs, which constitute an important aspect of hazardous drinking (Figure 7) (WHO 2011, Global Information System on Alcohol and Health 2013). Another aspect of hazardous consumption of alcohol in Russia consists of prevalent binge drinking, drinking to intoxication, going on zapoi (a period of continuous drunkenness lasting several days, usually up to two to three days), and consumption of non-beverage alcohol that contains very high concentrations of ethanol (up to 90% by volume) (Tomkins et al. 2012; Gil et al. 2009; Popova 2007).

It has been estimated that alcohol abuse in Russia causes about 500 000 preventable premature deaths per year, constituting about 30% of the mortality among men and 15% of the mortality among women (Nemtsov 2007). In a population-based case-control study carried out in the city of Izhevsk, which is Russia's 19th largest city located in

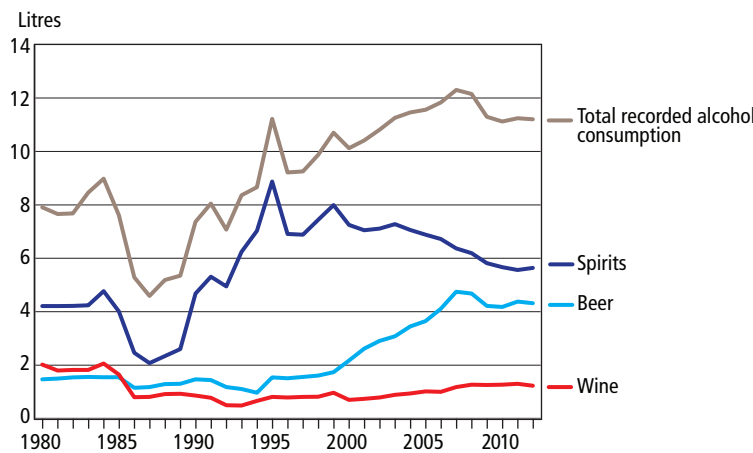


Source: Federal Service of State Statistics (RosStat) 2012

FIGURE 6. Recorded consumption of alcoholic beverages in litres of end product per capita in the Russian Federation, 1998–2011

the Western Urals, 43% of mortality among working age males was, after adjusting for smoking and education, attributable to hazardous drinking, problem drinking or non-beverage alcohol consumption or both (Leon et al. 2007).

Mortality from alcohol poisonings in Russia, Belarus, Ukraine and the Baltic Countries is known to be the highest in the world, which is associated with the popularity of strong alcoholic beverages, and, especially in the case of Russia, with the consumption of non-beverage alcohol, which often constitute up to 90% concentrated solutions of eth-



Source: WHO's Global Information System on Alcohol and Health (GISAH)

FIGURE 7. Total recorded alcohol consumption by beverage categories in litres of 100% alcohol per inhabitants aged 15 years and older in the Russian Federation, 1980–2012

anol (Gil et al. 2009; McKee 2005). The alcohol burden of mortality in different groups of causes of deaths is high: 19% of cardiovascular deaths (including myocardial infarctions and strokes), 61% of external causes of death (including 67% of homicides and 50% of suicides) (Nemtsov 2009), 68% of deaths from liver cirrhosis and 60% of deaths from pancreatitis were attributed to alcohol (Nemtsov 2003). A significant proportion of deaths from tuberculosis and pneumonia were also associated with alcohol consumption, as those abusing alcohol are more prone to contracting infections and are less likely to adhere to treatment (Son et al. 2004).

Research of blood alcohol levels at death has shown that a significant proportion of cases of deceased males and females contained positive levels of alcohol in the blood. In 1991 in the city of Kursk, 29% of deceased males and 9% of deceased females of all ages contained above zero levels of blood alcohol. Furthermore, 11.6% of males and 4.3% of females presented with deadly levels of alcohol of 4‰ and higher (Tishuk 1997). In Izhevsk in 1998–1999 among deceased males aged 20–55 increased blood alcohol levels (above 0.3‰) were found in 62% of cases. Very high levels of blood alcohol (over 3.0‰) were found in 11.7% of males (Shkolnikov 2000). In Barnaul, among deaths occurring in the period 1990–2004, 53.2% of deceased males and 42% of females aged 15–34 years, 48.5% of males and 43.3% of females aged 35–69, and 34.3% of males and 22.8% of females aged over 70 at death had ethanol detected in their blood. Potentially lethal concentrations of ethanol of 4.0‰ and higher have been detected in 16.2% of males and 9.7% of females aged 15–34 years, in 14.0% of males and 13.0% of females aged 35–69, and in 3.7% of males and 4.5% of females aged 70 years or older. All these data support the critical role of alcohol in the Russian mortality crisis.

An analysis of mortality by regions of Russia shows that mortality increases from south to north and from west to east, which is a pattern consistent with Europe as a whole, as the northernmost countries and territories have had more prominent alcohol problems prior to the introduction and implementation of adequate restrictive policies on alcohol (Nemtsov 2008). Per capita annual alcohol consumption in Russia stands, according to the WHO 2011 report, at about 15.8 litres of pure ethanol which is about twice the lower risk level of alcohol consumption of 8 litres per capita as defined by WHO (WHO 2011).

The Russian government has several times stressed the importance of tackling alcohol problems in Russia. In 2007 a new version of the Concept of Demographic Policy in the Russian Federation was approved. The Concept declared the aim to stabilize and then increase population growth with objectives to increase birth rates by 1.5 times by 2025 and to increase the mortality-driven indicator life expectancy at birth up to 75 years (Government of Russian Federation 2007). The Prime Minister at that time, Vladimir Putin in his address to the government on the 8th of May 2008 indicated '… for us the real disaster has become smoking and drinking [alcohol]. In Russia, alcohol is consumed and cigarettes are smoked twice as often as in the majority of developed countries …' (ITAR-TASS 2008). The necessary priority of solving the alcohol problem in Russia was noted by the UN, WHO and the World Bank experts (World Bank 2006; WHO 2006). The 'State program of development of health care in the Russian Federa-

tion', approved on 24th December 2012, declared the objective to reduce annual alcohol consumption by 2020 to 10 litres of pure ethanol per capita and to reduce by 2020 all-cause mortality to 11.4 per 1 000 inhabitants (13.5 per 1 000 inhabitants in 2011) (Ministry of Health of Russian Federation 2012).

Alcohol regulation in Russia

Following the collapse of the Soviet Union there was an almost complete withdrawal of the State from the regulation of alcohol and the abandonment of the State alcohol monopoly on the production and distribution of alcoholic beverages. In this new situation of a fully liberalised alcohol market and privatised alcohol industry, no adequate legislation, norms or regulations were immediately developed or put into effect to fill the regulation gap. This meant that there were no effective means in force for protecting the health and welfare of the population from harms associated with alcohol production and consumption. This enabled the rapid proliferation of a private-sector alcohol industry, the actions of which were dictated by its aspiration to make substantial and quick profits from the alcohol trade. In the early 1990s, the price of alcohol relative to many basic necessities of life fell, making strong alcoholic beverages more economically affordable, while the number of private retail outlets selling alcoholic beverages increased dramatically, making alcohol physically more available. There were no regulations or legally established norms that would provide a restriction of the number of retail outlets selling alcoholic beverages to the population. In addition, all restrictions as regards the hours at which alcohol could be purchased were lifted and alcoholic beverages became available around the clock on every day, including on Sundays.

The production and trade of raw ethyl alcohol, alcoholic beverages, and spirituous liquids became increasingly profitable and unlawful, with more than 50% of vodka estimated to have been produced illegally (Yusufov 2003). Beyond these developments in the domestic alcohol production in the post-Soviet period, Russia was faced with the challenge of multinational alcohol companies. Legally provided alcohol import tax exceptions resulted in large-scale trading of extremely cheap vodka, other spirits and even potable ethanol. This loophole was only eliminated in 1995 (Nemtsov 2009).

Until 2009 the alcohol field was regulated mostly by economic and agrarian ministries and institutions, which are vulnerable to lobbying by the alcohol producing industry, and not by the ministries of health, governmental bodies, committees or other State organizations responsible for keeping the public health agenda at the forefront of decision-making in the field of alcohol policy. This practice in fact corresponded to a similar situation in other countries, where the main regulation functions in the field of alcohol production, distribution and trade were given away to the economic and industrial sectors, and to a certain extent to the alcohol industry itself. While prior to 2009, the economic and agrarian sectors were responsible for regulating the alcohol market in Russia, thereafter the newly established Federal Service on Regulation of the Alcohol Market (FSRAM, Rosalkogolregulirovanie) was endowed with this authority. This State body is not part of any Public Health service and is not related to the Ministry of Health. A re-

port about the newly established FSRAM gave the opinion that it may likely represent the interests of certain domestic alcohol producers trying to find a balance between the interests of industry and the declared plight of authorities trying to restrict alcohol consumption in the country. Despite FSRAM recently working on tightening controls over illegally produced alcoholic beverages, it is still unclear to what degree public health priorities are being placed at the forefront of the work of this new establishment.

Given such deficient statutory regulation in addressing alcohol-associated public health problems, it is not surprising that legislation in the Russian Federation since 1991 has been fragmentary and weak, with poorly adjusted laws and norms. Among regulations that have direct implications for the alcohol field, the following laws are relevant: Federal Law No.171-FZ (22/11/1995) 'On State regulation of production and trade turnover of ethyl spirit, alcoholic and spirit containing products and on restriction of consumption (drinking) of alcohol products', Federal Law No.38-FZ (13/03/2006) 'On advertisement', Federal Law No.177-FZ (05/08/2000) 'Tax Code of the Russian Federation (part two)', Federal Law No.195-FZ (30/12/2001) 'Code of the Russian Federation on Administrative Violations', and the Federal Law No.11-FZ (7/3/2005) 'On restriction of retail sale and consumption (drinking) of beer and products made on the basis of beer'.

The central law regulating alcohol production and distribution in the country has been Federal Law No.171-FZ (22/11/1995) 'On State regulation of production and trade turnover of ethyl spirit, alcoholic and spirit-containing products and on restriction of consumption (drinking) of alcohol products'. Before being amended in 2011, this law, enacted in 1995, was not aimed at restricting the drinking of alcohol products and did not provide the necessary and proven alcohol control policy measures to reduce alcohol consumption. It was initially accepted by the government in an attempt to bring some order to the liberalised alcohol market, which was represented by multiple poorly controlled private producers of alcoholic beverages, while at the same time being inundated with falsified and illegal untaxed alcoholic beverages, concentrated spirit and alcoholic surrogates, and non-beverage alcohol products that were in fact being sold for drinking. Protection of public health and social well-being from alcohol-related harms was not included in the purpose and objectives of this law at the time of its enactment, reflecting the primary concern of authorities to rather control the illegal alcohol sector. Its stated purpose since its enactment in 1995 up to 2011 had been the '… protection of the economic interests of the Russian Federation, at the provision of needs of consumers in the specified [alcoholic] products, and at increasing quality [of alcoholic products] …'. This law did not state an objective to restrict alcohol consumption in the country. In the 17 years up to 2011, its goal did not correspond to the best examples of similar laws enacted elsewhere, especially those of the Scandinavian countries, which had experienced severe alcohol problems in the past. While the central Russian alcohol Law No.171 predominantly regulated the economics and logistics of alcohol production and sale, the aim of similar legislation in Norway Law No.27 (02/06/1989) 'On trade with alcoholic beverages' was directed at '… the maximum possible reduction of harms for society and for an individual person, which can result from the consumption of alcoholic beverages. With this purpose the law is aimed at restricting consumption of alcoholic beverages'.

The Code on Administrative Violations (CAV) contains only very mild punitive sanctions for the production and trade of illegal alcoholic products and alcoholic surrogates. For example, in regard to the production and distribution of illegal spirits, CAV provides for a fine amounting to RUB 5 000 (about EUR 120) for individual persons and up to RUB 100 000 (about EUR 2 440) for a corporate entity. This imposes a very low economic risk on illegal producers. An alternative to imposing a cessation of production and trade of illegal alcohol was provided by Article 238 of the Criminal Code of the Russian Federation, 'Production, Storage, Carriage or Sale of Goods and Products, Fulfilment of Works or Rendering of Services Which Do Not Meet Safety Standards', which can only be used if an illegal alcoholic drink contains some toxic admixtures. Therefore, this article is not widely applied in the control of illegal alcoholic products, since in the vast majority of cases (e.g. for illegally produced vodka or vodka for which excise duty has not been paid, or non-beverage alcohol) these products do not contain elevated amounts of toxic admixtures harmful to health, other than ethanol itself. Even when this article is applied, the courts choose very light sentences, such as fines alongside the confiscation of illegal spirits and production equipment or a sentence in the form of a conditional restraint of liberty, which in reality is a temporary measure that does not terminate illegal activity. Article 171 of the Russian Criminal Code 'Illegal entrepreneurship' cannot be applied in the majority of cases of illegal production and distribution of alcohol, as the economic scale for this to qualify as a crime is set very high, at more than RUB 1.5 million as of 2013 (EUR 37 821).

Up until 2012, beer was regulated by norms established by Federal Law No.11-FZ (7/3/2005) 'On restriction of retail sale and consumption (drinking) of beer and products made on the basis of beer'. This law in fact was developed under pressure from domestic and multinational beer producers and was initially intended to make beer an exception from the central alcohol law, i.e. Federal Law No.171-FZ, by providing preferential conditions for its sale: Beer could be sold by individual persons with no restriction on the size of retail premise (e.g. it could be sold even from a tray on the street), while also normalising beer as a regular drink in the eyes of customers, society and youth. From 2005 to July 2012, beer was not regulated as an alcoholic beverage, which has resulted in very high availability. The particularly steep increase since 2005 in beer consumption as measured in litres of end product and in litres of pure ethanol consumed per capita can be seen in figures 6 and 7.

Up to 2012, Federal Law No.38-FZ (March 13, 2006) 'Advertisement Law' did not allow for effectively counteracting the modern and sophisticated marketing strategies of the alcohol industry. Only from July 2012 were restrictive amendments introduced, as will be described in more detail below.

For years the Tax Code of the Russian Federation provided very low excise taxation for alcohol, resulting in high availability regarding price. One unit of alcohol (10 grams of pure ethanol) was cheapest in vodka and more expensive in beer and wine, which worked towards sustaining the most hazardous drinking pattern in Russia.

Alcohol policy developments in 2006–2013

Federal Law No.171-FZ. The recent alcohol policy developments and amendments to existing legislation in Russia were made during the period 2006–2011. Poor regulation of alcoholic beverages led authorities to introduce a series of amendments to Federal Law No.171-FZ in 2006. These amendments were focused around the introduction of stricter reporting guidelines on the volume of production, distribution and sale of alcohol, an increase in the license fees required for production, distribution and sale of alcohol, the introduction of new excise stamp procedures, the provision of designated sale locations, the removal from the market of small-sized alcohol producers, the provision of proper denaturing of non-beverage alcoholic products. The volumes of production, distribution and sale of ethanol and of alcoholic beverages had to be centrally reported to a State monitoring system called EGAIS. Importantly, there were amendments that allowed for regional authorities of the Russian Federation (oblast, regions, republics) to implement a time restriction (permitted hours) for retailing alcoholic beverages off the premise, and most of the regional authorities made use of this restriction, putting it into effect within a few years. However, as described in more detail below, these time restrictions could have been longer and could have been introduced as a federal ban that would have made its implementation compulsory for all authorities within the Russian Federation.

The next set of amendments to Federal Law No.171-FZ were enacted in 2011, some parts of which took effect in July 2012 and some in January 2013. This was the first time since 1995 that the regulation of the consumption of beverage alcohol had been recognised as falling within the scope of Federal Law No.171-FZ. The Law was now aimed at restricting levels of consumption of alcoholic beverages in the country, which was reflected in its newly updated title 'On State regulation of production and turnover of ethyl alcohol, alcohol and spirit containing products and on restriction of consumption (drinking) of alcohol products'. It was also one of the very few times in Russian history when the aim to restrict alcohol consumption was legally prescribed (Gorbachev had previously launched an anti-alcohol campaign). The entire sequence of steps leading to the delivery of alcohol to end users, beginning from the production of raw ethanol and ending with the retail sale of products to consumers is now licensed, products have to be registered and the volume of sales have to be reported to the State.

Beginning on July 1, 2012, beer and beer-based alcoholic beverages have been subject to regulation by central alcohol Federal Law No.171. Taking effect on January 1, 2013 all beer and beer-based alcoholic beverages with 5% or less ethanol by volume are not permitted to be sold off the premises between the hours of 11:00 p.m. and 8:00 a.m. This completed the ban on the off-premise sale of all alcoholic beverages at night. Coming into effect at the same time was the provision that beer cannot be sold from non-stationary (mobile) retail outlets, street kiosks and small-size individual enterprises, which further reduced its availability.

The distribution of alcohol has been tightened and organizations that ship ethanol and alcohol products with an alcohol content of more than 25% ethanol by volume

(previously with alcohol content of more than 60% ethanol by volume) are required to notify the newly established Federal Service on Regulation of the Alcohol Market (FSRAR) about the shipment of alcohol. The transportation of ethanol (including denatured ethanol) and spirituous liquids with an alcohol content of more than 25% ethanol by volume have required a licence from the beginning of 2013 onwards, which had the effect of removing small entrepreneurs from the market and reducing the bootleg transportation of spirits.

The retail sale of alcoholic beverages (up to 2013 beer and beer-based products were excluded) and spirit-containing food products has been permitted only by larger organizations since 2006. This has reduced the physical availability of alcoholic beverages and beer, and reduced the illegal trade in alcohol by small-size businesses and private entrepreneurs.

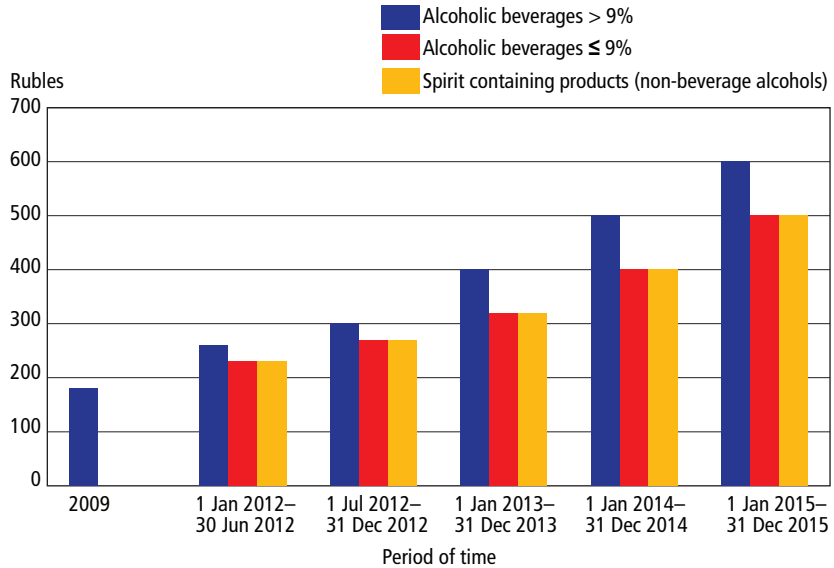
Advertising. Advertising of alcoholic beverages has been tightened and a number of restrictive measures were introduced into the Federal Law No.38-FZ 'Advertisement Law' originally enacted in 2006. These new restrictions came into effect on July 23, 2012 (with some provisions coming into effect January 1, 2013). These measures included an advertising ban on all alcoholic beverages on television, the internet, printed materials, all types of public transport, including buildings and transport infrastructures. Additionally, the advertisement of alcoholic beverages or the purchase of alcohol in conjunction with stimulating activity (lottery, game, etc.) was also prohibited. Advertisements containing information about the presence of biologically active additives and vitamins in alcoholic beverages or using images of people and animals (including animated films and cartoons) were also prohibited.

The offer of alcoholic beverages as prizes in stimulating activity (lottery, games, etc.) will still be permitted. Advertising that involves handing out alcoholic beverages will also be possible in stationary retail outlets, which still leaves a window of opportunity for alcohol manufacturers to advertise their products.

Taxation. Along with tightening distribution and limiting advertisement, the State also amended the Tax Code of the Russian Federation. It now legally provides for a gradual yearly increase in alcohol excise duties running up to the year 2015 for both alcoholic beverages and non-beverage alcohol (Figures 8 and 9).

In 2013 excise duties for strong alcoholic products/beverages (with an alcohol content of more than 9% ethanol by volume) will reach RUB 400 (EUR 10) per 1 litre of pure ethanol, which brings it in line with the 2012 level of excise duties in Hungary. As seen in the figures, the steepest increase in excise duties is for alcoholic products/beverages with an alcohol content of more than 9% ethanol by volume and the flattest increase is for wines and low alcohol beer.

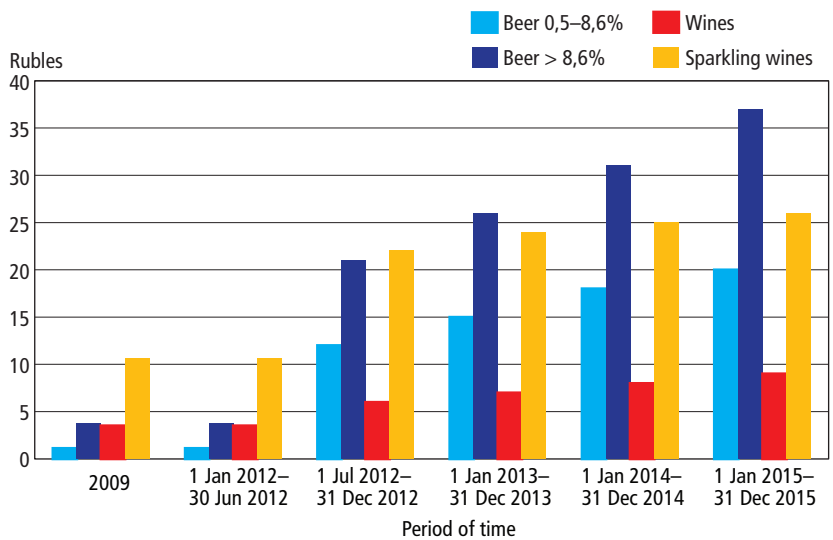
Minimum prices. In 2010 FSRAM instituted minimum prices for the wholesale and retail sale of alcoholic beverages and of ethyl alcohol (Federal Service on Regulation of Alcohol Market 2009 & 2010 & 2012a & 2012b). This regulation has been primarily purported to secure stricter control over the trade of counterfeited and illegal alcoholic beverages and ethanol, which are sold at reduced prices and which compete with legally produced alcoholic beverages. Minimum prices have made it easier for the responsible State



Note: The categories of alcoholic products/beverages with an alcohol content of more than 9% ethanol by volume or 9% or less ethanol do not include beer, wines, fruit wines, sparkling wines (champagnes) and wine-based drinks. Wines and beers are separate categories of alcoholic products/beverages that are taxed.

Source: Tax Code of the Russian Federation, Part II, 2000

FIGURE 8. Alcohol excise duties by type of alcoholic beverages in the Russian Federation, 2009–2015, RUB per 1 litre of pure ethanol



Note: The categories of alcoholic products/beverages with an alcohol content of more than 9% ethanol by volume or 9% or less ethanol do not include beer, wines, fruit wines, sparkling wines (champagnes) and wine-based drinks. Wines and beers are separate categories of alcoholic products/beverages that are taxed.

Source: Tax Code of the Russian Federation, Part II, 2000

FIGURE 9. Alcohol excise duties by category of alcoholic beverages in the Russian Federation, 2009–2015, RUB per 1 litre of end product

control bodies to distinguish between legal and illegal alcoholic beverages in wholesale and retail sales markets. As a result, the minimum price for a standard 0.5 litre bottle of vodka has already been indexed several times during the period 2010–2013 and has risen from RUB 89 per bottle (EUR 2.2) in 2010 to RUB 170 per bottle (EUR 4.2) in 2013.

The discussion around the introduction of minimum prices for alcoholic beverages has been centred on both its possible negative effect on reducing the sales of legally produced alcoholic beverages, which was especially a concern for domestic and multinational alcohol producers, and around the issue of the effect of minimum prices on public health, which was discussed by the public health community. Recent reports analysing changes in the Russian alcohol market have since the beginning of 2013 highlighted significant and rapid reductions in the volume of retail sales of vodka across Russia (up to a 20% fall in a number of Russia's regions). This change is unanimously attributed to the most recent increase in the minimum price of vodka, which has become expensive for significant proportions of the Russian population (from EUR 2.2 to EUR 4.2 per 0.5 litre bottle) (Lewinsky 2013). In 2014, partially due to the increases in excise taxation for alcoholic beverages described above, the minimum price for a 0.5 litre bottle of vodka will be indexed at RUB 250 (or EUR 6.1).

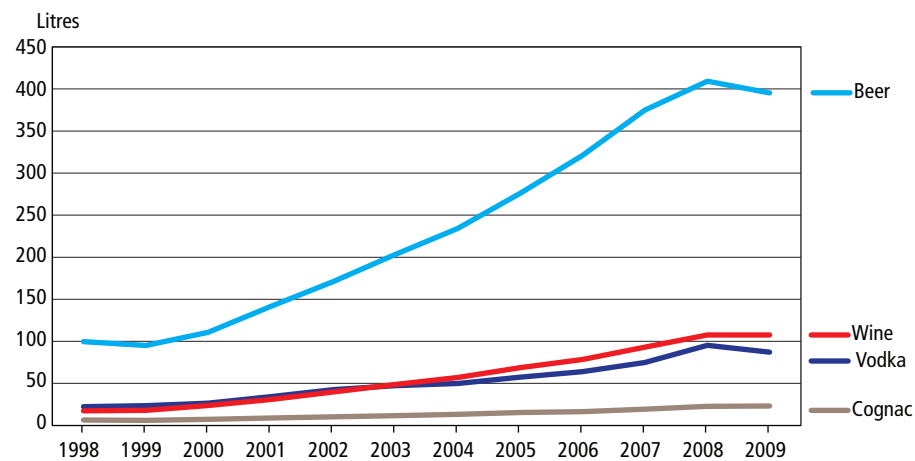
Recent trends in the consumption and the affordability of alcohol

In the present chapter we have analysed trends in the consumption of alcohol for the period 1998 to 2009, measured the affordability of alcohol, and assessed the association between affordability and consumption. As seen in figures 3 and 7, recorded alcohol consumption as measured in litres of pure ethanol per capita has been growing during the period 1998–2008. Beginning in 2009, the first indications of a change in drinking patterns was visible. Consumption of alcoholic beverages as measured in litres of pure ethanol showed an increase in ethanol consumption derived from beer and wine, and a reduction of ethanol consumption derived from strong spirits (Figure 7). However, despite the downward trend for spirits, spirits still remained the major source of ethanol, followed by beer. Moreover, an increase in the consumption of ethanol from beer and wine outweighed the decrease in consumption of ethanol from spirits, thereby maintaining an upward trend in total alcohol consumption.

However, if we were to consider per capita sales of alcoholic beverages measured as sales of end products (Figure 6), consumption of beer, cognacs and wines has been growing, while consumption of vodka has been decreasing. This testifies to a changing pattern of alcohol consumption that we will seek to analyse by looking at the role of the affordability of alcohol, particularly in the light of the growing evidence of an association between affordability and consumption, with affordability being a significant predictor of alcohol consumption (Norström 2005; Moskalewicz 2009; Razvodovsky 2009). The changing structure of alcohol consumption will also have direct public health implications, which makes an analysis of changes in the affordability of alcohol particularly important.

We therefore assessed how affordability of different types of alcoholic beverages has evolved from 1998 to 2009 in Russia and whether there is evidence of an association with recent trends in the consumption of different types of alcoholic beverages. We have defined affordability of alcohol in our study as the number of litres of alcoholic beverage (vodka, cognac, beer or sparkling wine) that an average monthly salary could buy in any specific year in the period 1998–2009. Vodka, cognac, beer and sparkling wine were chosen for analysis, since RosStat has assessed annual retail prices for the years 1998–2009 only for these types of alcoholic beverages. Vodka/vodka-and-liquor product is the merged category of strong alcoholic beverages as provided by the Russian Federal Service of State Statistics (RosStat) which includes vodka and most other strong alcoholic beverages like gin. About 85–90% of this category of strong alcoholic beverages consists of vodka. Sparkling wine is in this context used as a proxy for wine.

The graphical presentations of alcohol affordability by year show that it has been rising for all the alcoholic beverages studied (Figures 10 and 11). By 2009 the affordability of vodka in comparison with the reference year 1998 has grown by 290%, beer by 297%, cognac by 254%, and sparkling wine by 518%, indicating that the affordability of sparkling wine has been the fastest growing over the period analysed. In this respect, it is useful to compare the growth in affordability to the growth in consumption. Since official figures for vodka consumption are given in the category of vodka/vodka-liqueur products, we have merged this category of spirits in our estimates on consumption. During the analysed period, per capita consumption of cognac has grown by 166%, beer by 173%, and wine by 98%, with consumption of vodka/vodka-liqueur products falling by 24.5% (Figure 6). Given the theory of affordability of alcohol, it seems quite logical that consumption of cognac, beer and wine has been increasing. However in the case of vodka the association between alcohol affordability and its consumption was nega-

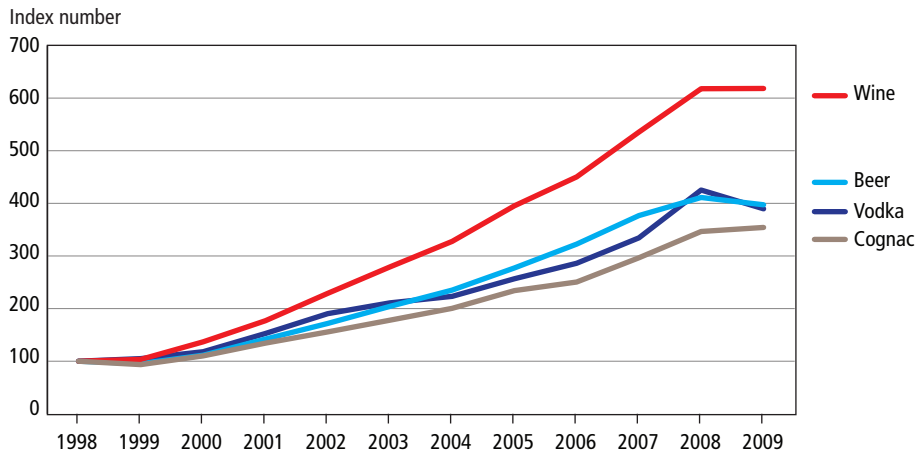


Source: own calculations of authors based on RosStat data

FIGURE 10. Affordability of alcoholic beverages in litres an average monthly salary can buy by beverage categories in the Russian Federation, 1998–2009

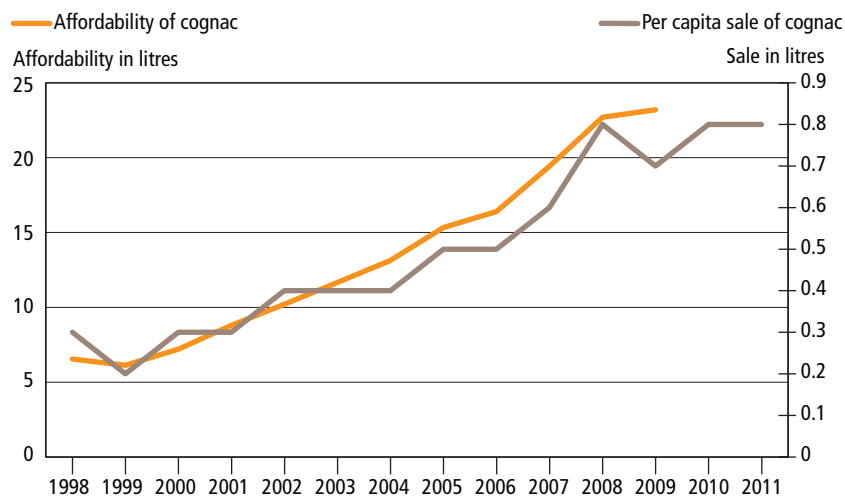
tive, which demands further interpretation (Spearman correlation coefficient r=−0.876; p<0.001). Quantitative analysis of the association between affordability and consumption of alcohol therefore also included an analysis of cognac, beer and wine.

The graphical presentation of the relationship between affordability of different types of alcoholic beverages and their per capita consumption are given in figures 12, 13, 14 and 15.



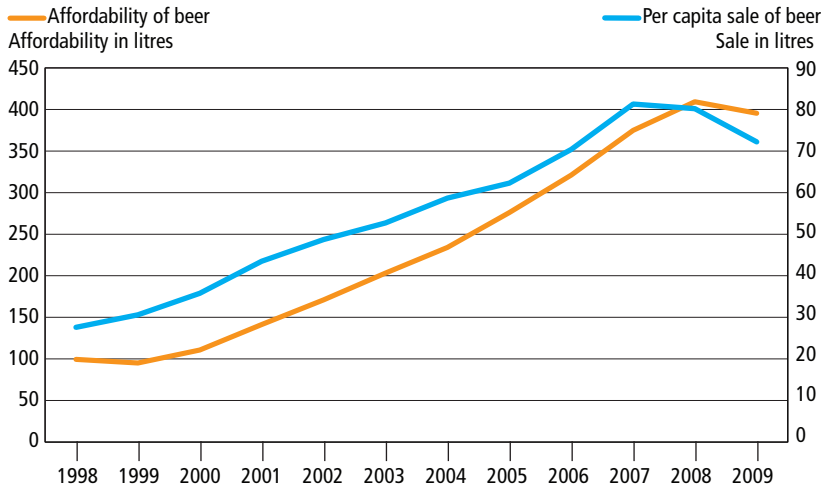
Source: own calculations of authors based on RosStat data.

FIGURE 11. Affordability of alcoholic beverages in litres an average monthly salary can buy by beverage category in the Russian Federation, 1998–2009, as indices when 1998=100



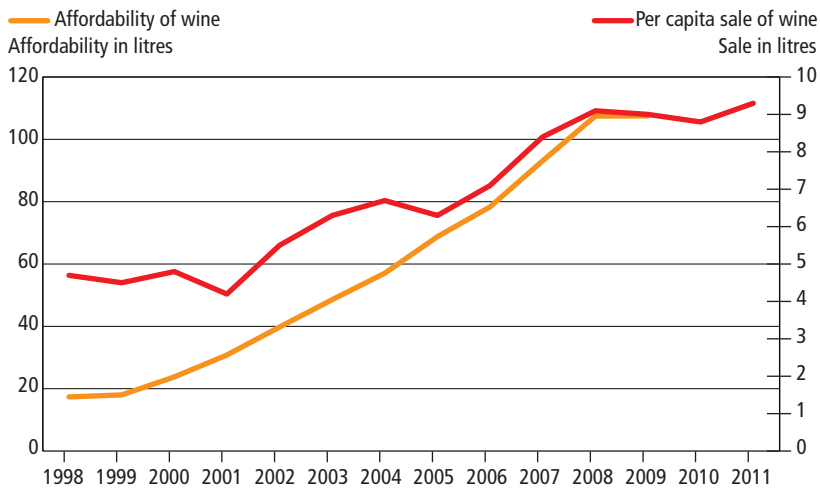
Source: own calculations of authors based on RosStat data.

FIGURE 12. Affordability in litres an average monthly salary can buy and per capita consumption of cognac in the Russian Federation, 1998–2011



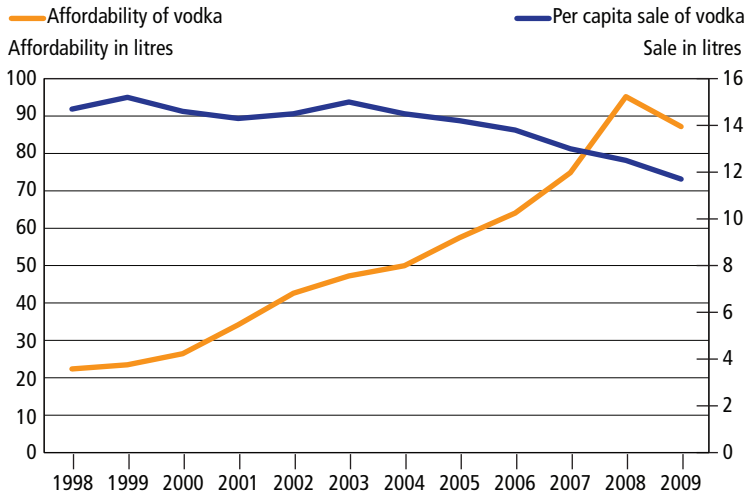
Source: own calculations of authors based on RosStat data.

FIGURE 13. Affordability in litres an average monthly salary can buy and per capita consumption of beer in the Russian Federation, 1998–2009



Source: own calculations of authors based on RosStat data.

FIGURE 14. Affordability in litres an average monthly salary can buy and per capita consumption of wine in the Russian Federation, 1998–2011



Source: own calculations of authors based on RosStat data.

FIGURE 15. Affordability in litres an average monthly salary can buy and per capita consumption of vodka in the Russian Federation, 1998–2009

The Spearman correlation coefficients suggested very strong statistically significant associations between affordability of selected categories of alcoholic beverages and their per capita consumption: for cognac $r=0.977$, $p<0.001$; for beer $r=0.972$, $p<0.001$; and for wine $r=0.932$, $p<0.001$.

The linear regression analysis with affordability of a particular category of alcoholic beverages as the independent variable and per capita consumption of this alcoholic beverage as the dependent variable revealed a statistically significant relationship ($p<0.001$). The linear regression model for cognac described 94.8% of the total variability in its per capita consumption, for beer it described 95.3% of the variation, and for wine 94.9% of the total variation in per capita consumption. A unit increase in the affordability of cognac predicted an increase of 0.032 litres in its per capita consumption ($p<0.001$). A unit increase in the affordability of beer and wine predicted an increase of 0.155 litres ($p<0.001$) and 0.051 litres ($p<0.001$) in their per capita consumption, respectively.

Cost per unit of ethanol and consumption of alcohol

The cost per unit of ethanol in different alcoholic beverages may be an important factor in consumer choices when purchasing alcoholic beverages. This may be particularly important for heavy drinkers.

We calculated the cost per single unit of alcohol in vodka, cognac, beer and wine using data for price per litre of a specific category of alcoholic beverages in specific years in conjunction with the known concentrations of ethanol by type of beverage. Costs per

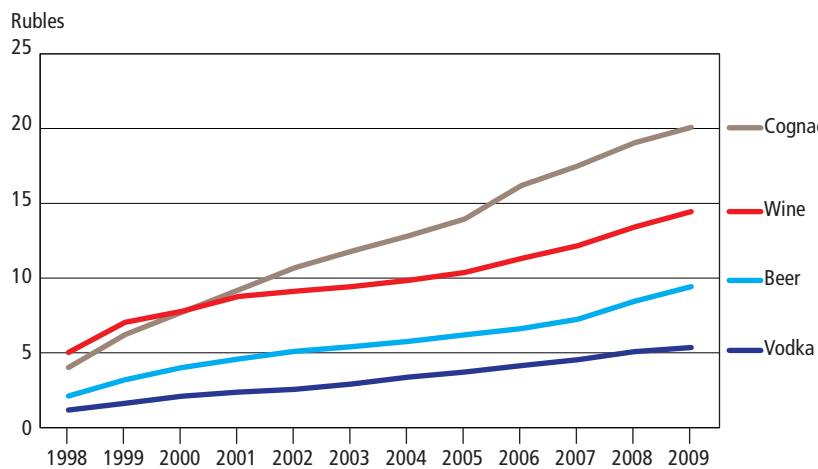
unit of ethanol were not considered to be exact, as each beverage type has a variety of brands with different concentrations of ethanol. In our calculations we used the most common concentrations of ethanol for each category of alcoholic beverages.

One unit of alcohol in our calculations is the equivalent of 10 grams of pure ethanol in each specific alcoholic beverage. As seen in figure 16, the cost per unit of ethanol has been growing in all analysed categories of alcoholic beverages. For the period 1998–2009 the cost per unit of ethanol has grown most in strong spirits, especially in cognac (5.0-fold) and in vodka (4.6-fold). In beer it has increased 4.5-fold, but in wine the growth has been the smallest, at 2.9-fold.

Since consumption of vodka has been decreasing during the specified time period, and at the same time consumption of other types of alcoholic beverages has been increasing, it is important to explore whether the cost per unit of ethanol in alcoholic beverages relative to the cost per unit of ethanol in vodka has also changed, which could be a driver in the ongoing changes in the patterns of alcohol consumption.

As is seen in figure 17, the cost per unit of ethanol in cognac and beer relative to vodka has not changed much over the analysed period. The cost per unit of ethanol for beer decreased during the period 2004–2007, rising again in 2008 and 2009 to the same level seen in 1998. Most interesting is the relative cost per unit of ethanol for wine, which dropped sharply. In 1998, the cost per unit of ethanol for wine was 4.3 times the cost of ethanol for vodka, and in 2009 the corresponding relation was just 2.7. In numeric terms, the relative price per unit of alcohol in wine dropped by 37%, and in beer only by 2%, while in cognac it slightly increased by 9% (Figure 17).

Could these changes in the relative cost per unit of alcohol at least partially explain changes observed in the consumption of alcohol over the same time period? Graphi-

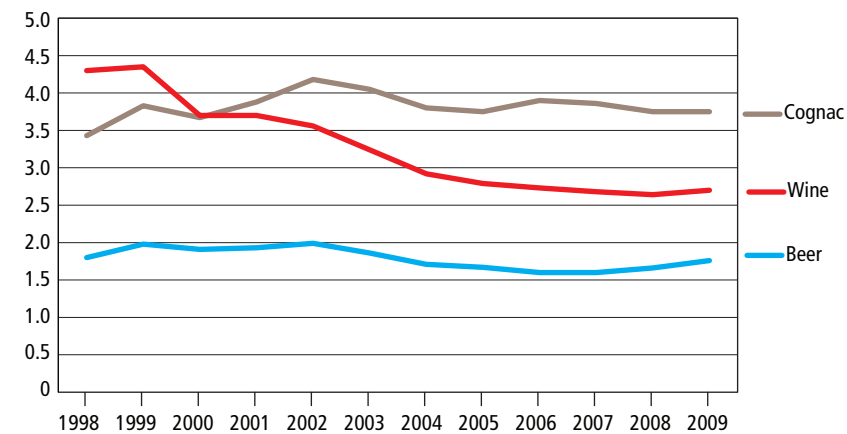


Source: own calculations of authors based on RosStat data.

FIGURE 16. Cost of a single unit of alcohol (10 grams of pure ethanol) in different categories of alcoholic beverages in the Russian Federation, 1998–2009

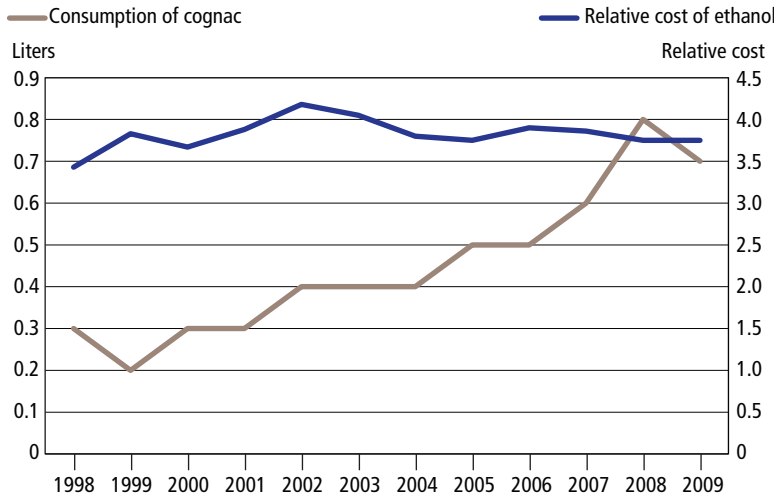
cally the relationships between the relative unit cost of alcohol and consumption of alcoholic beverages are shown in figures 18, 19, and 20. The Spearman's correlation coefficient for cognac showed no correlation between the relative unit cost of ethanol in cognac and its consumption (r=0.007, p=0.982) (Figure 18). However for beer and wine there was observed a negative and quite strong statistically significant correlation (r= - 0.781, p=0.003 and r= - 0.951, p<0.001, respectively), which was especially strong for wine (Figures 19 and 20).

Since there was no correlation observed for cognac, the linear regression analysis has been performed for beer and wine only. The linear regression model for beer employed consumption of beer per capita as the dependent variable and cost per unit of ethanol in beer relative to the cost per unit of alcohol in vodka as the independent variable. The model was statistically highly significant (p=0.002) and explained 62% of the total variation in the dependent variable. In the case of wine, the independent variable explained 75.1% of the total variation in the dependent variable with the linear regression model being highly valid (p<0.001). A single unit decrease in the relative cost of ethanol in wine corresponded to an increase of 2.4 litres in per capita consumption of wine (Figure 18). The unit decrease in the cost per unit of ethanol in beer relative to the cost per unit of ethanol in vodka also corresponded to an increase in per capita consumption of beer (Figure 19).



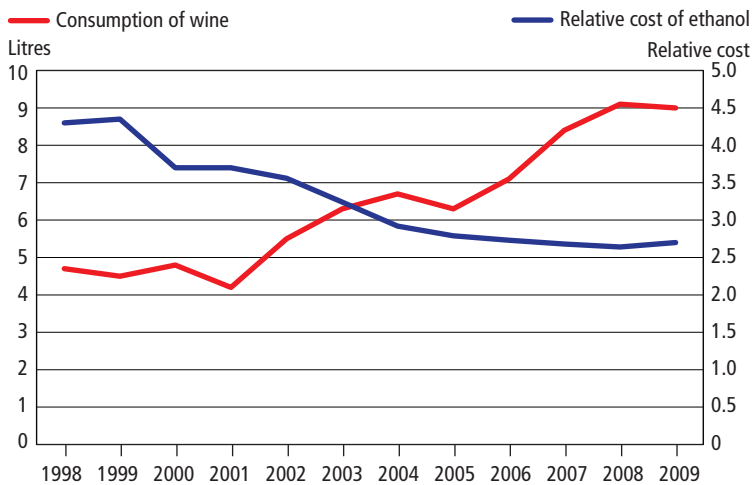
Source: own calculations of authors based on RosStat data.

FIGURE 17. Cost of a single unit of alcohol (10 grams of pure ethanol) in cognac, beer and wine relative to cost of a single unit of ethanol in vodka in the Russian Federation, 1998–2009



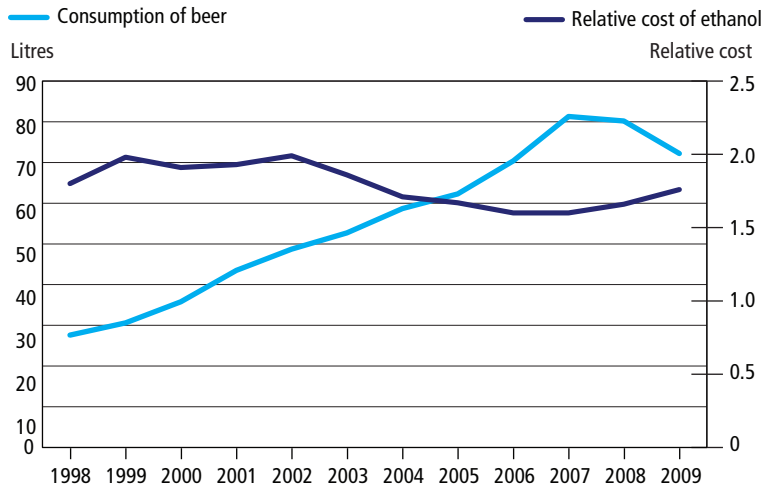
Source: own calculations of authors based on RosStat data.

FIGURE 18. The cost of a single unit of ethanol in cognac in relation to the cost of a single unit of ethanol in vodka and the consumption of cognac in litres of end product per capita in the Russian Federation, 1998–2009



Source: own calculations of authors based on RosStat data.

FIGURE 19. The cost of a single unit of ethanol in wine in relation to the cost of a single unit of ethanol in vodka and the consumption of wine in litres of end product per capita in the Russian Federation, 1998–2009



Source: own calculations of authors based on RosStat data.

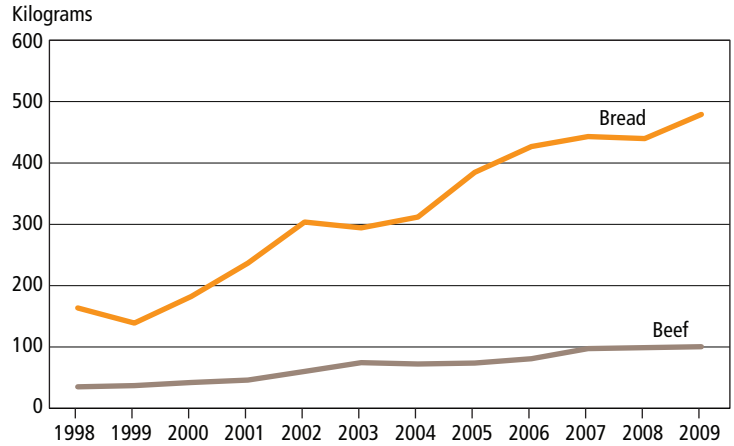
FIGURE 20. The cost of a single unit of ethanol in beer in relation to the cost of a single unit of ethanol in vodka and consumption of beer in litres of end product per capita in the Russian Federation, 1998–2009

Affordability of alcohol relative to affordability of basic food products

In addition to examining the affordability of alcohol in relation to consumption we have also estimated how the affordability of vodka, beer, wine and cognac has evolved over the study period in relation to basic foodstuffs, such as beef and bread. For this purpose, the ratio of affordability of 1 kilogram of beef and bread to the affordability of 1 litre of alcohol has been calculated.

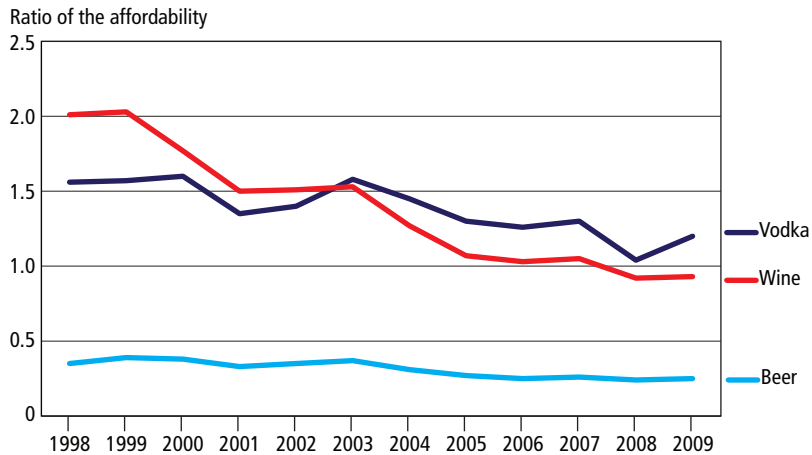
Our analysis showed that with the rising income of citizens and the slower pace of growth of prices of beef and bread, the affordability of these foods has increased. In 1998, the average monthly salary could buy more than 160 kg of bread and 35 kg of beef, while in 2009 it could purchase 479 kg of bread and 100 kg of beef, amounting to a 3.0-fold and 2.8-fold increase in the affordability of those foodstuffs, respectively (Figure 21).

The analysis of the ratio of affordability has demonstrated significant decreases in the affordability of beef and bread in comparison with the affordability of all types of alcoholic beverages analysed, or, vice versa, an increase in the affordability of alcoholic beverages relative to the affordability of beef and bread (Figures 22 and 23). The greatest fall in the relative affordability of beef and bread was observed with regard to wine. This illustrates that the affordability of alcoholic beverages relative to basic food products has increased, despite the overall growth of the affordability of food over the same period of time.



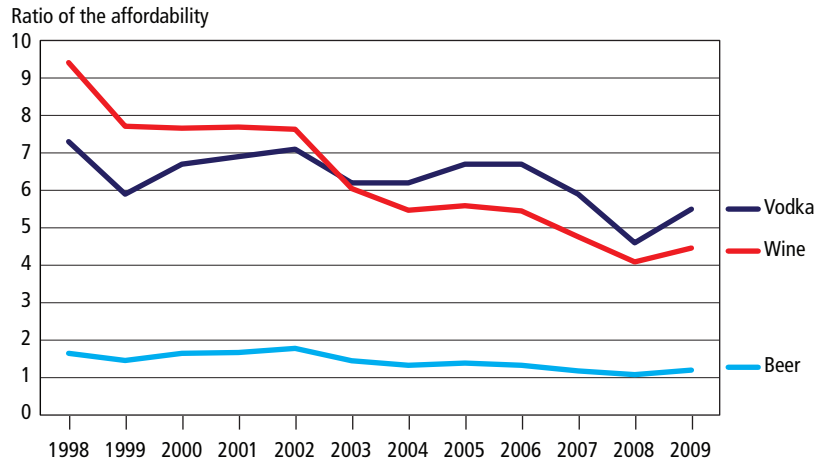
Source: own calculations of authors based on RosStat data.

FIGURE 21. Affordability in kilograms an average monthly salary can buy of beef and bread in the Russian Federation, 1998–2009



Source: own calculations of authors based on RosStat data.

FIGURE 22. Ratio of the affordability of 1 kg of beef to the affordability of 1 litre of alcoholic beverage by beverage categories in the Russian Federation, 1998–2009



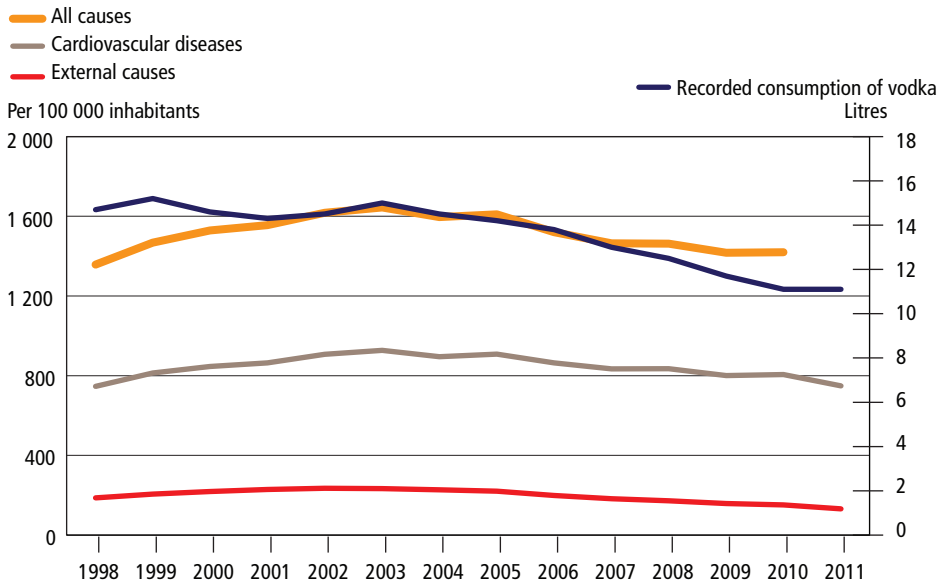
Source: own calculations of authors based on RosStat data.

FIGURE 23. Ratio of the affordability of 1 kg of bread to the affordability of 1 litre of alcoholic beverage by beverage categories in the Russian Federation, 1998–2009

Recent changes in mortality rates and in the incidence of alcoholism and alcoholic psychoses

Total and cause-specific mortality in Russia during the period 1998 to 2011 has been fluctuating, with peaks observed between 2002 and 2005 (Figures 24 and 25). Mortality was analysed for five types of causes: cardiovascular diseases, external causes, suicides, murders, and accidental poisonings. All-cause mortality reached its peak in 2003, and had declined from that peak by 13.7% by 2010. Cardiovascular mortality was also highest in 2003, falling by 19.3% from its peak level by 2011. External causes of mortality and murder were highest in 2002. By 2011 mortality for external causes had fallen from that peak by 44.1% and murders by nearly two thirds. Mortality from suicides had peaked in 2001 and by 2011 it had fallen from that peak by 45.8%. Deaths from accidental alcohol poisoning peaked in 2003, with a subsequent steep decline of 73.9% by 2011.

In contrast to other considered causes of death, mortality from alcoholic liver cirrhosis among 20–69-year-old males has dramatically increased, by 335.7%, when comparing 1999 with the 2007. At the same time, recorded consumption of vodka was at first stable before falling, with two consumption peaks in 1999 and 2003. As seen in figures 24 and 25, the 12-year mortality trends from different causes were similar to the consumption trends for vodka. Rather strong, statistically significant Spearman correlations were observed for consumption of vodka (1998–2011) and mortality from accidental alcohol poisoning ($r=0.707$, $p=0.005$), mortality from suicide ($r=0.866$, $p<0.001$), mortality from homicide ($r=0.784$, $p=0.001$), and mortality from external causes ($r=0.725$, $p=0.003$).



Source: Federal Service of State Statistics (RosStat), 2012.

FIGURE 24. Number of deaths per 100 000 inhabitants by cause of death (all causes, cardiovascular diseases and external causes) and consumption of vodka in litres of end product per capita in the Russian Federation, 1998–2011

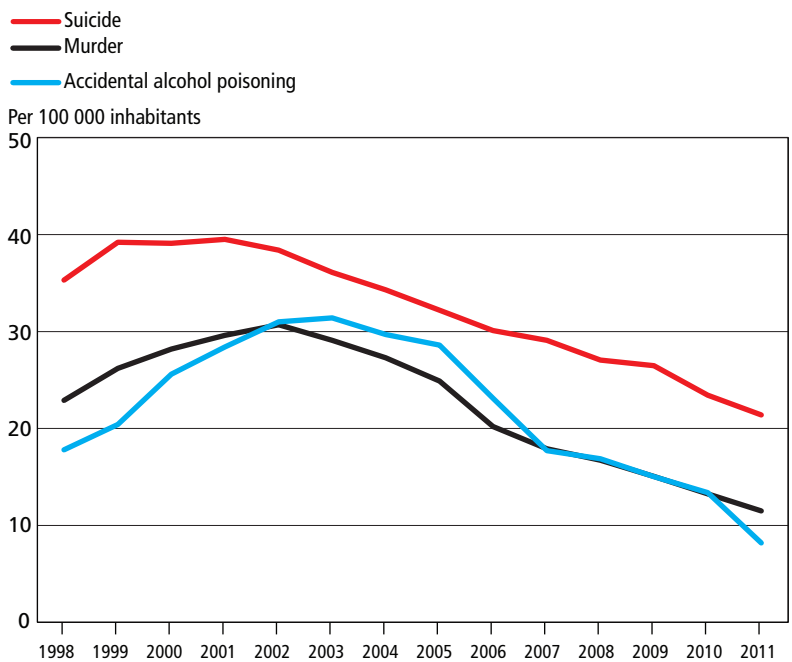
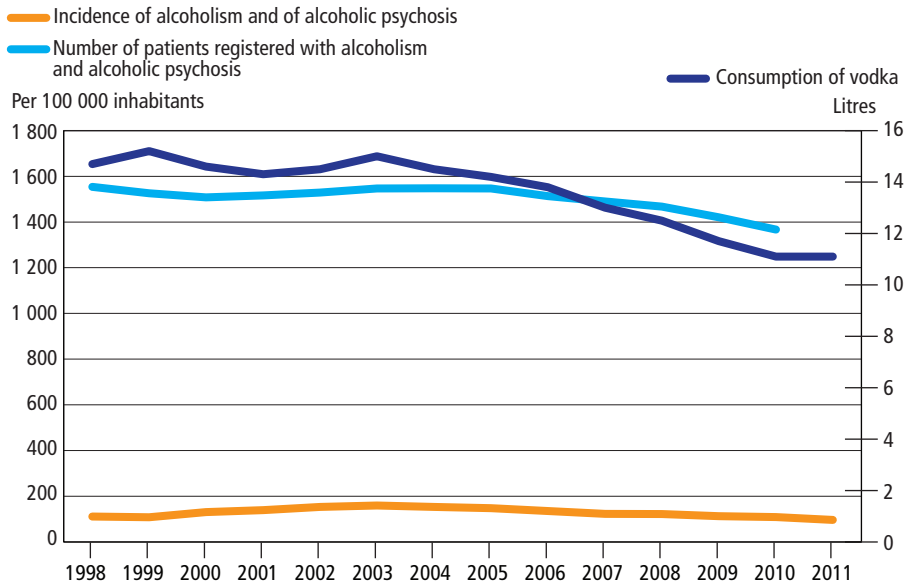


FIGURE 25. Number of deaths per 100 000 inhabitants by cause of death (suiside, murder and accidental alcohol poisoning) in the Russian Federation, 1998–2011



Source: Federal Service of State Statistics (RosStat), 2012

FIGURE 26. Rates of alcoholism and of alcoholic psychosis per 100 000 inhabitants and consumption of vodka in litres of end product per capita in the Russian Federation, 1998–2011

The incidence of alcoholism and alcoholic psychosis showed a downward trend beginning from 2003 up to 2011, with the number of patients registered with alcoholism and with alcoholic psychosis significantly also falling after 2005 (Figure 26).

Discussion

Since 1998 several important processes in the field of alcohol and health have occurred in Russia. First, recorded total per capita alcohol consumption has been growing, while consumption of spirits has fallen. Spirits consumption fell due to a reduction in the consumption of vodka/vodka-liqueur products, despite an increase in the consumption of other categories of spirits, such as cognacs. The growth of total per capita ethanol consumption was significantly determined by a notable rise in the consumption of alcoholic beverages with lower alcohol content, such as beer and wine, and to a lesser degree by an increase of the consumption of cognacs. Beer has seen the highest growth among the different alcoholic beverage categories.

Our analysis of the affordability of alcoholic beverages has shown a rise in the affordability of all analysed categories of alcoholic beverages between 1998 and 2009, with the affordability of wine being the fastest growing among different beverage categories, followed by that of beer. Relative to the affordability of basic foods (such as beef and bread),

alcoholic beverages have become more affordable, suggesting that the excise taxes on alcoholic beverages were not adequately indexed according to the pace of growth of the inflation and the income of the citizens. At the same time, per capita consumption of beer has increased to the greatest extent, with consumption of wine to a lesser extent, suggesting higher elasticity in the beer-consumption-per-unit increase in its affordability and a lower elasticity of the wine-consumption per unit increase of its affordability.

The affordability of all analysed categories of alcoholic beverages, with the exception of vodka, has been strongly and statistically significantly positively associated with their consumption. Despite analyses yielding only small statistical power from a 12-year data set, the obtained results are in agreement with trends observed in the earlier work of Andrienko and Nemtsov (2006), where rising individual income created an increased consumer demand for alcohol (Adrienko et al. 2006). In this light, rising consumption of beer, cognac and wine over the 12-year period is largely seen as being driven by the growing affordability of these alcoholic beverages.

The case of vodka products represents a different story, however, with consumption reduced in spite of the increased affordability of vodka. In this case, the association between affordability and consumption is seen as being influenced by a third factor, that of changing drinking patterns, with larger amounts of ethanol being derived from alcoholic beverages with lower alcohol content, especially from beer. It is remarkable that a reduction in vodka consumption has been taking place in spite of increased affordability. It appears that some alcohol consumers increasingly prefer other, likewise more affordable, alcoholic beverages, such as wine, cognac, and especially beer. It is also possible that the market had reached a saturation point in terms of cheap vodka, which was already quite affordable by end of the 1990s.

It is important to note that since 2001 unrecorded alcohol consumption as estimated by Nemtsov (2000 & 1998 & 2011) and summarized by Neufeld and Rehm (2013), has been falling, which subsequently lowers the total estimated consumption of alcohol in Russia. These estimates for unrecorded consumption were based on exploring strong correlations between alcoholic psychosis, alcohol poisoning deaths and total alcohol consumption (Neufeld at al. 2013). Other research also shows that spirits consumption constituted the majority of unrecorded alcohol in Russia (Gil et al. 2009; McKee et al. 2005). A fall in the consumption of unrecorded alcohol is therefore likely a further indicator of changing drinking patterns from strong spirits to beer and wines rather than being the result of reduced detection of illegal production and consumption.

Despite other available data on the illegal sector demonstrating a very high proportion of alcohol produced illegally, 50% of vodka was produced in Russia in 2010 (Center for Political Technologies 2010) and more than 50% of vodka in 2003 (Yusufov 2003). These estimates are based either on expert opinion or were methodologically weak. In this light, the summary of unrecorded alcohol production and consumption presented by Neufeld and Rehm that showed a downward trend during the past few years is more reliable than other available appraisals.

Further evidence of an ongoing change in drinking habits is seen in falling mortality from accidental alcohol poisonings, and from known alcohol-dependent causes com-

mon to Russia, such as homicide, suicide and external causes, which were all significantly correlated with reduced consumption of spirits. Moreover, the falling incidence of alcoholism and of alcoholic psychosis, along with dramatic increases in mortality from alcoholic liver cirrhosis among 20-69 years old males further supports a changing pattern in alcohol-related harms. A higher risk of alcoholic liver cirrhosis and a lower risk of alcohol poisoning would be characteristic of an everyday chronic consumption of weaker alcoholic beverages over several years, rather than the previously more common pattern of infrequent consumption of strong alcohol in very large doses.

All the analysed categories of alcoholic beverages showed growth in the cost per unit of alcohol, although the growth rates were unequal: highest for strong alcoholic beverages and lowest for wines and hence the highest increase in affordability for wines. The cost per unit of ethanol in wines during the analysed period of time changed relative strongly for vodka and was almost unchanged for beer and cognac. The falling relative cost of unit ethanol in wine was also statistically significantly and very strongly negatively correlating with wine consumption, suggesting that relative cost played a part in increased consumption of wines, along with increased affordability. The growing affordability of beer appeared to be the most important factor for driving beer consumption upwards. For cognac, affordability was seen to be the most important factor affecting consumption growth.

During the study period Russia tightened alcohol legislation in response to government and industry concerns about income losses associated with the trade in illegal and surrogate alcohol. The legislative measures were mostly aimed at preventing the production, transportation and sale of illegal ethanol and illegal alcoholic beverages, thus reducing competition for legal alcohol businesses as well as complicating and suppressing illegal alcohol activity. Such measures are expected to provide stability for the alcohol industry, as well as increase tax incomes for federal and local budgets. To a much lesser extent, they were aimed at protecting public health by reducing alcohol consumption and alcohol-related harms. The reduction of mortality and morbidity rates from various causes is therefore seen as positive side effects of this policy in as much as it is effective in reducing the supply of illegal and unrecorded spirits.

The reduction of vodka consumption deserves particular attention. This reduction was not driven by affordability and has been happening simultaneously with increasing consumption of beer and to a lesser degree also that of wine. This indicates a likely shift in drinking patterns from spirits to beer. If a reduction in illegal alcohol production and consumption has taken place in recent years, it would indeed contribute to a change in consumption patterns, with illegal spirits becoming less available. The role of the State in this process has been to allow the affordability of beer to increase, and to deliberately increase the availability of beer via the legal provision of preferential conditions for trade in beers achieved in 2005 with the unprecedented Federal Law No.11-FZ 'On restriction of retail sale and of consumption (drinking) of beer and of beverages produced on its basis'. This law was introduced following pressure from the multinational and national beer industry and it meant that beer was excluded from its regulation as an alcoholic drink from the country's central alcohol law No.171, which facilitated a dramatic

increase in its physical availability, with no restrictions on the number and size of trade premises from which beer could be sold and no restrictions on the hours in which it could be sold. As a result, beer was sold 24 hours a day without restrictions from small and big shops, from all types of non-stationary retail outlets, such as street kiosks and stalls, and even from trays by individual entrepreneurs and individual persons on street corners. This effectively meant beer regulations matched that of non-alcoholic drinks. Although all provisions secured by this law were finally terminated on January 1, 2013, during the eight years that the previous legislation was in force, it shaped a new beer-drinking pattern and culture of drinking in Russia. Although not the specific intention of the State authorities, the legislation effectively worked towards promoting drinking of a less harmful lower alcohol content beverage at the behest of the beer-brewing industry.

So, the State's alcohol control policy during the period 1998–2009 could not be regarded as a comprehensive alcohol control policy, driven primarily by public health concerns, as it promoted beer drinking and did not include measures to reduce the affordability of alcohol, or ensure that the cost per unit of ethanol was most expensive in spirits and least expensive in lower alcohol content beverages, such as beer and wine, or reduce the affordability of alcohol relative to basic foodstuffs like beef and bread.

The central Russian alcohol law still does not regulate some very important aspects of alcohol drinking that shape the national situation, such as home-made alcohol (e.g. samogon and braga) or the misuse of non-beverage alcohol (e.g. medicinal tinctures, spirituous perfumery, cosmetics and hygienic liquids), despite the fact that the consumption of these products has been associated with an eight-fold increase in the mortality rate among working age males. Non-beverage alcoholic products used for drinking purposes can still be sold both by commercial and individual entrepreneurs, who are not restricted by the size of their enterprise. Availability of non-beverage alcoholic products is therefore significantly higher than that for restricted strong alcoholic beverages. Moreover, the presence of a large number of small retailers and individual entrepreneurs selling or potentially able to sell non-beverage alcohol complicates the degree of control and requires an allocation of substantial, and often insufficient, human, time and labour resources by the State control agencies.

Home-made alcohol is still allowed if it is produced for self-consumption and is not made available for sale. This partial measure leaves a window of opportunity for illegal bootleggers to produce and trade in homemade spirits 'under-the-table'.

The introduced restrictions on the hours that legally produced alcoholic beverages can be sold off premises were also inadequate. Established in 2011, it restricted off-premise sales between 11:00 p.m. and 8:00 a.m. for all days of the week, including the weekends, while in the Nordic countries, for example, the off-premise sale of distilled spirits, wine or strong beer is not permitted between 8:00 p.m. and 9:00 a.m. during weekdays and not permitted at all on Sundays or during the evening on Saturdays, namely during the peak hours when people are most likely to buy alcohol in excessive quantities.

The physical availability of all types of legally produced alcoholic beverages has been and remains very high, since the State has not established norms and does not plan to restrict the number of retail outlets or shops selling alcoholic beverages in the country. The

number of retail outlets selling alcoholic beverages per 100 000 inhabitants in the different parts of Russia varies from being 3 to 10 times higher in comparison with the Nordic countries. In Finland, as of January 1, 2012, the off-premise retail sales outlets numbered 6.4 State-run monopoly outlets per 100 000 inhabitants and 103 grocery stores selling alcoholic beverages with at most 4.7 per cent ethanol by volume per 100 000 inhabitants (Alko 2012), while in the Moscow oblast, for example, the equivalent figure for selling all alcoholic beverages was 250 shops per 100 000 inhabitants, which is 1 shop per 400 citizens.

In 2013 excise duties for strong alcoholic beverages with an alcohol content of more than 9% ethanol by volume will reach RUB 400 (EUR 10) per 1 litre of end product, which brings it up to the 2012 level of excise duties effective in Hungary. As has been shown graphically, the steepest increase in excise duties up to 2015 will be for alcoholic beverages with an alcohol content of more than 9% ethanol by volume and the flattest increase will be for wines. This might work towards changing drinking patterns away from strong alcoholic beverages towards wines and other alcoholic beverages with lower alcohol content, due to the increasing cost per unit of ethanol in strong alcoholic beverages. However, the excise taxes for non-beverage alcohol are increasing at a slower pace than for strong alcoholic beverages with an alcohol content of more than 9% by volume, which in the end will widen the gap between the cost per unit of ethanol in strong alcoholic beverages and non-beverage alcohol, making non-beverage alcohol a cheaper source of ethanol. This is undesirable, given that the denaturing of these products is not sufficiently reinforced and that they are still being consumed for drinking in Russia. The steep increase in excise duties for strong alcoholic beverages will require careful monitoring of the consumption of illegal and non-beverage alcoholic products as well as the implementation of stronger control efforts. The significant illegal and criminal activity in the alcohol business might lead to a proliferation of illegal and non-beverage alcohol, which has already been a significant challenge for State controls for the past 20 years.

Simpura and Moskalewicz (2000) noted on the verge of the millennium that contrary to the widely held international view, health aspects were not the primary concern in alcohol debates in Russia. Instead, concerns about economic aspects and questions of social and public order were at the fore (Simpura & Moskalewicz 2000). Today we can say that issues related to alcohol and health are debated in Russia and are now of growing concern, which is reflected in the enactment of State programs and an approach geared to reducing alcohol consumption and harms (Government of Russian Federation 2007; Ministry of Health of Russian Federation 2012; Government of Russian Federation 2009). However, as time has shown, these apparently positive moves lacked a systemically consistent approach to developing and realising the State alcohol control policy. The reforms rather appear like framework documents or memorandums of understanding, showing that everyone knows there is a problem, but no one really understands what is to be done. Neither has the State committed to real action. Further enactments of respective State sub-programs and action plans are needed, as are new regulations or effective amendments to existing legislation.

The current legislation is poor, fragmented, and insufficiently developed or adjusted to current drinking norms and regulations. This is in part explained by the under-development and absence of a system of restraint of commercial and other corporate interests of the alcohol industry, which for many years has been successfully imaging itself in the eyes of the State and society as an objective expert and proponent of the State's and citizens' interests in the alcohol field. Past and current State institutions still represent the interests of the legal alcohol industry, which has been concerned chiefly with increasing its profits from the production and sale of alcoholic beverages. In addition to the influence of the alcohol industry, Russia lacks expertise in running a restrictive alcohol policy, and does not have industry-independent State institutions that would be solely responsible for the protection of public health from the harms associated with alcohol consumption. It will likely take some time before authorities fully realise the need to completely reform State controls covering the production and distribution of alcohol, and to go about developing an adequate and comprehensive set of restrictive regulations. But for the time being it is likely that Russia will continue to introduce amendments to its existing fragmentary laws that directly or indirectly regulate alcohol, the effectiveness of which will clearly be diluted by the lobbying of the alcohol industry and by insufficient law enforcement.

Conclusions

During the study period, Russia's public health crisis, which was characterised in the 1990s and until 2005 by dramatic fluctuations of all-cause mortality and of mortality from alcohol-related causes, has continued. Research carried out during the past two decades suggested that this public health crisis was driven by excessive and hazardous alcohol consumption, by high rates of smoking, by deterioration of the health system and of other broader social-economic determinants in the country, with alcohol playing a substantial proximal role among them. However, after 2005 mortality trends began to decline, and this decline has continued up to 2013. The amendments to alcohol legislation introduced since 2001, and especially those in 2006 and later in 2011, have likely played a positive role in diminishing the production and consumption of illegal and unrecorded spirits, which has subsequently led to an improvement in alcohol-driven health indicators. However, life expectancy in Russia still remains 10–15 years lower than in Western countries and corresponds closely to the previous 1960-levels in the Soviet Union, suggesting that the quality and implementation of recent alcohol control measures has not led to significant improvements in the health status of Russian citizens, which would be expected to correspond to the level of other modern industrialised countries.

Despite the recent introduction of time restrictions on the off-premise sale of alcoholic beverages, restrictions on the size and number of retail outlets selling beer since 2013, and also attempts to increase excise taxation on alcoholic beverages, the vast majority of implemented alcohol control measures were aimed at providing stability for the legal alcohol beverage industry and to suppress illegal activity in the field of produc-

tion, transportation and sale of ethanol, alcohol products and alcoholic beverages. Since 1998 the affordability of legally produced alcoholic beverages such as beer and wine has grown and has been associated with increased consumption, with beer taking the lead. At the same time, consumption of vodka has been falling in spite of the growing affordability of vodka, which, combined with the suppression of illegal spirits, suggests somewhat improved health indicators, as well as indicating what appears to be the start of a change in drinking patterns and culture in Russia, away from spirits towards alcoholic beverages with lower alcohol content, especially beer drinking. The changing structure and patterns of drinking towards less hazardous, less risky drinking may partially be associated with a cohort effect due to the passing away of older cohorts of drinkers, the behavioural carriers of hazardous patterns of drinking inherited from Soviet times, such as spirits drinking, binge drinking, going on so-called zapoi, that is, periods of continuous drunkenness lasting several days when the person has withdrawn from normal social life.

Despite the stated strong commitment of Russia's authorities to tackle the country's alcohol problem, as reflected in the objectives of accepted State programs, future progress in this field will depend on the ability to settle on a comprehensive approach to the alcohol problem. This would address the multiple aspects of alcohol control, including economic affordability and availability of recorded and unrecorded alcohol while at the same time as facing down the pressure from a self-satisfied alcohol industry. These efforts will certainly require further reform and harmonisation of alcohol legislation and of the existing norms and regulations relevant to alcohol control in the country.

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Yury E. Razvodovsky

Affordability of alcohol and alcohol-related problems in Belarus

Introduction

Alcohol makes a large contribution to the difference in mortality observed between Eastern and Western parts of Europe, as shown in the introduction of this book. In particular, alcohol's effects on health seem to have been especially acute in the countries of the former Soviet Union, where it has recently been identified as one of the most important factors underpinning the alarming rise in mortality that has occurred in the post-Soviet period (Rehm et al. 2007). Up to 1991, Belarus (Byelorussia) was one of the republics of the Soviet Union and was among those Republics with the highest levels of alcohol consumption per capita (Stickley et al. 2007). Like a number of other former Soviet countries, Belarus has experienced a demographic crisis in the post-Soviet period.

From 1990 to 2010, all-cause mortality in Belarus rose from 10.7 to 14.5 deaths per 100 000 inhabitants (Statistical Yearbook 2011). The combination of a falling birth rate and a steeply climbing death rate resulted in a reduction of 708 000 people or 7% of the total population between 1990 and 2011 (Statistical Yearbook 2011). Although death rates have risen for nearly all causes of death, the rise has been particularly sharp for cardiovascular and external causes of death, with alcohol being linked strongly to this increase (Razvodovsky 2003). According to the Bureau of Forensic Medicine's autopsy reports, alcohol was found in the blood in 62.2% of violent mortality victims and in 37.5% of cardiovascular death victims (Razvodovsky 2012).

Growing research and empirical evidence suggests that alcohol is a major factor in the high rate of premature mortality in Belarus (Razvodovsky 2003; 2008a). A report from a group of international experts who undertook a systematic analysis of the alcohol-attributable mortality burden showed that in the European sub-region containing Belarus and other countries of the former Soviet Union, alcohol was responsible for 18.6% of all premature deaths in men and 5.4% in women (Rehm et al. 2007). However, the authors acknowledge that this figure may have been an underestimate, as several disease categories were not included because of the different classification system of disease in the former Soviet republics. More recent estimates of the proportion of alcohol-attributable deaths based on the aggregate data suggests that 28.4% of male deaths and 16.4% of female deaths in Belarus are attributable to alcohol (Razvodovsky 2012). These estimates are comparable to findings from a study of forensic autopsies that found that 22.6% of all male deaths (30.3% of working-age deaths) and 14.3% of female deaths

(26% of working-age deaths) were attributable to alcohol (Razvodovsky & Prokopchik 2010). Middle-aged men had the largest proportion of alcohol-attributable deaths, with nearly half of all deaths attributed to alcohol (Razvodovsky 2012). This reflects the fact that the level of alcohol-related problems among middle-aged men is especially high. In terms of specific causes, it was noticeable that acute rather than chronic alcohol-related conditions were responsible for the greatest proportion of deaths, with half of all deaths resulting from acute alcohol poisoning (Razvodovsky 2000; Razvodovsky & Stickley 2007; Stickley & Razvodovsky 2009).

When evaluating a relationship between the affordability of alcohol and its consumption and resulting harms, it is important to consider the context provided by general social and economic conditions. The collapse of the Soviet Union and the initial moves to establish a market mechanism resulted in the newly independent country entering a severe economic and social crisis. Real gross domestic product (GDP) fell by over 30% between 1991 and 1995, unemployment rose from 0.1% to 2.9% during the same period, and inflation had reached 2321% by 1994 (Statistical Yearbook 2011). Against this background, the level of poverty rose sharply, while increasing social dislocation was manifested in falling birth and marriage rates and a growing number of divorces (Statistical Yearbook 2011). After 1995 there was steady improvement in many of these socioeconomic indicators. Between 1990 and 2010 GDP rose by 180% and real disposable income increased three fold (Statistical Yearbook 2011).

Alcohol control policy in Belarus

Alcohol control policies in Belarus have undergone dramatic changes during the last three decades, ranging from tough restrictions in the mid-1980s to a liberalization of the alcohol control policy after the repeal of the alcohol monopoly following the collapse of the Soviet Union, resulting in a dramatic increase in the affordability of alcohol. The fall in the relative price of alcohol in the early 1990s resulted in a sharp drop in the price of vodka relative to that of other goods. Despite the fact that sharp growth in alcohol consumption was responsible for a mortality crisis in the early 1990s, alcohol control policy was de-prioritized by the Belarusian government. The ruling regime focused their attention on economic problems and underestimated the scale of social and public health problems caused by excessive alcohol consumption.

As public awareness of the adverse health consequences of harmful drinking grew, the end of the 1990s saw the authorities openly admit that excessive mass drunkenness posed a serious threat to society and multiple measures were adopted to strengthen government control of the alcohol market. The first major action to strengthen alcohol policy since the early 1990s was the introduction in June 1998 of Law N. 193–3 'On State Regulation of the Production and Sale of Alcohol Products', which defined the procedure for licensing the production, wholesale and retail trade as well as the import and export of alcohol. It also stipulated the establishment of quotas for the production, export, and import of alcohol products, as well as the state regulation of alcohol prices. Several oth-

er pieces of legislation were adopted to regulate the alcohol market, including labelling policies, authenticity controls, and licensing stipulations.

In addition to these legislative acts, in August 2000 a Council of Ministries of Belarus adopted a 'National program of action against drunkenness and alcoholism'. It was a comprehensive alcohol policy document to co-ordinate actions against harmful alcohol consumption in Belarus. The main emphasis was placed on education and public awareness of alcohol-related problems associated with harmful drinking. Alcohol policy has been strengthened in other areas as well, especially in tackling the consumption of non-commercial alcohol. As part of the cross-sector work, a special task force, the Interdisciplinary Council on Tackling Alcohol-Related Problems, was established. It consisted of specialists from different organizations.

Impact of alcohol affordability on recorded alcohol consumption

Since alcohol abuse has numerous adverse health and social consequences, the consumer response to changes in alcohol affordability is an important issue in alcohol policy debates (Becker & Murphy 1988; Norström 2005; Trolldal & Ponicki 2005; Wagenaar et al. 2009; Elder et al. 2010). The level of alcohol consumption in Belarus is one of the highest in the world, with an annual sales rate of 13.3 litres of pure alcohol per capita or 15.4 litres per inhabitant aged 15 years and older in 2011, while some estimates show a figure as high as 16.5 litres per capita (Razvodovsky 2012). The increase in the death rate in Belarus was paralleled by a rapid growth in the sales of vodka, while episodic heavy or binge drinking patterns of consumption for strong spirits were commonplace and have also been linked to the increased level of alcohol-related mortality (Razvodovsky 2003; 2008a). Even though the market share of wine and beer has increased in recent years in Belarus, vodka still accounts for over 50% of overall alcohol consumption (Razvodovsky 2012). Although population surveys generally underestimate alcohol consumption, a survey from Grodno city suggests that 57% of men and 9% of women had a consumption pattern that was hazardous according to the AUDIT definition, while 28% of males and 3% of females were identified as being alcohol dependent (Razvodovsky 2005). The consumption of homemade spirits (samogon) and surrogates might also have a particularly negative impact on alcohol-related mortality in Belarus, the reason likely being the strength and poor quality of much of this illegal alcohol (Razvodovsky 2008b). A recent survey undertaken in the city of Grodno found that 31% of men and 14% of women drank samogon at least occasionally (Razvodovsky 2011).

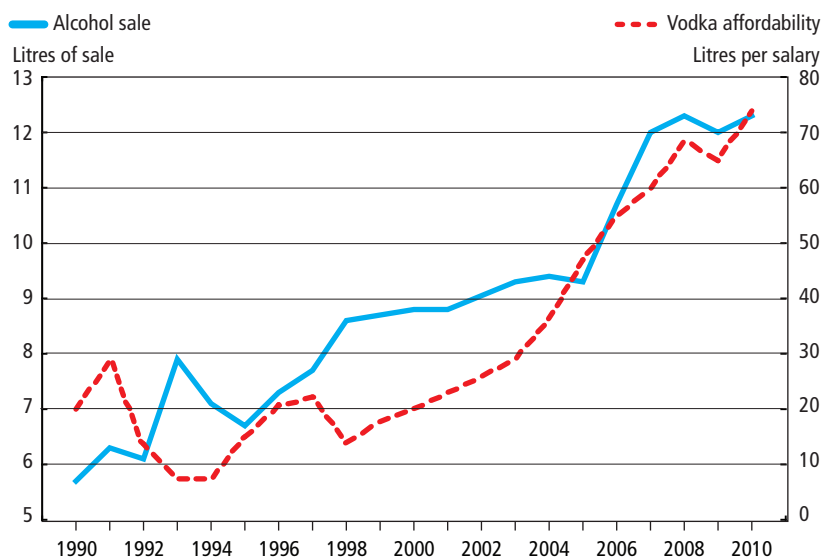
The high level of alcohol consumption recorded in Belarus has been linked to a number of public health problems, including lost productivity, domestic violence and high alcohol-related morbidity and mortality rates (Razvodovsky 2003; Norström & Razvodovsky 2010). Time series analyses have reported a strong relationship between per capita sales of alcohol and mortality in Belarus: a 1-litre increase in per capita alcohol consumption is expected to increase all-cause mortality by 2.6%, cardiovascular mortality by 3.1%, mortality from external causes by 5.5%, mortality from accidents and injuries

by 6.2%, the homicide rate by 4.8%, the suicide rate by 2.6%, the fatal alcohol poisoning rate by 11.1%, the liver cirrhosis mortality rate by 6.1% and the pancreatitis mortality rate by 6.2% (Razvodovsky 2012).

The aim of this study was to estimate the potential impact of alcohol affordability on alcohol consumption and related harms in post-Soviet Belarus. The number of litres of vodka that an average monthly salary could buy has here been used as a proxy for alcohol affordability.

During the last two decades, the level of recorded alcohol consumption in Belarus rose dramatically. Starting with a relatively low level of 5.7 litres of pure alcohol per capita in 1990, the level increased 2.2-fold by 2010, when the official figures for consumption peaked at 12.3 litres per capita. The graphical evidence suggests that the pattern for vodka affordability and alcohol sales in Belarus has been similar over time (Figure 1).

A Spearman correlation analysis suggests a rather strong association between the two variables ($r=0.80$; $p<0.0005$). Therefore, a linear regression model was applied in further analysis. The relationship between the affordability of vodka and alcohol sales per capita is described by the linear regression equation $y = 5.97 + 0.09*x$, where y is the alcohol sales per capita and x is the affordability of vodka. The linear regression model describes 76.2% of the total dispersion of the dependent variable and is characterised by its high validity ($p<0.0005$). So, we should expect that the increase in vodka affordability would result in growth in alcohol sales per capita. This case can be described by the elasticity coefficient, which is derived from the following equation: $E = B_1 \overline{x} / \overline{y} = 0.32$. This



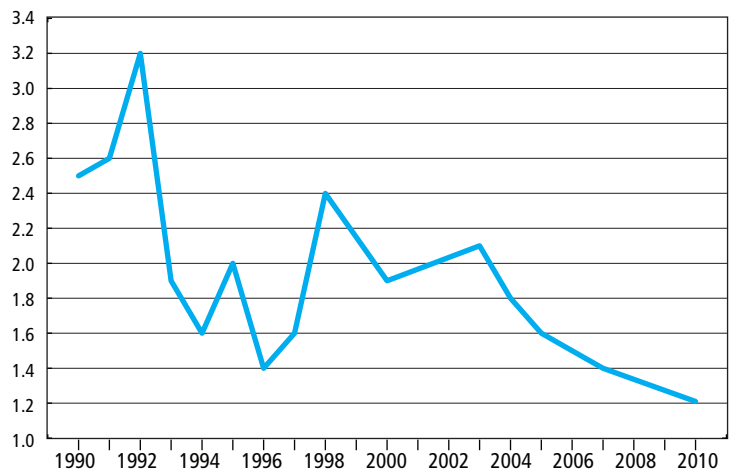
Source: Ministry of Statistics of Belarus

FIGURE 1. Trends in vodka affordability in litres of vodka that an average monthly salary could buy and alcohol sales in litres per capita in Belarus, 1990–2010

means that a 1% increase in the affordability of vodka is followed by a 0.32% increase in the level of recorded alcohol consumption.

In addition to examining the effect of alcohol affordability on recorded alcohol consumption, we have estimated the impact of the relative price of alcohol on its consumption. Graphical evidence shows a general downward trend in the relative price of vodka between 1990 and 2010 (Figure 2). A Spearman correlation analysis suggests a statistically significant negative relationship between these two variables ($r=-0.67$; $p<0.0005$).

The results from these analyses indicate the presence of a statistically significant association between vodka affordability and alcohol sales in Belarus. This research evidence suggests that the increase in alcohol sale resulted largely from an increase in alcohol affordability. In this context it should be mentioned that in spite of extensive evidence that raising alcohol prices reduces alcohol consumption, the real price of alcoholic beverages has nevertheless been decreasing over the last decades in many countries, resulting in increases in the affordability of alcoholic beverages (Rabinovich et al. 2009). The affordability of alcohol in Belarus has increased significantly since the early 1990s: the average salary in 1993 could buy 7.3 litres of vodka compared with 73.9 litres in 2010 (Figure 1). The increase in affordability of alcohol was driven mainly by an increase in real disposable income, as the average income rose faster than alcohol prices, as well as by changes in the relative price of alcohol (Figure 2). In the early 1990s vodka became much more affordable because of a dramatic drop in its relative price, when price liberalisation caused most prices to soar, but the nominal price of vodka rose much more slowly. In the most recent decade, the affordability of vodka has once again surged, mostly because of the growth of real income as the economy has recovered. These results replicate findings from neighbouring Russia, demonstrating the increasing demand for alcohol



Source: Ministry of Statistics of Belarus

FIGURE 2. Price of 1 litre of vodka relative to price of 1 kilo of beef in Belarus, 1990–2010

with rising individual income, as well as comparable reductions in alcohol consumption with rising prices for alcoholic beverages (Andrienko & Nemtsov 2005; see also Chapter 2 in this book).

It should be emphasized that there is an apparent reversal trend in alcohol affordability and alcohol sales in Belarus in the period 1992–1993: an upward trend in alcohol sales and a downward trend in alcohol affordability. This highlights an intermediate role of social factors in the alcohol affordability–demand association. Although the exact nature of this phenomenon remains uncertain, one potential explanation may be particularly relevant in this context. It is possible that a deteriorating socio-economic backdrop and psychosocial distress were the main determinants of growing demand for alcohol in the early 1990s. Indeed, the collapse of the Soviet Union in 1991 had dramatic socio-economic consequences, including a deep economic crisis, hyperinflation, growth in unemployment and a decline in the incomes of the majority of the population (Razvodovsky 2003). This might be especially the case as research evidence has suggested that although habitual vodka drinking among men in the former Soviet republics was a normative behaviour, males also consumed alcohol more frequently as a way of coping with psychosocial distress (Koposov et al. 2002) and that economic stress can increase alcohol consumption, including binge drinking (Kuntsche et al. 2004).

It is of interest to compare our findings with estimates for other countries, although such a comparison may be incorrect, keeping in mind the methodological differences among the studies. Our estimates are similar to findings from a European study suggesting a total response of 0.32% in consumption following a 1% increase in alcohol affordability (Rabinovich et al. 2009), though this is much lower than what was obtained for Central and Eastern European countries. In particular, an econometric analysis of demand for alcohol that was based on individual data from the longitudinal survey of the representative sample of the Russian population (RLMS) revealed the classical decreasing demand curve and yielded a price elasticity for vodka of -1.8 (Andrienko & Nemtsov 2005). A recent study using aggregate-level data from Poland between 1950 and 2005 reported that a 1% increase in the price of spirits leads to a decrease in demand for spirits of about 0.9% (Bielinska-Kwapisz & Mielecka-Kubien 2011).

There is an assumption that with higher alcohol prices, consumers may not reduce their drinking but tend to switch to cheaper alcoholic beverages of lower quality (Ornstein 1980; Cook & Tauchen 1982; Norström & Ramstedt 2006; Manning & Blumberg 1995; Meier et al. 2009; Black et al. 2010). This consumer behaviour was seen in Russia, where researchers found vodka was substituted with moonshine when vodka prices were higher (Andrienko & Nemtsov 2005). Some experts even argue that any attempts to decrease the affordability of alcohol in the former Soviet republics are prone to failure because heavy drinking is an integral part of culture in this region. Indeed, the existence of a substantial illicit market of alcohol in Belarus complicates pricing policy considerations, as there is a risk that these measures will stimulate the demand and the production of illicit alcohol. However, over recent years, the illicit market has become better monitored by the government. As a part of the national alcohol strategy to bring the illicit market under government control, the Ministry of Internal Affairs has embarked on

a campaign against samogon and surrogate production, which has resulted in a substantial reduction in its consumption (Razvodovsky 2012). In order to bring the illicit market under effective government control, some experts also suggest implementing a differential taxation policy that increases the attractiveness of lower alcohol-content forms of beverages (Norström 2005).

In sum, the results from this analysis show clearly that affordability of alcohol is significantly related to recorded alcohol consumption. These findings support growing scientific evidence suggesting that alcohol affordability is a major determinant of alcohol consumption.

Impact of alcohol affordability on alcohol-related harms

Several studies have evaluated the effects of changes in prices or taxes on various outcomes related to harmful alcohol consumption, including alcohol dependence and liver cirrhosis mortality, known to be specifically attributed to long-term alcohol abuse (Österberg 1995; Purshouse et al. 2010). Although most of these studies indicate a consistent relationship between higher prices and lower cirrhosis mortality, there are substantial differences in the estimated elasticity, which ranged from -0.001 to -0.90 (Gruenewald & Ponicki 2006).

There are, however, suggestions that increasing the price of alcohol by raising taxes may have a limited effect on alcohol-related problems associated with long-term heavy drinking, including liver cirrhosis mortality (Sloan et al. 1994; Bielinska-Kwapisz & Mielecka-Kubien 2011). Therefore, additional studies are needed to elucidate the effect of alcohol affordability on liver cirrhosis mortality.

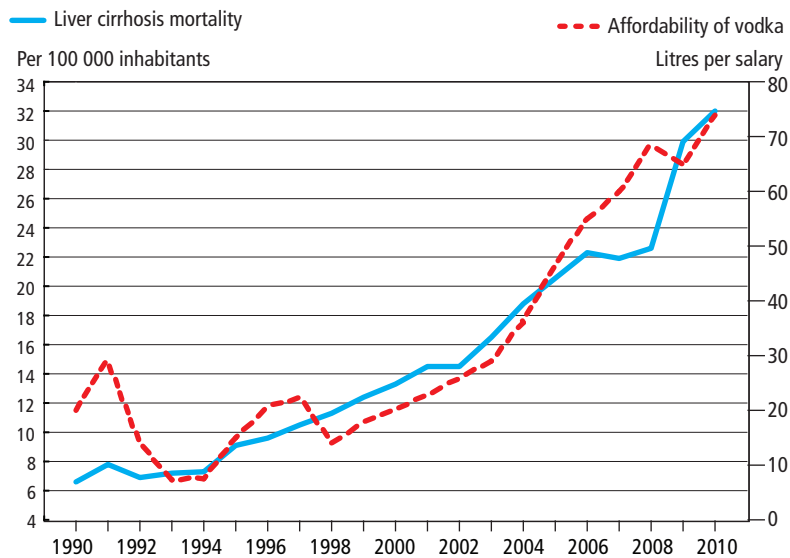
The liver cirrhosis mortality rate is widely used as an indicator of alcohol-related problems in a population (Rehm et al. 2010). The findings from many countries, including the countries of Eastern Europe suggest that population drinking and the death rate from liver cirrhosis are positively related phenomena (Ramstedt 2001). The number of liver cirrhosis deaths in Belarus is comparatively high and a large fraction, about 50%, of mortality is associated with heavy drinking (Razvodovsky 2012). A study that analysed the link between the liver cirrhosis mortality and beverage-specific alcohol sales using Belarusian time-series data found a significant association between mortality and vodka sales, while beer and wine sales were not associated with liver cirrhosis mortality (Razvodovsky 2003). Against this background, it is interesting to evaluate the relationship between vodka affordability and liver cirrhosis mortality rates in post-Soviet Belarus.

According to official statistics the liver cirrhosis mortality rate increased five-fold (from 6.6 to 32.0 per 100 000 inhabitants) in Belarus from 1990 to 2010. The trends in the affordability of vodka as such and as a proxy for alcohol consumption and liver cirrhosis mortality rate are displayed in Figure 3. As can be seen, there is a linear upward trend in the two time series. A Spearman correlation analysis suggests a strong association between the two variables ($r=0.90$; $p<0.0005$). Therefore, a linear regression model was applied in further analyses. The relationship between the affordability of vod-

ka and liver cirrhosis mortality is described by the linear regression equation y = 4.8 + 0.33*x, where y is the liver cirrhosis mortality and x the affordability of vodka. The linear regression model describes 88% of the total dispersion of the dependent variable and is characterised by its high validity ($p<0.0005$). Consequently, we should expect that the increase in vodka affordability would result in an increase in the liver cirrhosis mortality rate. This case can be described by the elasticity coefficient derived from the following equation: $E = B_1 \bar{x} / \bar{y} = 0.77$ (which equates to a 0.77% increase in liver cirrhosis mortality rate following a 1% increase in the affordability of vodka).

These results suggest a close aggregate-level association between alcohol affordability and liver cirrhosis mortality and, most importantly, they replicate previous findings from other settings, indicating that liver cirrhosis mortality is closely related to prices of alcoholic beverages (Gruenewald & Ponicki, 2006). Furthermore, these outcomes are in agreement with the regional-level findings of Treisman, who reported a negative association between regional crude death rates and vodka prices between 1993 and 2005 in neighbouring Russia (Treisman 2010). He argues that it was entirely political populism that placed limits on vodka prices and caused an increase in the consumption of vodka and in alcohol-related mortality. This seems to be the case too in post-Soviet Belarus, where the government is often blamed for stimulating consumption of the 'opium of the masses' as a source of stable tax revenue.

In Belarus there exists a network of specialised medical establishments belonging to the state narcological service of the Health Ministry. Before 1976 narcological treatment was carried out under the framework of medical establishments specialised in psychiatry. As the level of alcohol-related problems was constantly growing, it was decided to



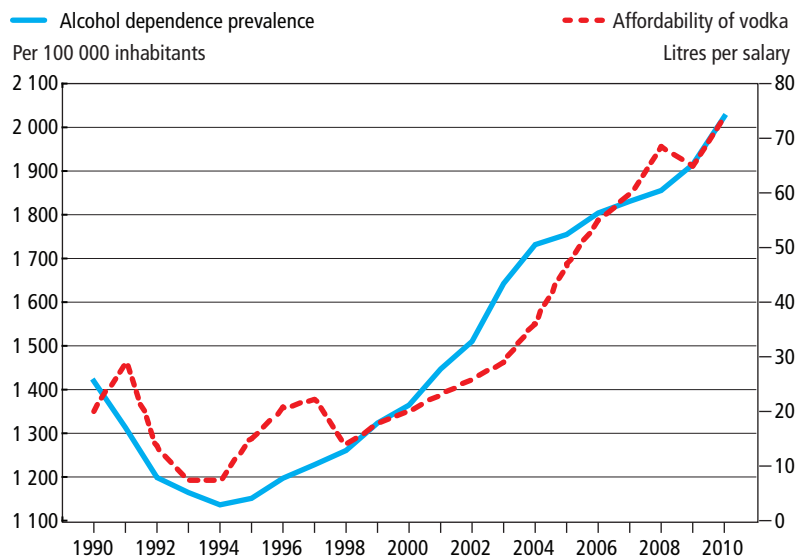
Source: Ministry of Statistics of Belarus

FIGURE 3. Trends in vodka affordability in litres of vodka that an average monthly salary could buy and liver cirrhosis mortality per 100 000 inhabitants in Belarus, 1990–2010

organize a narcological service. Since then, its structure and operating principles have remained unchanged. The main establishment in the network of the narcological service is a health centre (dispensary), which includes a polyclinic and a hospital and works according to regional organising principles. Its aim is to prevent and diagnose alcohol and drug dependences, to provide free treatment, and to carry out dynamic monitoring of patients under registration. Statistical data on the narcological services are a unique source of information regarding the magnitude of alcohol-related problems in a population.

The research evidence on the relationship between alcohol affordability and the prevalence of alcohol dependence is very limited. To my knowledge, there is only one study that has estimated the alcohol price elasticity for alcohol dependence as being -1.49 (Chaloupka et al. 2002). The present study examined the link between the affordability of vodka and the prevalence of alcohol dependence in Belarus. Here we specified the number of registered alcohol dependent persons per 100 000 as a prevalence of alcohol dependence.

In the period 1990–2010, the prevalence of alcohol dependence in Belarus increased by 42.6% (from 1419 to 2024 per 100 000 of the population). As can be seen in Figure 4, trends in the affordability of vodka and in the prevalence of alcohol dependence follow each other across the 1990–2010 time series. A Spearman correlation analysis suggested a high degree of co-variation between the two variables ($r=0.92$; $p<0.0005$). The relationship between the affordability of vodka and the prevalence of alcohol dependence is described by the linear regression equation $y = 1046.4 + 13.4*x$. The linear regression model describes 90% of the total dispersion of the dependent variable and is character-



Source: Ministry of Statistics of Belarus

FIGURE 4. Trends in vodka affordability in litres of vodka that an average monthly salary could buy and alcohol dependence prevalence per 100 000 inhabitants in Belarus, 1990–2010

ised by its high validity ($p<0.0005$). The elasticity coefficient is 0.3, which means that a 1% increase in the affordability of vodka is followed by a 0.3% increase in the prevalence of the alcohol dependence rate.

It has been suggested that the extent to which different population groups respond to changes in alcohol price varies (Ponicki et al. 1997; Chaloupka et al. 2002; Fogarty 2006; Elder et al. 2010). It is reasonable to assume that heavy drinkers might be particularly sensitive to reductions in the affordability of alcohol for three reasons: They consume nearly 80% of all alcohol; they spend a great proportion of their budget on alcohol; and they usually have a low income. Indeed, some studies report that heavy drinkers are sensitive to price changes (Meier et al. 2008; Meier et al. 2009; Black et al. 2010). In a review of the studies focusing on the response of heavy drinkers to price changes, Wagenaar and colleagues (2010) concluded that heavy drinkers do modify their consumption behaviour when prices change, but that they are less responsive to prices than moderate drinkers. The results from the present analysis suggest a close aggregate-level link between vodka affordability and the prevalence of alcohol dependence, which supports the idea that low affordability of alcohol is associated with reductions in binge drinking and that the effect of pricing policy would be greater on harmful drinkers.

Before concluding, it is necessary to address some potential limitations of the study that may have affected the outcome. In particular, it must be recognized that unrecorded alcohol consumption comprises a considerable portion of overall alcohol consumption in Belarus (Razvodovsky 2008b). Substantial cuts in production and sales, combined with an increase in prices of alcoholic beverages during Gorbachev's anti-alcohol campaign resulted in the growth of samogon consumption (Razvodovsky 2008b). The same is true of the transitional period after the collapse of the Soviet Union. Following the repeal of the state alcohol monopoly in 1992, the alcohol market became highly fragmented, and the country was flooded by a wave of homemade, counterfeit and imported alcohol of low quality (Razvodovsky 2012). According to experts' estimates, in the 1990s the level of unrecorded alcohol consumption was comparable to the level of recorded consumption (Razvodovsky 2008b). After reaching its peak in 1997, the level of unrecorded alcohol consumption declined gradually, which was associated with an increase in government control over the illicit alcohol market (Razvodovsky 2012). Another reason for the decreasing consumption of non-commercial alcohol in Belarus in recent years might be rising individual incomes, as it has been highlighted that higher incomes results in lower consumption of samogon (Andrienko & Nemtsov 2005). An estimated level of unrecorded alcohol consumption in 2010 was 3.3 litres per capita (27% of the official sale or 21% of total alcohol consumption) (Razvodovsky 2012).

Further, it is important to acknowledge that alcohol affordability is just one factor that may affect alcohol consumption and alcohol-related harm and that there may be multiple confounders in this association, including social and cultural variables. In particular, a high prevalence of viral hepatitis in Belarus, explained by a growing population of injecting drug users may be one potential reason for the increasing number of liver cirrhosis deaths (Razvodovsky et al. 2011a; 2011b). The current analysis also does not take into account surrogate alcohol, which may have more detrimental effects on health,

as its consumption has been linked to considerable liver damage (McKee et al. 2005). The potential problem with the influence of confounding factors is clearly illustrated by the Hungarian case, a country where both per capita alcohol consumption and liver cirrhosis mortality are high, but where there is no statistically significant aggregate-level association between these variables (Ramstedt 2001). Some experts even argue that the very high liver cirrhosis mortality rate in this country may be linked with consumption of homemade spirits that contain hepatotoxic aliphatic alcohols (Suzcs et al. 2005). Therefore, additional confounding variables which may relate to liver cirrhosis mortality and alcohol dependence prevalence (availability of treatment, prevalence of virus hepatitis, nutritional factors) should be included in the analyses.

Conclusions

The results from this study suggest a positive, statistically significant aggregate-level association between alcohol affordability, recorded alcohol consumption, and two indicators of alcohol-related harm: liver cirrhosis mortality and alcohol dependence prevalence. More specifically, the time series analyses revealed that a 1% increase in alcohol affordability is associated with a 0.32% increase in recorded alcohol consumption, a 0.77% increase in liver cirrhosis mortality and a 0.3% increase in alcohol dependence prevalence. These outcomes are consistent with previous findings suggesting a significant association between alcohol affordability and alcohol consumption and alcohol-related problems. The major conclusion emerging from this study is that affordability of alcohol is one of the most important predictors of alcohol consumption in a population. These findings provide additional evidence that decreasing the affordability of alcohol is an effective strategy for reducing alcohol consumption and alcohol-related harms. The main reason for the growth of alcohol consumption and alcohol-related problems in Belarus in recent decades has been the liberalisation of alcohol policy and an increase in the affordability of alcohol. Hence, to prevent further growth in alcohol affordability, increases in alcohol prices appears to be a key priority option for alcohol control policy in Belarus. It should be emphasised, however, that any attempt to decrease alcohol affordability requires a degree of flexibility in tackling the problem of non-commercial alcohol consumption. Other policy options include a reduction in the density of alcohol outlets, an advertising ban that span all types of alcoholic beverages, a separation of alcoholic beverages from other goods in retail stores, and an implementation of brief interventions in primary health care. It seems clear that all of these policy options should be implemented, since without a comprehensive alcohol policy, the rate of alcohol-related problems in Belarus will only grow further.

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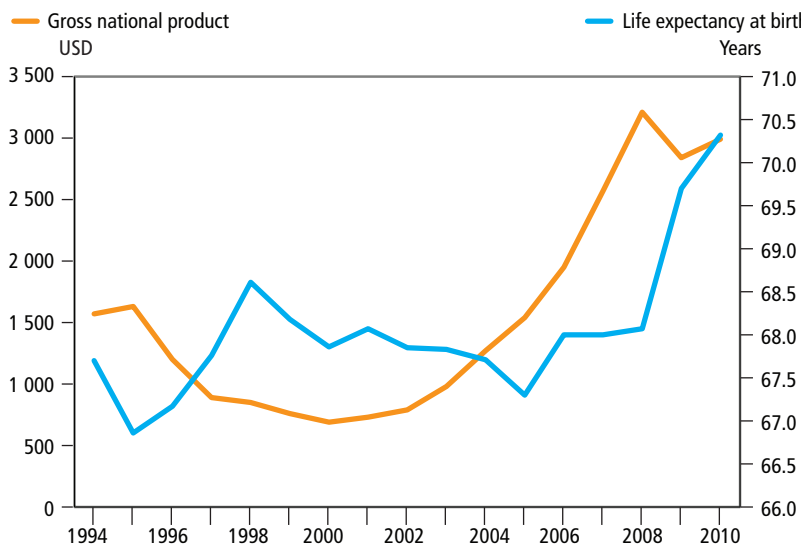
Konstantin S. Krasovsky

Alcohol control policies and alcohol consumption in Ukraine

Introduction

Ukraine became an independent country in 1991 and has since then had many governments, all of them more pro-business than pro-health. As a result, economic developments in Ukraine have usually not correlated with the health trends of its inhabitants (Figure 1).

As a post-Soviet country Ukraine has inherited many features of the alcohol situation that prevailed in the Soviet Union. Gorbachev's anti-alcohol campaign from 1985–1987 greatly reduced alcohol availability and affordability, and led to a large decline in alcohol consumption and alcohol-related deaths, as well as crimes and other alcohol-related problems (Krasovsky 1995). According to the WHO EURO Health for All Database, life expectancy at birth increased by 1.7 years between 1984 and 1986, and the highest increase was observed among middle-aged men. However, public attitudes to the



Source: WHO Health for all database

FIGURE 1. Gross national product in USD per capita and life expectancy at birth in years in Ukraine, 1994–2009

anti-alcohol policy were rather negative and the campaign was halted in 1988. Later, all efforts to restrict alcohol consumption were labelled as 'a new anti-alcohol policy', knowing that political support for restrictive alcohol policies was poor (Magdenko 2005).

Alcohol tax changes in Ukraine

In the early 1990s, market reform was introduced in Ukraine, though regulation of the alcohol market was rather weak. Semi-legal alcohol production and imports increased significantly in the decade. While alcohol excise duty rates looked rather high many importers like 'Chernobyl foundations' and other producers had preferential status and did not pay excise and import duties at all.

From 1995 to 1996, several policies to control the alcohol market were introduced in Ukraine:

1. In July 1995, the President of Ukraine issued a Decree that stated that every unit of produced or imported alcohol product should carry an excise stamp to counteract illegal alcohol turnover.
2. In December 1995, the Law on State regulation of alcoholic beverages and tobacco products was adopted by Parliament. The law introduced licenses for the production, import, export, wholesale and retail sale of alcoholic beverages.
3. In May 1996, the Parliament adopted the Law on excise duties for alcoholic beverages, which changed the taxation system away from ad valorem excises to specific excises.
4. In July 1996, the government adopted 'Rules of the retail sales of alcohol beverages', which introduced some restrictions, such as a ban of the sale of alcoholic beverages to and by persons aged under 18 years. It was also prohibited to sell alcoholic beverages in shops that have an area below 20 sq. meters.

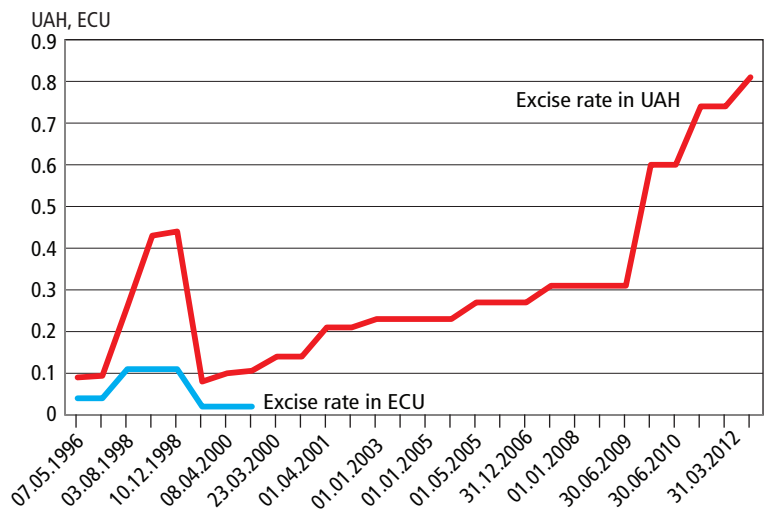
The Law on State Regulation has later been amended many times, but it has some specific features which were critical for the development of the alcohol market in Ukraine. The brewing lobby in Parliament did not want any restrictions on beer production and sales, so they lobbied for a definition of the term alcoholic beverages that did not include beer. According to the law introduced in December 1995, only beverages with alcohol content above 8.5% by volume were considered as alcoholic beverages. While the primary aim of such a definition was to make beer a non-alcohol beverage in legal terms, it had an unintended side-effect in the form of alcopops.

In 1996 new beverages appeared in Ukraine. They were simply a mixture of water, spirit and some additives. They had different names such as Rum-Cola or Gin-Tonic, but the same alcohol content, 8% by volume and were similar to beverages known as alcopops in the West. According to the law, there were no restrictions on selling such beverages even to children, and they were in fact aggressively marketed to youth. Soon, foreign alcohol producers started to supply alcopops to the Ukrainian market, such as Vodka-Lemon from Israel and Champagne in cans from Poland. The dangers of alcopops for

youth were obvious and the Parliament Committee on Health started a campaign to change the legislation. In March 1998, it succeeded and the definition of alcoholic beverages was changed. All beverages with alcohol content above 1.2% by volume were now considered as alcoholic beverages, except beer. The new definition meant that a license was required to produce and sell alcopops and they could only be sold in shops with an area larger than 20 sq. meters. However, alcoholic beverages with an alcohol content of 1.2–8.5% by volume did not require excise stamps.

In spite of the new restrictions, alcopops were already established as a popular trend among youth and their consumption remained high. In the 2000s, excise tax for alcopops, calculated as a specific amount per 1% of alcohol content, was lower than for spirits and it was used by alcohol producers for tax avoidance. Only since July 2009 did the excise tax on spirits and alcopops reach an equal level in terms of the specific amount per 1% of alcohol content. The lower taxation of alcopops increased their affordability.

Since 1995, beer in Ukraine has not been considered an alcoholic beverage in legal terms. It meant that no license was required to sell beer. Up until 2010 selling beer to persons of any age was not punished. Excise tax for beer was very low. In 1993–1995, it was 25–30% of the wholesale price for domestic beer and 150% of the custom price for imported beer. In 1996, excise tax for beer was established at ECU 0.04 per litre, which was then equal to 0.09 Ukrainian Hryvna (UAH) or 6% of the average retail price of beer. In August 1998, the government increased beer excise tax to ECU 0.11, which at that point was UAH 0.26 or about 12% of the average retail price. However, in late August 1998, the national currency exchange rate collapsed and ECU 0.11 became equal to UAH 0.43 (Figure 2). Beer producers claimed that the beer excise tax rate had become too high and in December 1998, Parliament reduced beer excise tax to ECU 0.02, which was then



Source: Author's own calculations based on Ukrainian legislative acts

FIGURE 2. Excise duty rate for a litre of beer in Ukraine in UAH in 1996–2012 and in ECU 1996–2000

UAH 0.08 per litre, even lower than in the 1998. As the national currency fall continued in 1999, the actual excise rate in late 1999 was equal to UAH 0.1. In 2000, the Ukrainian Parliament established excise rate in the national currency at UAH 0.14 per litre of beer or 6% of the average retail price of beer. In the 2000s, the nominal excise tax was gradually increased to UAH 0.31 per litre, but in 2008 it was again just 6% of the average retail price of beer.

In July 2009, beer excise tax rose almost two-fold, to UAH 0.6 per litre, and in 2010 it increased to UAH 0.74 per litre (Figure 2). The excise proportion in beer's retail price in 2009–2010 was about 10%, which was higher than in previous years, but still very low. The excise tax rate per hl per degree of alcohol of finished product for beer in Ukraine in 2010 was about EUR 1.3, which was below the minimum EU rate of EUR 1.87.

The average nominal price of 1 litre of beer increased from UAH 5.57 in December 2008 to UAH 8.38 in December 2011, or by 50%. In 1999, the average price of a litre of beer was UAH 2.3. In 1999–2008 the inflation-adjusted beer price decreased despite the excise tax rate increase (Figure 3). From 2008 to 2011, the real beer price rose only by 17%.

In early 2010, Parliament amended the Law on the State regulation of alcoholic beverages and tobacco products. The amendments state that the law provisions are not valid for beer, except some special articles concerning consumption and sales, such as a ban on sales to persons aged under 18 years and a ban on consumption in some public and work places, which were earlier valid for alcoholic beverages and since 2010 have been valid for beer as well. It became possible for retailers to be fined for selling beer to an underage person, but they could not lose their license, as a license is still not required to sell beer. Beer can be sold in shops of any size, while for selling alcoholic beverages the shop

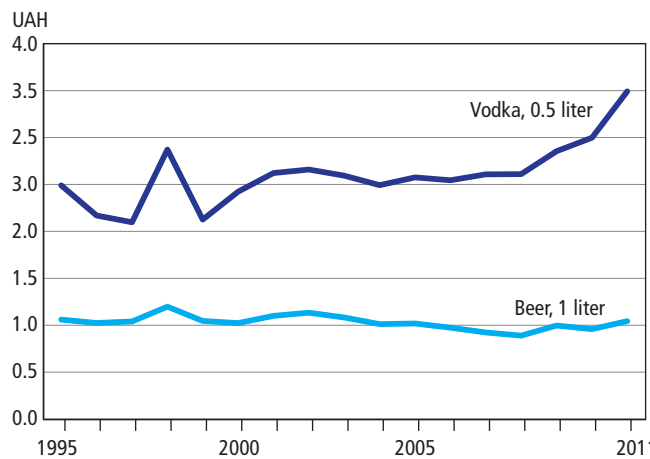
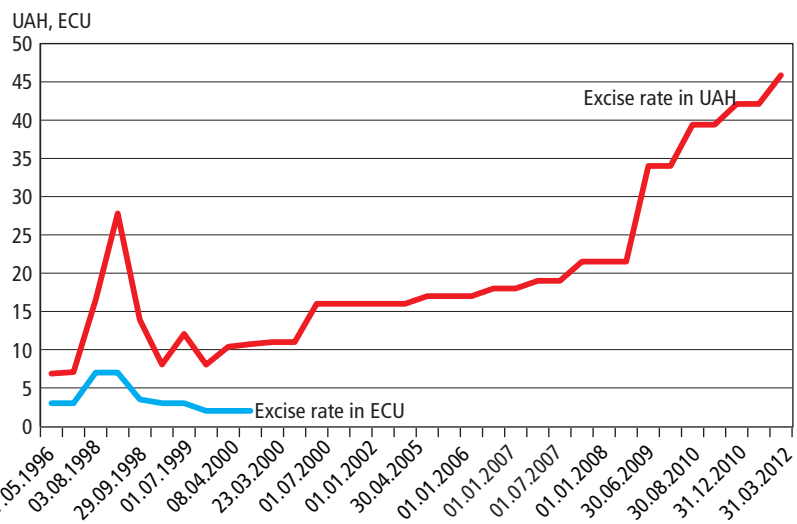


FIGURE 3. Real (inflation-adjusted) prices in UAH for beer and vodka in Ukraine in 1995–2011

area should be more than 20 sq. meters. Over recent years, many little shops that mainly sell beer appeared in Ukraine.

The Ukrainian government maintains a monopoly on ethyl alcohol production with private producers of spirits beverages having to buy ethyl alcohol from the government at fixed prices. The excise tax rate for domestic vodka was 75% of the wholesale price in 1993 and 90% in 1994–1995, while for imported vodka it was 300% of the custom price in 1994–1995, but the declared wholesale and customs prices were very low. In 1996, excise tax for spirits was established at ECU 3 per litre of 100% alcohol, which was then equal to about UAH 7 or 45% of the average retail price. In August 1998, the government increased the excise tax rate to ECU 7. At that moment it increased from UAH 7 to UAH 16.5. However, when the national currency exchange rate collapsed the excise rate became equal to UAH 28 (Figure 4). Spirits producers claimed that the excise rate was so high that they could not compete with illegal vodka. In September 1998, Parliament reduced excise tax on spirits to ECU 3.5, in December 1998 to ECU 3, and in July 1999 to ECU 2, which was then UAH 8 per litre or 34% of the retail price.

As the fall in the national currency rate continued in 2000, Parliament established the spirits excise rate in the national currency at UAH 11 per litre of 100% alcohol or 33% of the average retail price of vodka. In 1999–2002, the average legal vodka price increased by 32% over four years, while the general consumer price index (CPI) rose by 58%, meaning the real price of legal vodka actually fell (Figure 3), though it did not stop the rise of unrecorded spirits production. In 2003–2005, the government introduced some measures against tax avoidance of spirits producers. It not only raised recorded spirits production, in 2005 the production rise was 50% compared to 2004, but it also effectively increased the average vodka price on the market, as unrecorded vodka was much



Source: Author's own calculations based on Ukrainian legislative acts

FIGURE 4. Excise duty rate for spirits for a litre of 100% alcohol in Ukraine in UAH in 1996–2012 and in ECU in 1996–2000

cheaper. While the excise tax rate was gradually increased to UAH 21.5 in 2008 (Figure 4), it was still 32% of the average retail price in 2008. The inflation-adjusted price of legal vodka even slightly declined in 2003–2007 (Figure 3). In July 2009, spirits excise tax was raised to UAH 34 per litre. From September 2010 it was raised to UAH 39.4 and from January 2011 to UAH 42.12 (Figure 4). The excise tax proportion of vodka retail price in 2009–2011 ranged from 30% to 36%, actually the same as in previous years, but the inflation-adjusted price of vodka increased by 34% in 2008–2011 (Figure 3).

Wine had the same restrictions for sale and marketing as spirits, but with lower excise tax rates that were different for various types of wine. In 2009, excise rate for still wine was greatly reduced, while excise for fortified wine was raised.

Changes in alcohol control measures

In 2008 Parliament strengthened the punishment for violations of traffic rules, which entered into force in November 2008. The minimum fine for drinking and driving was increased ten-fold, from UAH 255 to UAH 2 550. After two fines for drinking and driving during a single year, the driving license can be suspended for up to 10 years.

In 1996 Parliament adopted the Law on Advertising. It banned alcohol advertising on radio and television and introduced some other restrictions. As beer was not legally considered an alcoholic beverage, beer advertising had no restrictions. In 2003, legislation was amended and alcohol advertising was allowed on television and radio only during night hours from 11 p.m. to 6 a.m. In 2008, legislation was again amended and outdoor alcohol advertising was prohibited from 2009. From 2010 alcohol advertisements were also prohibited in printed media except special editions. The law on advertising amendments of 2008 also banned the use of popular persons in advertising alcoholic beverages and beer. This is in effect the only legal restriction related to the content of beer advertising in Ukraine.

Recent trends on recorded and unrecorded alcohol consumption

It is hard to estimate alcohol consumption in Ukraine in the 1990s and 2000s for several reasons:

1. Statistics on alcohol retail sales are not comprehensive and in recent years they cover less than half of the legal sales (Levchuk, 2009).
2. Alcohol production figures are more reliable, but sometimes producers have found loopholes, such as using reduced excise duty rates for special types of spirits, like cognac, alcopops and vodka, with special labels for tax avoidance. Consequently, the recorded production, especially for spirits, declined. When the government closed such loopholes the recorded production increased greatly.
3. In the 2000s production statistics data for spirits included beverages with an alcohol content well below 40% alcohol by volume, so it is difficult to estimate alcohol consumption in terms of pure alcohol.

I will, however, attempt to estimate the consumption trends for the major categories of alcoholic beverages (spirits; wine; beer and alcopops) and also the trend in total alcohol consumption.

Recorded annual spirits production and sales in the early 1980s was about 130 million litres of pure alcohol or 2.6 litres per capita. In 1986–1988 the annual production declined to about 80 million litres, but when Gorbachev's anti-alcohol policy was abandoned, it started to increase again. From 1993 to 1995, it was about 160 million litres. In 1995–1996, some regulations on alcohol production and sale were introduced, as mentioned earlier, and the recorded production declined to about 80 million litres in 1998–2000. The decline of production was only partly explained by the reduction in consumption. Various forms of tax avoidance were used, meaning that in 2001–2002 the recorded production was just 70 million litres. Some loopholes were closed thereafter and recorded production increased to about 140 million litres in 2005 and more than 160 million litres in 2007. The production increase was also partly caused by export growth. Spirits revenues increased from UAH 900 million in 2001 to UAH 3 600 million in 2008, which was caused both by the recorded sales growth and by a two-fold increase in excise rates over those years. As production statistics included beverages with different alcohol content, I estimated recorded spirits sales using the revenue data. Estimated annual taxable sales were about 80 million litres of pure alcohol in 2000–2003 and 160 million litres in 2007–2008.

In the late 2008, when the economic recession came to Ukraine, spirits sales decreased. In November 2008–January 2009, spirits sales were 20% lower compared to the period a year earlier. A series of excise duty rate increases in July 2009, September 2010, and January 2011 led to forestalling by producers or wholesale sellers of spirits before the tax increases. Consequently, spirits production increased greatly in May–June 2009 and in August and December 2010. Such large quantities of spirits could not be sold to retailers, however, and they were stored. Eventually in the first half of 2011 the stored spirits were released for retail sale and production declined by 13%. In 2011, the estimated legal spirits consumption was about 140 million litres of pure alcohol or 3 litres per capita. Total consumption of spirits including illegal spirits was rather stable in 1995–2006, and it could be estimated as 9 litres of pure alcohol per capita. It then decreased to about 7 litres in 2010–2011.

Production and consumption of low-alcoholic beverages has not been properly controlled. First, in 1996–1998 they were not considered as alcoholic beverages at all. Then in alcohol production statistics they were counted in different ways. For example, in 2004 it was reported that about 77 million litres of beverages with 1.2–8.5% alcohol by volume and about 125 million litres of beverages with 6–12% alcohol by volume were produced. Production of beverages that had 1.2–8.5% of alcohol by volume was about 40 million litres in 1998, rising thereafter to reach 121 million litres in 2008. In 2009–2010 their production declined to 104 million litres. Alcopops consumption was zero in 1995 and it increased to about 2.5 volume litres per capita in the late 2000s. Official reported sales of all kinds of spirits beverages, including alcopops (estimated as production – export + import), declined from 615 million volume litres in 2007, to 547 million volume litres in 2009 and to 506 million volume litres in 2011.

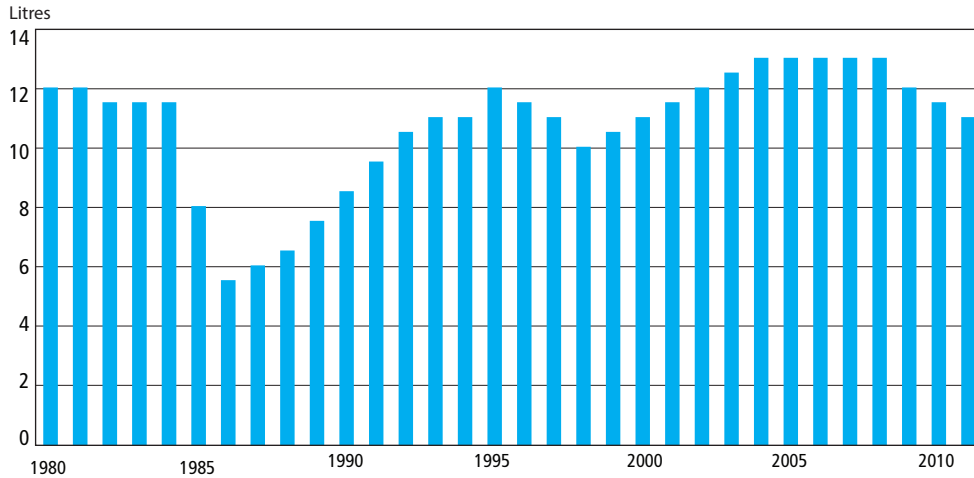
In 1984, altogether 1.45 billion volume litres of beer were produced in Ukraine, which amounts to 29 litres per capita. During the anti-alcohol campaign it fell to 1.10 billion volume litres and then increased to 1.38 billion litres in 1990. Later it gradually declined to more than two-fold, mainly because it became less affordable in the years of economic depression. Since 1995 the absence of restrictions for beer production and sales as well as very low excise duty rates and prices has led to greatly increased beer production and consumption in Ukraine. In 1996, 0.6 billion volume litres of beer were produced inside Ukraine. In 2008 beer production was 3.2 billion volume litres.

Taking into account export, import and revenue data, in 2007 about 2.8 billion litres of beer were consumed in Ukraine, or 61 litres per capita. If beer alcohol content is considered to be 5% by volume, the average Ukrainian above 15 years and older consumed 3.5 litres of pure alcohol in the form of beer in 2007 compared to 1.7 litres in 1990. Changes in beer consumption trends have been observed since mid-2008. In the first half of 2008 beer production increased by 10% compared to the first half of 2007, while in the second half of 2008 it decreased by 7%. In 2009, beer consumption was about 2.6 billion volume litres or 56 litres per capita, returning in 2010 to the higher levels of 2007. In the period 1995–2007, beer consumption increased from 12 litres to about 60 litres per capita and stabilized at around that level for 2007–2011.

In 1980 about half of the wine consumed in Ukraine was cheap fortified fruit wine, with total wine consumption at about 1.0 billion volume litres or 20 litres per capita. During Gorbachev's anti-alcohol campaign, it was planned to stop the production of fruit wine. Grape wine production decreased and in the late 1980s, wine consumption was about 300 million litres. In the late 1990s, recorded annual production of wine was about 150 million litres. In the early 2000s, a rapid increase in wine production was seen and in 2003–2011 about 300 million litres of wine were sold annually, which is about 7 litres per capita, not including home-made wine.

It is estimated that in the early 1980s, the total (recorded and unrecorded) alcohol consumption was about 12 litres (6 litres legal and 6 litres illegal) of pure alcohol per capita (Krasovsky 2009; Figure 5). During the anti-alcohol campaign, total alcohol consumption declined to 6 litres (3 litres legal and 3 litres illegal) and then increased to 12 litres in 1995 (4 litres legal and 8 litres illegal). In 1995–1996, some alcohol policies were introduced that restricted alcohol sales and marketing and increased real alcohol prices. In 1997–1998 total alcohol consumption declined and it was estimated to be 10 litres (3 litres legal based on production statistics and 7 litres illegal) of pure alcohol per capita. Then in the late 1990s, alcohol excise tax rates were reduced, in 2003 alcohol advertising was allowed during the night hours on radio and television and spirits producers used various forms of tax avoidance, making vodka cheaper in both legal and illegal markets. Beer production in 1997–2004 increased more than three-fold. In 2004, total alcohol consumption was estimated to be 13 litres pure alcohol per capita (Krasovsky 2009).

In 2003–2005, the government introduced some measures against alcohol producers' tax avoidance and unrecorded alcohol consumption greatly declined, which was often caused by increases in spirits prices also on the illicit market. However, some decline in spirits consumption was compensated for by the growth in beer and wine consumption.



Source: Author's own estimates

FIGURE 5. Total alcohol consumption in Ukraine in litres of 100% alcohol per capita, 1980–2011

Total annual alcohol consumption in 2005–2008 remained at about 13 litres of pure alcohol per capita, with recorded consumption of about 8 litres per capita consisting of 4 litres of spirits, 1 litre of wine and 3 litres of beer. At the end of 2008, alcohol consumption started to decline and in 2010–2011 it was about 11 litres of pure alcohol per capita.

Alcohol drinking among teenagers

Ukraine has participated in two international surveys conducted among young people: the European School Survey Project on Alcohol and other Drugs (ESPAD) and the Health Behaviour in School-aged Children (HBSC). The ESPAD survey was conducted in Ukraine in 1995, 1999, 2003, 2007 and 2011 among 15–16 year old teenagers (Hibell et al. 2012).

In 1995–2007 in Ukraine, the trend for the 30-day prevalence of any alcohol drinking among those aged 15–16 year looks stable among girls and on the rise among boys (Figures 6 a and 6 b). However, the actual prevalence of alcohol drinking was much higher due to underreporting, which can be illustrated by the fact that in the previous month, prevalence of beer drinking among boys in 1999–2007 was about 10 percentage points higher than the prevalence of any alcohol drinking. This under-reporting may well reflect the fact that some youngsters did not consider beer to be an alcoholic beverage following its official legal definition. We can also assume that some girls said yes for beer drinking and no to any alcohol drinking, and the actual prevalence of alcohol drinking was higher than reported. In 2011, the 30-day prevalence of any alcohol drinking among both boys and girls decreased in line with general trends in alcohol consumption among the Ukrainian population.

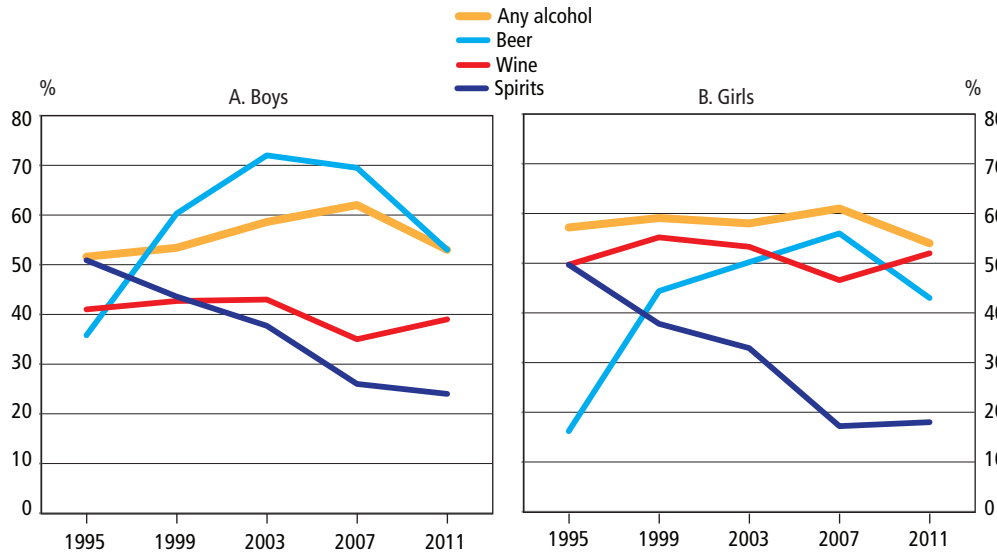


FIGURE 6. Prevalence of drinking alcohol at least once during the last month according to ESPAD surveys, 1995–2011, %

In 1995–2007, the prevalence of beer drinking among boys in Ukraine increased two-fold, and among girls three-fold. In 2007, the prevalence of beer drinking for both genders was 63%. The ESPAD average for 35 countries was 49%. In 1995 the respective figures had been 25% and 44%. The policy decision adopted in 1995 to cancel restrictions on beer sales and marketing as beer was not legally considered to be an alcoholic beverage, in conjunction with the low excise rates greatly increased beer consumption among teenagers, with some not even considering beer to be an alcoholic beverage. However, in 2011 the prevalence of beer drinking greatly declined as a result of policies that introduced some limits on young people's access to beer (Figures 6 a and 6 b).

The prevalence of spirits drinking greatly declined from 1995 to 2007, from 50% for both genders in 1995 to 26% for boys and 17% for girls in 2007, while from 2007 to 2011 it remained stable. Wine drinking is more popular among girls than boys. From 1995 to 2011 it was rather stable for both genders.

The HBSC surveys are conducted among children aged 11, 13 and 15 years across many countries. Ukraine took part in the 2001/2002 (Currie et al. 2004), 2005/2006 (Currie et al. 2008) and 2010 (Currie et al. 2012) surveys. In 2001/2002, the prevalence of drinking any alcohol during the previous week was in Ukraine lower than the HBSC average for 35 countries for those aged 13 and 15 years, but a little higher than the HBSC average for 11-year-olds. However, both Ukrainian boys and girls of all age groups had higher prevalence of beer drinking than the HBSC average. In beer drinking, Ukrainians were fifth highest of the 35 HBSC countries.

In 2006, both Ukrainian boys and girls of all age groups had the highest levels of any alcohol drinking in the previous week compared to teenagers from 40 other HBSC countries. The higher indicators of Ukrainian young people were accounted for by beer

and alcopops drinking, as Ukrainian teenagers of all age and gender groups had a higher prevalence in both. It is important to note that according to the HBSC data, current smoking rates declined for Ukrainian teenagers in 2002–2006, so the observed high increase in drinking prevalence for those years cannot be explained by the survey sample change. The largest increase was observed for beer drinking, which could be explained by the absence of restrictions for beer marketing and sales in Ukraine. Rates of spirits and wine drinking were on the rise too, which suggest that for youth, beer did not replace other alcoholic beverages (see Table 1).

National data for 2010 revealed downward trends for all kinds of alcoholic beverages in all age and gender groups in Ukraine. The highest decline (two-fold on average) was observed for beer drinking. In all likelihood, the policies introduced in early 2010 (ban of beer sales to minors, restrictions on public beer drinking, some advertising restrictions) and an excise rate increase for beer and other alcoholic beverages in 2009 and 2010, as well as a decline in affordability during the recession years have each had the effect of decreasing alcohol use among adolescents.

TABLE 1. Prevalence of alcohol drinking at least once a week among young people in Ukraine in 2002, 2006 and 2010, according to HBSC surveys, %

	11-year-olds			13-year-olds			15-year-olds		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2002									
Any alcohol	9	3	6	14	8	11	29	19	24
Spirits	2	0	1	3	2	2	12	4	8
Beer	7	4	6	17	7	12	38	15	26
Wine	3	1	2	4	4	4	8	6	7
2006									
Any alcohol	24	20	22	38	25	32	59	47	53
Spirits	2	1	2	5	2	3	13	6	9
Beer	17	12	14	30	16	23	54	33	44
Alcopops	12	7	10	19	15	17	18	26	22
Wine	6	4	5	9	3	6	12	9	10
2010									
Any alcohol	14	6	10	20	15	17	44	30	37
Spirits	3	1	2	4	1	2	10	3	7
Beer	9	3	6	15	7	11	39	18	29
Alcopops	6	3	4	10	10	10	17	17	17
Wine	3	1	2	4	2	3	8	5	6

Impact of alcohol policies on alcohol-related harm

Mortality data for this study were kindly provided by the State Statistics Committee of Ukraine, while the WHO EURO Health for All Database was also used. Up until 2005, Ukraine used the registration of diseases and causes of death that corresponded to ICD-9 categories. After 2005 the Ukrainian system was changed and currently it corresponds to ICD-10. Trends of direct alcohol mortality are here analysed, which was the sum of deaths caused by alcohol poisonings, alcohol liver cirrhosis, alcoholism, and alcohol psychosis for the data collected before 2005. Since 2005, alcohol cardiomyopathy was added to the direct alcohol mortality, while alcoholism and alcohol psychosis was combined into 'mental and behavioural disorders due to use of alcohol'.

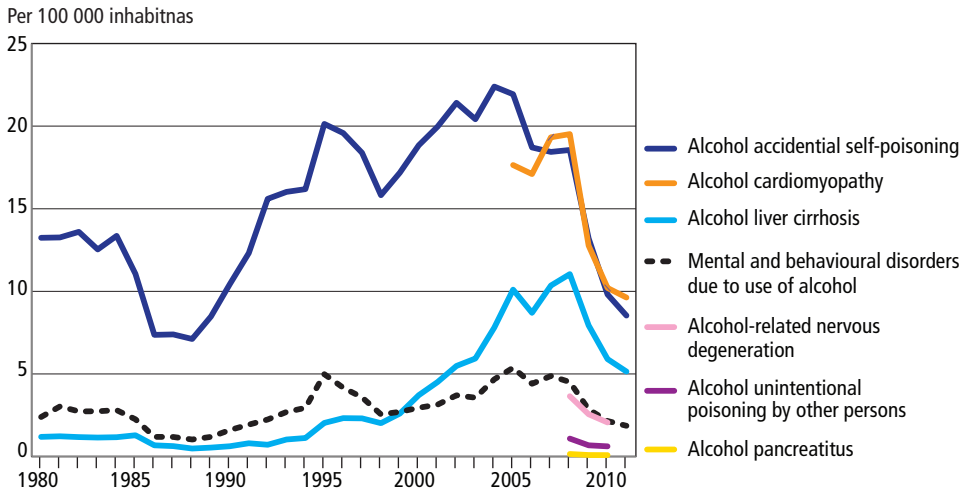
Ukraine has extremely high mortality rates among middle-aged men (Krasovsky 2008). When mortality rates in Ukraine are compared with the average European mortality rates using the WHO EURO Health for All Database, we can see that overall mortality in Ukraine is much higher and the difference is growing. In 1981 the standardised death rate (SDR) for all ages was 1 028 per 100 000 in Europe on average and 1 172 in Ukraine (14% higher) while in 2008, the SDR in Ukraine was 55% higher than in Europe (845 in Europe and 1 308 in Ukraine). The largest difference in the SDR was observed for males aged 30–44 years, which, when compared to the whole of Europe, was 54% higher back in 1981 and 158% higher in 2008.

Alcohol was recognised as a significant, if not the leading cause of all-cause mortality fluctuations in post-Soviet countries, especially for middle-aged men (McKee & Shkolnikov 2001). In Ukraine 24% of the total death burden for males and 6% for females were caused by alcohol in 2004 (Krasovsky 2009).

In 1995–1998, Ukrainian authorities implemented various restrictive alcohol policies as well as increasing alcohol excise tax, with the result that alcohol consumption declined. In the same period, Ukraine experienced a decline in mortality rates constituting 10% of the SDR for all-ages and 17% of the SDR for middle-aged Ukrainians. The decline in direct alcohol-related mortality was even greater (27%), and it has been suggested that the overall mortality reduction in Ukraine was 'alcohol-driven' (Krasovsky 2009; Figure 7).

In late 1998, alcohol taxes were reduced and producers found regulation loopholes for producing unrecorded spirits. General alcohol consumption increased up to 2005 (Figure 5). All causes mortality also increased in the period 1998–2005: by 8% of the SDR among all-ages, by 34% among the middle-aged and 71% for direct alcohol-related mortality.

In 2005–2006, alcohol poisoning and alcohol disorders mortality slightly declined (Figure 7), but on the other hand liver cirrhosis and alcohol cardiomyopathy mortality grew. Total alcohol-related mortality was relatively unchanged in 2006–2008. Changes in alcohol mortality structure were probably caused by replacement of spirits by beer and wine. Direct alcohol-related mortality was rather stable in 2005–2008, at about 25 000 deaths per year.



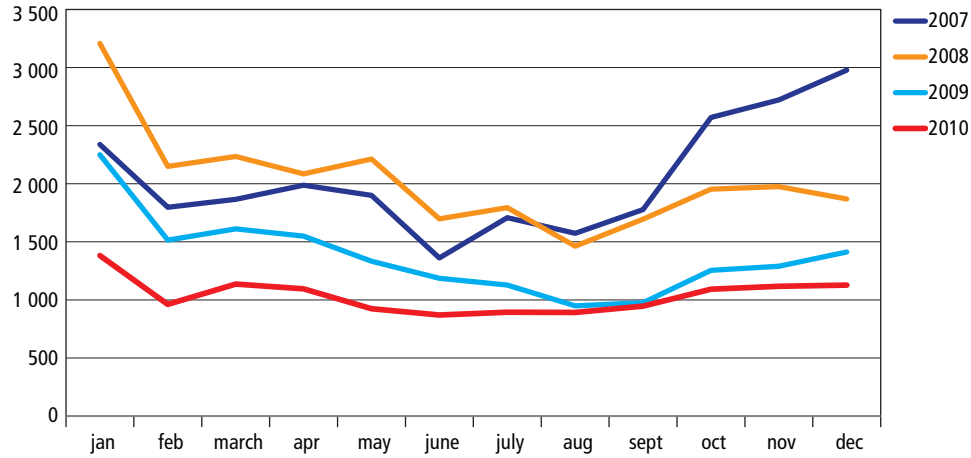
Source: National Statistic Service database

FIGURE 7. Direct alcohol-related mortality per 100 000 inhabitants in Ukraine, 1980–2011.

Another all-causes mortality decline has been observed in Ukraine since the second half of 2008 (Krasovsky 2010). The overall mortality fell from 1 631 per 100 000 inhabitants in 2008 to 1 535 in 2009 and to 1 460 in 2011, or by 10.5% in three years. In 2008–2010, mortality in the age group 15–49 years decreased by 30% for men and by 24% for women. The decline was largest for direct alcohol mortality, which fell from 53 per 100 000 inhabitants in 2008 to 25 in 2011, or more than 50%. Mortality trends changed in the middle of 2008. Over the first half of 2008 compared to the first half of 2007, all-causes mortality increased by 1.9%, while alcohol mortality increased by 21%. In the second half of 2008 the trends reversed: all-causes mortality declined by 3.3% comparable to the previous year and alcohol mortality declined by 19% (Figure 8).

Throughout 2009 all-causes mortality was about 6% lower compared to 2008, while direct alcohol related mortality was over 30% lower. The most probable explanation for the mortality decline was the impact of the economic recession (Krasovsky 2010). The alcohol excise tax increase that had been effective since July 2009 had an additional impact. In 2010, all-cause mortality declined slowly and it was just 1% for the whole year. The decline in alcohol mortality also slowed down and in August 2010 it was almost zero (Figure 8). During 2010, the direct alcohol mortality reduction was 24%. The alcohol poisoning mortality decline seen in 2007–2010 was of similar magnitude in almost all regions of Ukraine and it demonstrates that some nationwide factors contributed to the decline.

In 2008 four new alcohol-related mortality items were included into the Ukrainian statistics report on alcohol: alcohol pancreatitis, alcohol unintentional poisoning by other persons, alcohol-related nervous degeneration and alcohol poly-neuropathy. The total number of deaths from these four cases declined from 2 261 in 2008 to 1 530 in 2009 and to 1 267 in 2010, or by 44% in two years.



Source: National Statistic Service database

FIGURE 8. Number of direct alcohol-related deaths (alcohol poisoning + alcohol cirrhosis + alcohol disorders + alcohol cardiomyopathy) in Ukraine by months, 2007–2010

Alcohol-related and all-cause mortality in Ukraine started to decline in the second half of 2008, just when the economic recession started in Ukraine. Economic recessions have paradoxical effects on mortality trends. Contrary to what might have been expected, economic downturns during the 20th century were associated with declines in mortality rates (Bezruchka, 2009). In the USA and Western Europe, for example, there is evidence that mortality actually falls during recessions, with the decreased use of alcohol (World Health Organization 2009). For example, in Finland deaths from alcohol-related diseases and poisoning decreased during the recession, especially in the lowest educational group (Herttua et al. 2007). Research demonstrated that reduced income significantly affects hard liquor consumption because of adult drinkers' tendency to economise (Ruhm 1995). Thus the consumption decrease occurring during difficult economic periods is concentrated among heavy consumers, with light drinking actually rising (Ruhm & Black 2002).

In Ukraine in 2008–2011, the decline in direct alcohol mortality was much higher than the decline in total alcohol consumption. Alcohol affordability over those years sharply declined both due to the income reduction in times of recession and the increase in excise taxes and prices. Reduced affordability probably affected poor and heavy drinkers more, who likewise have the highest risk of alcohol poisoning and other consequences directly related to alcohol.

External causes mortality also declined by 36% in Ukraine in the period 2007–2010 and the highest decline (by 48%) was observed for traffic accidents, while suicide mortality barely changed. Decline in traffic accident deaths was mainly caused by less traffic due to the economic recession and increased punishments for traffic rule violators, which were introduced in late 2008. The decline of alcohol consumption and higher fines for drink driving also contributed to the decline.

Conclusions

Ukraine experienced the following changes in trends in total alcohol consumption in the study period: a sharp decline in per capita alcohol consumption from 12 litres pure alcohol per capita in the early 1980s to 6 litres in 1986–1988, a rise of alcohol consumption to 12 litres in 1995, a decline to 10 litres in 1998, an increase to 13 litres in 2004, a stabilization at 13 litres pure alcohol per capita in 2005–2008 and a decline to 11 litres in 2009–2011.

Alcohol-related mortality greatly declined in Ukraine in 1986–1988 during Gorbachev's anti-alcohol campaign, but with the deregulation of the alcohol market in the early 1990s, alcohol-related harms increased and exceeded pre-1986 levels. Some regulations stabilised the alcohol market, but in the late 1990s and up to 2008, alcohol-related mortality was rather high in Ukraine. In 2008–2011, Ukraine experienced a large fall in alcohol related-mortality, although the government did not conduct any specific alcohol campaign; it simply increased alcohol taxes when the country experienced a severe economic recession.

The experiences of alcohol policies in Ukraine in 1990–2011 offers several lessons that can be used for further alcohol policy development in Ukraine and other countries:

1. Changes in alcohol affordability can be caused by changes in alcohol taxes and real prices, regulations, which close opportunities for non-tax paid alcohol production, import and sale, and the economic situation in the country. Each of these has a substantial impact on alcohol consumption and alcohol-related mortality.
2. Restrictions on alcohol marketing and sale can also contribute to the decline of alcohol consumption, but their impact is smaller than the impact of affordability changes.
3. Non-restrictive regulations for beer (lack of restrictions for marketing and sale, low taxes and prices) can greatly increase beer consumption, also among minors.

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Lauri Beekmann

Alcohol policy in Estonia – country in transition

Introduction

Estonia belongs to the Baltic Countries which are situated north of Poland, east of Sweden, south of Finland and west of Russia. Estonia is a democratic parliamentary republic with 1.3 million inhabitants. Like other Baltic Countries Estonia has been a member of the European Union (EU) since 2004.

In 1720s Sweden lost Estonia to Russia. In the beginning of 1918 Estonia became independent. During the Second World War Estonia was annexed to the Soviet Union as the Soviet Republic of Estonia. On 20th August 1991 Estonia declared formal independence.

Drinking among Estonians have been historically similar to that in Northern Europe and European post-Soviet countries which means drinking in excess and binge drinking, and all that already in rather young age. While the market of light alcoholic beverages and especially beer has been growing in Estonia strong spirits still account nearly 40% of pure alcohol consumed among Estonian inhabitants. According to ESPAD reports adolescents in Estonia show a higher proportion of harmful alcohol consumers and higher volumes alcohol consumed compared with European averages (Hibell et al. 2012).

Changes in alcohol policy

During the Soviet era alcohol consumption started to increase rapidly in Estonia and by the end of the 1970s recorded alcohol consumption was about 11 liters of 100% alcohol per capita (Ahven 2000). In the 1980s, Estonian alcohol policy saw two important changes. The first of them was Gorbachev's anti-alcohol campaign that was launched in 1985. The second one was the economic and political transition which started in the turn of the 1980s into the 1990s when Soviet Union was dissolved. In the beginning of the 1990s Estonia saw a major change to more liberal alcohol policies (Kollom 2010). Manufacturing and distribution of alcohol, which in the Soviet period was totally state owned, became fully privatized. Another example of the more liberal policies is the reduction of the minimum legal age-limit of alcohol retail sale from 21 to 18 years.

During the rest of the 1990s and in the beginning of the 2000s the regulation of alcohol-related problems was not a political priority area of any national or local government institution in Estonia. The country's social policy followed neo-liberal ideas, where human capital and health care issues were seen second to business and market interests

(Lagerspetz & Vogt 2003). Despite relatively high popular support for government intervention in alcohol consumption, alcohol policies remained very liberal (Reitan 2004).

From the beginning of 1990s until the mid-2000s changes in alcohol policy were minor. In 1997 the government sure adopted a strategy document to fight drug and alcohol abuse. In practice it however concentrated mostly on drug issues.

Alcohol excise duties were introduced in Estonia in 1994. Because of the overall unstable situation and the existence of large illegal alcohol market the 26% increase in alcohol excise duties in 1998 led to increases in black market vodka consumption. Growth in gross domestic product and the decrease in inflation rate since the late 1990s meant that affordability of alcohol increased. In 2007 the average monthly salary could buy 75 litres of strong spirits compared with 37 litres in 2002 (Estonian Institute of Economic Research 2011). After 2007 the increase in the affordability of alcohol has stabilized.

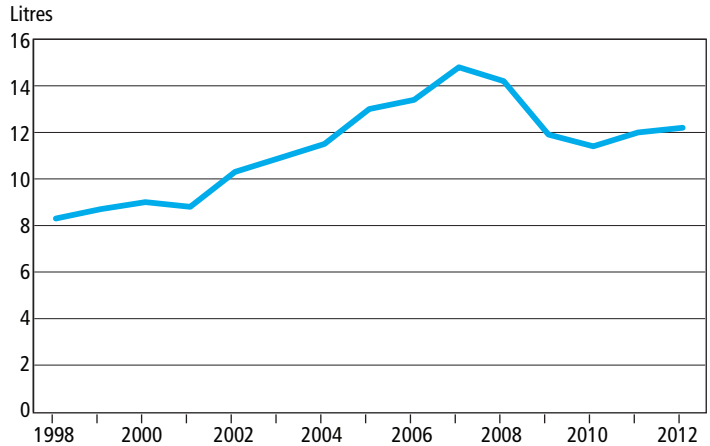
In 2005 alcohol excise duties were raised by 5 per cent and in July 2006 tax stamps started to be used. In 2008 excise duties on alcoholic beverages were increased by 30% and in 2010 by 10%. Compared with the 2004 level, excise tax increased 50% by the beginning of 2012. In April 2012 government decided to hike excise tax on alcohol by 5% yearly through 2016.

A nation-wide night time sale ban of the off-premise sale of alcoholic beverages was introduced in the summer 2008. Before that such restrictions were in the rights of local municipalities. There were more than 200 municipalities in Estonia with an area of 45 339 square kilometres. Thus, in the municipalities with the restrictions it was relatively easy to buy alcoholic beverages from a nearby municipality in case it did not have sale restrictions. This made the commune based restriction system clearly ineffective.

Currently, off-premise sale of alcoholic beverages is prohibited from 10 p.m. to 10 a.m. throughout Estonia. On the other hand, there is still a wide availability of alcohol sale outlets. In 2010 there were 196.5 alcohol retail shops per 100 000 inhabitants in Estonia, while Sweden in the same year had 4.4 retail outlets per 100 000 inhabitants (Estonian Institute of Economic Research 2011). In 2004 Estonia had restricted alcohol sales in kiosks but these selling points continued to be one of the main places for cheep and high alcohol concentration eau de cologne´s that is used as a surrogate by a group of alcoholics.

Recorded and unrecorded alcohol consumption

In the 1990s black market of alcohol was important especially black vodka market. From 1998 on Estonian consumption figures have been calculated so that they include both recorded and unrecorded alcohol. In late 1990s total alcohol consumption in litres of 100% alcohol per capita aged 15 years and over was 8.3 litres (Figure 1). In 2003 the corresponding figure was 10.9 litres and five years later 14.8 litres. After that in conjunction with the economic crises consumption dropped to about 12 litres per adult population and has stayed there.



Source: Estonian Institute of Economic Research 2013

FIGURE 1. Total alcohol consumption in Estonia in 1988-2012 in litres of 100% alcohol per capita aged 15 years and over

Illegal alcohol market has been one of the main arguments against strong alcohol regulation and especially against raising alcohol taxes. Although illegal alcohol is still a problem in Estonian society it is clear that this problem has greatly decreased since 1990s and police has turned more attention in enforcing the laws.

In 2010 according to the Estonian Institute of Economic Research´s survey 91% of Estonians purchased only legal alcohol while in 1998 the corresponding figure was 64%.

Based on a study in 2006 people consumed a range of alcohol-containing substances not intended for consumption (Lang et al. 2006). These comprised medicinal products, aftershaves, illegally produced spirits, and fire-lighting fuel. The medicinal compounds contained on average 67% ethanol by volume; the aftershaves contained slightly less. The illegally produced alcohol contained on average 43% ethanol by volume, ranging from 32 to 53%. However, many also contained detectable quantities of long chain alcohols. These substances were half the price or less of commercial vodka, with fire lighting fuels especially inexpensive. Illicit alcohol market was very profitable indeed and one of the main sources of illegal alcohol for Estonia was Russia. For instance in 2008 a pipeline was discovered. The illegal pipeline was submerged in a water reservoir located between Russia and Estonia near the north-eastern Estonian border town of Narva. The operation was profitable as the price of vodka in Russia was nearly one third cheaper than in Estonia at that time.

Illegal alcohol may also lead to major tragedies as in massive methanol poisoning in Pärnu. The Pärnu methanol tragedy was based on ten 200-litre canisters of methanol which were stolen from Baltfet (a company processing industrial fats, esters and animal feed). The stolen methanol was mixed with water and lemon flavouring agents at about 30% by volume, bottled, attached fake labels of various well-known brands, and distributed through an underground network. This incident which happened on Sep-

tember 2001 led to death of 68 people, disability (including blindness or brain damage) to 40 people, and severe disability to 3 people. The sentences were lenient and aroused considerable discussion in Estonian public arena, and led to decline in underground alcohol sales.

Alcohol-related harm in Estonian society

In 2008, male life expectancy in Estonia was only 68.7 years compared to the European Union average of 76.3. This gap was largely due to excess deaths among men of working age. Heavy alcohol consumption has been implicated as a major cause, with high levels of hazardous drinking in the population (Ringmets et al. 2012).

Alcoholic liver cirrhosis mortality has increased steadily in Estonia, and is reflected in an increase in heavy drinking. In 1992–2008, alcoholic liver cirrhosis mortality rates were higher among men than among women and higher among the older inhabitants than among inhabitants in the younger age group. From 1992 to 2008 mortality from alcoholic liver cirrhosis increased steeply. The increase was sharper among men and women in the older age group. In 1998–2001, higher alcoholic liver cirrhosis mortality rates occurred in non-Estonians and those with lower levels of education (Pärna & Rahu 2010).

Drink driving has always been a big problem in Estonia, although there have been some improvements in this field. In 2000 police registered 14 378 drink driving cases, 17 920 in 2007 but it dropped to 6 284 in 2010. When in 2000 318 accidents involved drunken motorvehicle drivers, it grew to 521 by 2007 but dropped to 146 in 2010. Because of drunk driving 40 people were killed in 2000 and 79 in 2007 but only 11 in 2010 (Estonian Institute of Economic Research 2011).

The number of people diagnosed with alcohol-related diseases has dropped in the last three years of economical downturn (2008-2010). The trend correlates with the lowering annual per capita alcohol consumption, according to a recent survey conducted by the National Institute for Health Development. The annual alcohol consumption per population aged 15 years and over has dropped from 14.2 to 11.4 litres during the period from 2008 to 2010. Mental and behavioural disorders and alcoholic liver disease are the most common alcohol-related illnesses. While in 2008, around 9 160 people were diagnosed with one of these, year 2010 the figure had dropped to 6 940. In 2010 the treatment costs of alcohol-related diseases and corresponding sick leave pay amounted at 2.3 million euros, which is 30% less than in 2008 (Estonian Institute of Economic Research 2011).

Conclusions and discussion

Estonia has not had a comprehensive alcohol policy since 1991 when it gained its independence. After the Gorbachev's regime it seemed that regulating alcohol policy would mean going back to the Soviet mentality. That understanding is still ruling among at least part of the population and policymakers.

Since Estonia regained its independence its political priorities included first of all national security and economic stabilisation. Public health matters, including alcohol policy has been lagging behind.

Alcohol consumption grew till 2007 when the average Estonian adult drank 14.8 litres in one year. Then the economical crises hit and in next three years alcohol consumption fell to 11.4 litres in 2010 (Figure 1). Despite some changes in alcohol policy like increases in excise tax rates and ban for night time retail sale it is clear that the strongest influence came from the economic crises.

During the election period in 2011 Ministry of Social Affairs was drafting new alcohol policy document which was also finalised and accepted by the government. After the 2011 years election the same government gave a mandate to draft „the green paper" of alcohol policy. Starting points for this process came from the structure from WHO global strategy to reduce the harmful use of alcohol and European action plan to implement global strategy to reduce the harmful use of alcohol.

Seven working groups were established manned by the ministries and state institutions, research institutes, NGOs and also by industry representatives.

Ministry of Social Affairs has set three main goals to prevent consumption among minors, reduce harmful drinking and reduce overall consumption. It is important to note that during those years (2008-2010) when alcohol consumption was decreasing alcohol industry increased their advertising in TV which clearly indicates that when government has set the goal to decrease alcohol consumption industry works to increase their market and thus functioning in green paper working groups with clearly opposing interests.

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Marcis Trapencieris and Sigita Sniķere

Alcohol availability and affordability in Latvia

Introduction

Drinking culture in Latvia during the Soviet Union times was in broad terms similar to that of other neighbouring countries like Russia, Belarus, Estonia and Lithuania, where drinking occurred frequently and in large quantities. The Baltic Countries, Estonia, Latvia and Lithuania, as well as Russia, Belarus and Ukraine traditionally have been spirits drinking countries (Moskalewicz 2000; Pomerleau et al. 2005; Popova et al. 2007).

Researchers who have analysed the Soviet drinking culture have mentioned that poor living conditions for the majority of society, low income, lack of commodities and of future perspectives have been sufficient reasons for people to drink to escape these problems. There were several attempts to decrease drinking in the Soviet Union, for example, an anti-alcohol campaign by Khrushchev in 1958, and also several attempts in the 1970s by Brezhnev, when alcohol prices were increased two- and three-fold. The last attempt in the Soviet Union was Gorbachev's anti-alcohol campaign during the period 1985–1987. The results of this campaign are still discussed in the scientific literature as one of the most effective, during which the average lifetime expectancy for males significantly increased, and the number of alcohol retailing premises decreased by half. The campaign is estimated to have prevented some 700 000 deaths in the Soviet Union (Bhattacharya et al. 2011; Leon et al. 1997).

During the period 1986–1990 a shortage of various goods, including alcoholic beverages, was experienced in Latvia. The inflation rate was high amid a growing economic crisis, with the government forced to introduce a coupon system for sugar, alcohol and cigarettes, among other goods. Every adult aged 18 years and over was provided with coupons that allowed them to buy 0.5 litres of spirits and/or 1.5 litres of wine per month (Trapenciere 2000). As researchers from Latvia have noted, the introduction of coupons for sugar was seen as a means to regulate home-brew alcohol samogon or kandža, although it is not seen as having had an impact on the irregular alcohol market.

At the beginning of the 1990s, when the Baltic Countries regained independence from the Soviet Union, they were all on a similar level of alcohol harm as expressed in the standardised death rate (SDR) from selected alcohol-related causes. The WHO Health For All Database suggests that in 1991, the SDR for alcohol-related causes[1] per 100 000 inhabitants was lowest in Estonia, at 155 per 100 000 inhabitants, followed by 167 per 100 000 in Lithuania, and 174 per 100 000 inhabitants in Latvia, which were more than

1 (ICD–10 codes: C15, C32, F10, K70, K73, K74, K76, V00–V99, W00–W99, X00–X99, Y00–Y99)

1.5 times higher than in the EU-15 countries, while at about the same level as the new EU countries as of 2004 and 2007.

In 1991 Latvia regained independence and in broad terms inherited the Soviet drinking culture, where spirits and frequent binge drinking was the most common consumption pattern. But on-premises consumption began to change, and as a popular bartender of those times recalls: 'Until the beginning of nineties, the bar was full from morning to evening; only around four or five in the afternoon most would go to close the office or the safe. But with capitalism approaching there was not a single soul in the bar during the daytime. And only slowly did people take on the western model, where one should drink on Friday evenings' (Lapsa & Metuzāls 2006).

Such observed changes during the period were not true, of course, for the part of the population who consumed alcohol in a risky way – they were still drinking as they were during the Soviet times, in the morning, afternoon, and evening. During the first years of independence when the alcohol monopoly was abolished, alcohol was sold everywhere – from individuals and stalls in the markets, from kiosks on the streets, from taxi drivers and at smaller or larger premises. Around that time, various western alcohol brands started to appear on the market, while fake Napoleon brandies and the liqueur Amaretto were among the top counterfeit products seized in the market from the early to mid-1990s.

Since the early 1990s the Latvian economy has undergone substantial changes. According to the World Bank, its GDP increased nearly five-fold by 2008: from USD 6.8 billion in 1991 to USD 33.7 billion in 2008. The real income of the population increased two-fold (Central Statistical Bureau). Nevertheless, the recent global crisis hit Latvia hard. In 2009, the first year of the economic crisis, unemployment rose to 23%, and an estimated 200 000 people emigrated to other countries. To overcome the crisis, severe austerity measures were applied: state budget expenditures were decreased, and the overall level of quality of life for the majority of the population decreased.

In the following we will discuss the most significant changes in alcohol policy and describe how these changes have influenced alcohol availability and affordability in Latvia.

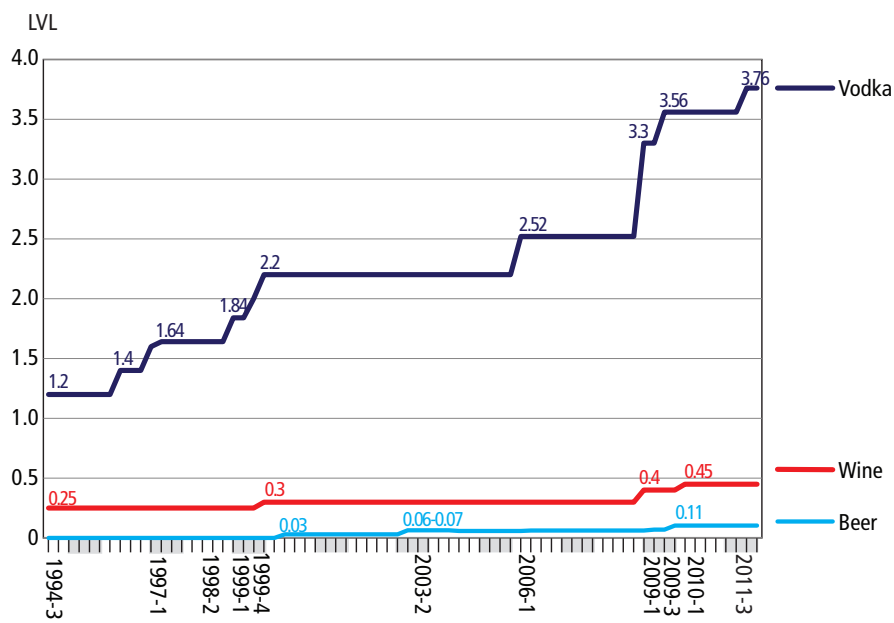
Alcohol availability and affordability

In December 1990 the Supreme Council of Latvia adopted the first Law on Excise Duty, where the alcohol excise duty rate was established as a fraction of its sales price, i.e. 91% of sales price for absolute alcohol in vodka and liqueurs, 45% for wine, 75% for champagne and fortified wines and 60% for cognac, while for imported beverages if they had been subject to alcohol excise in the country of origin, the rate was set at 24% (The Law on Excise Duty 1990). Such an approach was established during the first years of independence, when Latvia did not have its own currency and inflation rates exceeded 100% annually.

In 1992 two regulations of the Cabinet of Ministers were adopted, which prescribed that privately owned companies can produce and sell alcohol, which meant abandoning the State Alcohol Monopoly, both at wholesale and retail levels. During the first years of independence, the alcohol market was dominated by total chaos – chaotic privatisation of alcohol retailers, setting up of new alcohol retail locations, with practically no difficulties in obtaining a license. The emergence of thousands of alcohol retail locations in a short period of time meant that the administrative apparatus was not able to control the market: alcohol was sold without any restrictions, people were drinking everything and everywhere, the market was saturated with illegally imported pure alcohol, while the income from taxes were at a record low (Pelne 2002). Taking into account all taxes, one litre of beverage with 40% alcohol content should cost at least LVL 2.40 at wholesale level, but at retail level it was being sold at half the wholesale price. The government could not fail to realise that something was amiss. In the mass media, some articles mentioned that 'large quantities of "imported" alcohol have never seen a foreign country' (Trapenciere, 2000).

It was only in 1993 that the public interest was finally taken into account and attempts were made to decrease alcohol availability. Changes in the Regulation of the Cabinet of Ministers prescribed that alcohol cannot be sold to people aged less than 18 years and alcohol cannot be sold in schools, kiosks or from vehicles (Regulations for retail sale of alcoholic beverages 1993).

On July 1994, major changes in the Law on Excise Duty were adopted. The new amendments prescribed that the alcohol excise duty rate was no longer fixed to the sales



Sources: The Law on Excise Duties; the Law on Alcohol Excise Duties

FIGURE 1. Changes in alcohol excise duty rates for vodka, wine and beer in LVL per litre, 1994–2011.

price but to beverage-specific rates, which was now possible because Latvia had by then introduced its own currency, the Latvian Lat (LVL). One study analysing these changes estimated that alcohol excise duty was raised by around a third. This revision of the law set a fixed rate for all alcoholic beverages, except beer, at LVL 300 per hectolitre of pure alcohol and LVL 25 per hectolitre of wine with alcohol content below 19% by volume. Figure 1 shows the changes in alcohol excise duty for three major types of alcoholic beverages, beer, wine, and spirits, expressed in nominal LVL per beverage litre since 1994.

Even with the introduction of alcohol excise duty, the government was able to collect only LVL 2.15 million in 1995, with experts estimating that around LVL 15 million did not reach the Treasury (Lapsa & Metuzāls 2006). Up to 1998 the Law on Excise Duty was changed at least once annually, with slight increases of alcohol excise duty for one or several types of alcoholic beverages. On January 1999, a new Law on Alcohol Excise Duty came into force, removing alcohol from the general Law on Excise Duty. It set concrete definitions for various alcoholic beverages as well as strict rules on how, when and to whom alcohol excise duty was directed (The Law on Alcohol Excise Duty 1998). Simultaneously the Law on Excise Duty for Beer was adopted, which removed beer with an alcohol content below 7% from the list of alcoholic beverages, while the excise rate for the highest alcohol-content beers remained at LVL 420 per hectolitre of absolute alcohol. This Law for the first time introduced excise duty for lower alcohol content beers, i.e. for beers with an alcohol content 0.5–2.8%, the duty was LVL 3.30 per 100 litres of beer, LVL 4.70 for beer with an alcohol content 2.8–4.0%, LVL 6.40 for beer with an alcohol content 4.0–5.5%, and LVL 8.10 for beer with an alcohol content 5.5–7.0% (Law on Excise Duty for Beer, 1999).

In 1998 the Handling of Alcohol Law was adopted. As a change from the previous Law on the State Alcohol Monopoly, it lost the wording of monopoly, which in reality had no longer existed since the first years of independence. Also several novel norms in Latvian alcohol control were introduced. The Handling of Alcohol Law in 1998 set

- limitations to the issuing of licenses (e.g. alcohol license could not be provided for alcohol sales in nurseries, schools, kiosks or from cars).
- limitations on selling alcohol to intoxicated persons or people in uniforms.
- first limitations on alcohol advertising.

The norm of the law allowing municipalities to set the hours for alcohol retail sale was probably not intended to have long-lasting consequences, but in 1999 one of the municipalities, Valmiera, a city with a population of around 30 000 inhabitants, pioneered restricting sales hours for alcoholic beverages. Later it was realised that this norm was contradictory to the Law on Municipalities, which led to a wider discussion in society that included professionals and policy makers. In 2000 the contradiction between these laws was removed and municipalities were officially allowed to implement restrictions on the place and hours for selling alcoholic beverages. Some other municipalities, for example, Jelgava, Liepāja, and also some smaller municipalities, followed the example of Valmiera and introduced restrictions in off-premise alcohol retail sale during the night hours. Following the local initiatives, the Handling of Alcohol Law was revised, and as of June 2002, alcohol could not be sold off-premise between 10.00 p.m. and 8.00 a.m. countrywide.

The period from 2000 to 2009 can be described as stable, with noty rate for wine, one increase in the alcohol excise duty rate of 15% for spirits in 2006, and minor new regulations relating to the beer excise tax, which, in nominal value was the lowest for all alcoholic beverages. During this period, however, three significant changes from an alcohol policy perspective were introduced.

For the first change in 2003, the Law on Alcohol Excise Duty was abandoned and as of May 2004, the same day Latvia joined the EU, all excise duty rates were described in a general Law on Excise Duties, which included all commodities with excise duties, i.e. alcohol, tobacco, oil, and gas. Up to the end of 2011, the Law was revised 18 times. The 2011 revision of the Law on Excise Duties gives definitions of specific alcoholic beverages, i.e. beverages whose alcohol strength by volume exceeds 1.2%, and for beer exceeds 0.5%.

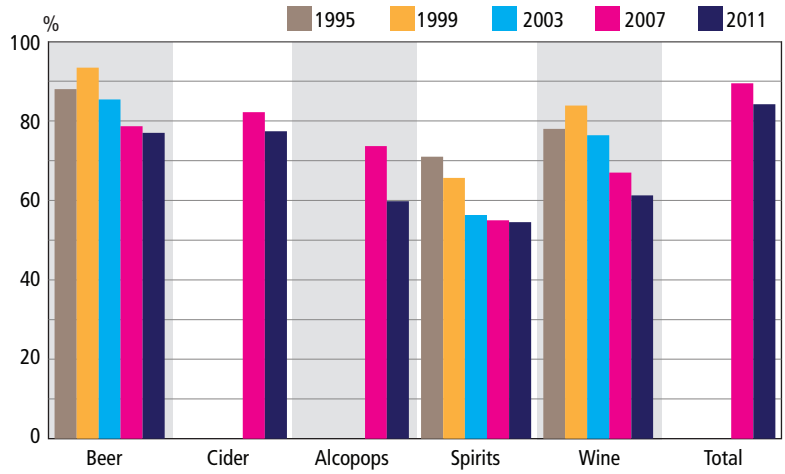
Secondly, in 2004 the Handling of Alcohol Law was rewritten and restructured to its current form, and was given a new title of the Handling of Alcoholic Beverages Law (2004), with three relatively minor revisions being made up to the end of 2011. The 2004 revision of the Law described off-premise alcohol sales in detail, which led to a massive evasion of a ban on off-premise alcohol sale during the night hours, such as setting up a number of small off-premise facilities with one or two tables for on-premise consumption. In reality it meant that alcohol in such places could be officially sold during the night time, although consumption did not happen in these places.

Thirdly, in 2005 Latvia's first Alcohol Strategy for the period 2005–2008 covering a wide range of supply and demand reduction areas and activities was approved by the Cabinet of Ministers. Its main objectives were: ensuring a sustainable decrease in the demand for alcoholic beverages by reducing alcohol consumption so as not to exceed 6 litres of absolute alcohol per capita; restricting the supply of alcohol and achieving a high level of information about the risks of drinking; and reducing the prevalence of hazardous and harmful drinking within society at large and in high risk groups (National Alcohol Strategy 2005–2008).

With the worsening of the economic situation in the country starting in 2008, an increase in alcohol excise duty was seen as a means to increase budgetary income. In 2009 two amendments to the Law on Excise Duties increased tax for spirits by around 40%, from LVL 630 per 100 litres absolute alcohol to 825 LVL as of February 2009 with a further increase to LVL 890 and LVL 940 as of July 2009 and July 2011, respectively. For wine and beer, the duty was increased by around 50% over the period of 2009–2010.

Impact on recorded and unrecorded alcohol consumption

Data from the European School Survey Project on Alcohol and other Drugs (ESPAD) suggest that perceived availability of the three major beverage types of beer, wine, and spirits among 15–16-year-olds has decreased since 1995, but still remains high (see figure 2). In 2011, 77% of 15–16-year-old students perceived beer as very of fairly easy to get hold of. Wine was perceived as clearly less available, with 61% perceiving it as easily available, while the lowest perceived availability was for spirits, 55% (Trapencieris et al. 2012).



Source: Trapencieris et al. 2012

FIGURE 2. Proportion of 15–16-year-old students who perceive alcohol as easily available, %

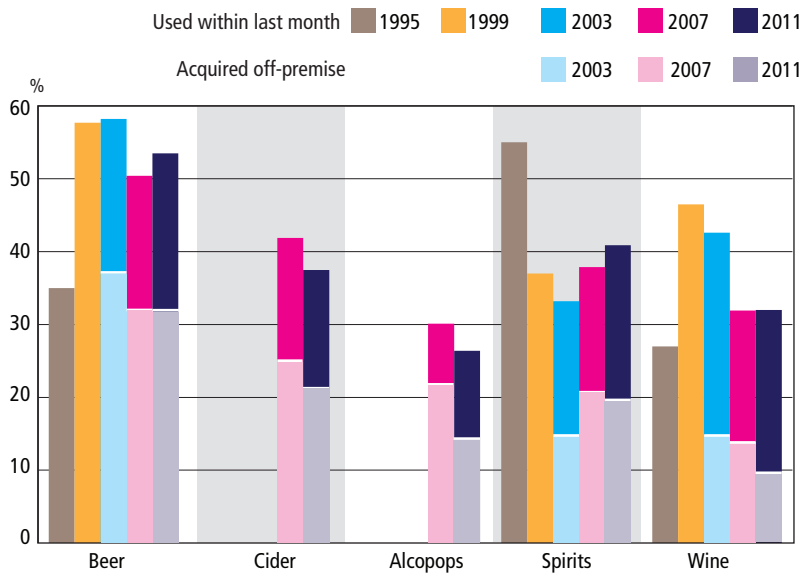
On the other hand, the percentage of students who have purchased the aforementioned beverages off-premise for their own consumption over the last 30 days is lower than the perceived availability. Data from the 2011 ESPAD survey suggest that 54% of 15–16-year-olds who have drunk beer within the last 30 days have purchased it off-premise for their own consumption, 41% of those who have consumed spirits and 32% of those who have consumed wine have bought them off-premise (Trapencieris et al. 2012).

With 66% of 15–16-year-olds having drunk any alcoholic beverage over the last 30 days, the 2011 ESPAD study ranks Latvian students in 12th place among 36 countries, just above Lithuania (63%) and Estonia (59%) (Hibell et al. 2012). In the 1999 ESPAD study 58% reported having drunk alcohol during last 30 days, while in 2011 the last month prevalence rate remained at the same level as in 2007 (Trapencieris et al. 2012).

Changes in students' beverage preferences have taken place over the last decade as suggested by the trend data of the ESPAD study on estimated alcohol consumption, with a decrease particularly in the proportion of spirits and wine among alcoholic beverages consumed on the last drinking occasion as compared with 1999. It should be noted that alcopops and especially cider form a significant proportion of the estimated student alcohol consumption, especially among 15–16-year-old girls (see Table 1).

Based on Consumer Price Index (CPI) data,[2] the price for one litre of vodka has increased from LVL 3.06 in 1995 to LVL 8.09 in 2010, with a slight decrease (LVL 7.96) in the average price in 2011. Simultaneously, inflation rates have far exceeded nominal price increases. Adjusting the price of vodka for overall inflation rate reveals that over

2 Central Statistical Bureau (CSB) of Latvia has been monitoring prices for vodka since 1995, and since 2003 also for beer and traditional strong liquor Melnais balzāms as part of Consumer Price Index (CPI) monitoring. Detailed description of monitoring system can be found on the website of CSB at data.csb.gov.lv.



Source: Trapencieris et al. 2012

FIGURE 2. Proportion of 15–16-year-old students who perceive alcohol as easily available, %

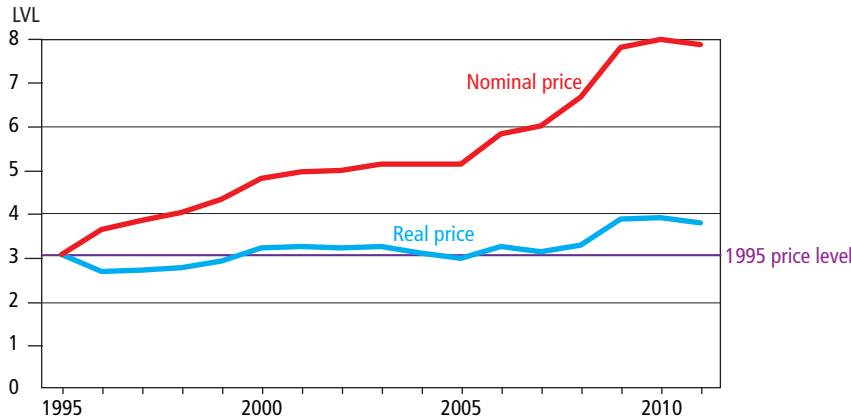
TABLE 1. Beverage proportions of estimated alcohol consumption on the last drinking day among 15–16-year-old students in 1999–2011, %

	1999			2003			2007			2011		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Beer	43	35	42	61	42	53	n.d.a	n.d.a	n.d.a	52	24	40
Wine	13	22	15	10	26	18	n.d.a	n.d.a	n.d.a	5	12	8
Spirits	43	43	42	29	32	30	n.d.a	n.d.a	n.d.a	33	32	34
Alcopops	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	3	5	4
Cider	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	8	22	14

n.d.a – no data available
Sources: ESPAD report 1999; 2003; 2007; 2011

the 17-year period, the real vodka price has increased by 28.2%, and in 2011 the price of one litre of vodka was LVL 3.79 in 1995 prices. Figure 4 reveals that significant changes in the real price of vodka took place only in 2009 and 2010; in the period between 1995 and 1999 the real price of vodka had actually decreased, while between 1999 and 2008 the real vodka price had remained rather constant, with only minor increases and decreases. The most recent data suggest that the nominal and real price of vodka has decreased in 2011.

Since 1995 net monthly salaries in Latvia have increased more than four-fold, from LVL 73 in 1995 to LVL 350 in 2008, while the increase of real salary adjusted for inflation increased more than two-fold, from LVL 73 in 1995 to LVL 171 in 2008. With the

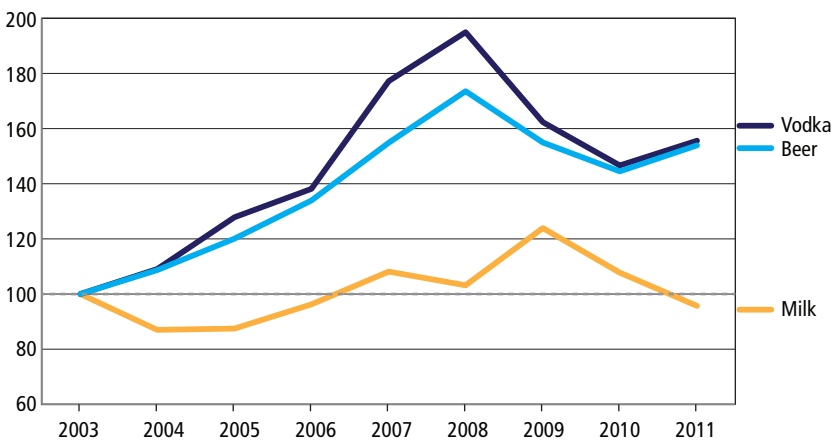


Source: Central Statistical Bureau 2012; authors' calculations

FIGURE 4. Nominal and real price in 1995 price levels of 1 litre of vodka in LVL, 1995–2011

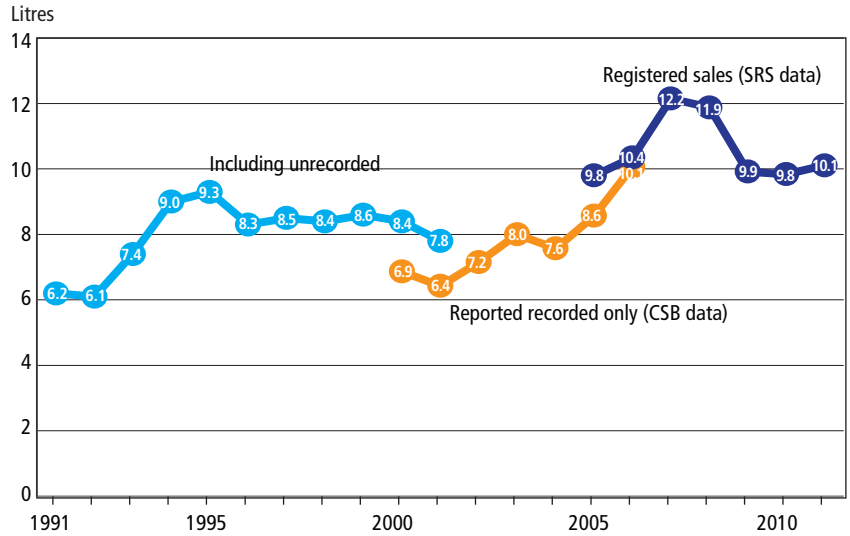
economic downturn, the average monthly salary decreased in 2009 and 2010, and slightly increased in 2011. Affordability for vodka expressed in litres per net monthly salary gradually increased up to 2008, with decreases in 2009 and 2010. In 1995 net monthly salary could purchase 23.9 litres of vodka, in 2008 it had increased to 51.9 litres, but in 2009 and 2010 it decreased to 43.2 and 39.1 litres, respectively. The 2011 data show a slight increase in vodka affordability compared with 2010.

Available data about the affordability of beer since 2003 show that the affordability pattern does not differ from that of vodka, while the affordability of commodities such as bread, meat or milk follow different affordability patterns over the years. For example, during the period 2003–2011 the increase in the nominal price of milk has been steeper compared with alcoholic beverages, with vodka and beer having become more afford-



Source: Central Statistical Bureau 2012; authors' calculations

FIGURE 5. Index of affordability for vodka, beer, and milk in 2003–2011 counted in litres per net salary, 2003=100



Sources: State Revenue Service; Central Statistical Bureau; authors' calculations

FIGURE 6. Alcohol consumption per population aged 15 years and older in litres of absolute alcohol, 1991–2011.

able. The salary in 2008 would allow one to buy 95% more vodka, 73% more beer and only 3% more milk as compared with 2003. Three large increases in alcohol excise duty rates in 2009 and 2010 as discussed in the previous chapter lowered the affordability for two monitored beverage types, but alcohol still remains more affordable than milk compared with 2003 prices and salaries.

Alcohol price increases in Latvia were outweighed by increases in salary and inflation. With the real alcohol price being constant and salaries increasing, alcohol consumption per capita nearly doubled from 6.9 litres of absolute alcohol per inhabitant aged 15 years and older in 2000 to 11.9 litres in 2008. In 2009 a sharp decline in the recorded alcohol consumption was observed, while in 2010 and 2011 the recorded alcohol consumption has remained at about the same level as in 2009, respectively at 9.8 and 10.1 litres of absolute alcohol per adult population.

The consumption figures per adult must be interpreted with caution, as after joining the European Union in 2004, according to some researchers, due to unaccounted emigration, the actual Latvian population has decreased, by around 200 000 persons or around 10% of the population (Hazans 2011). Although in the figures provided here we have taken account of this emigration, until precise re-calculations of population numbers have been made, alcohol consumption figures should be interpreted with caution. Figure 6 shows three trend lines on per adult alcohol consumption. The first one from 1991 up to 2001 includes some correction for unrecorded alcohol consumption according to expert opinion. The trend line for the years 2000–2006 includes re-calculated alcohol consumption by the Central Statistical Bureau, without an estimation of unrecorded alcohol. For the years 2005–2011 calculations of recorded alcohol consumption

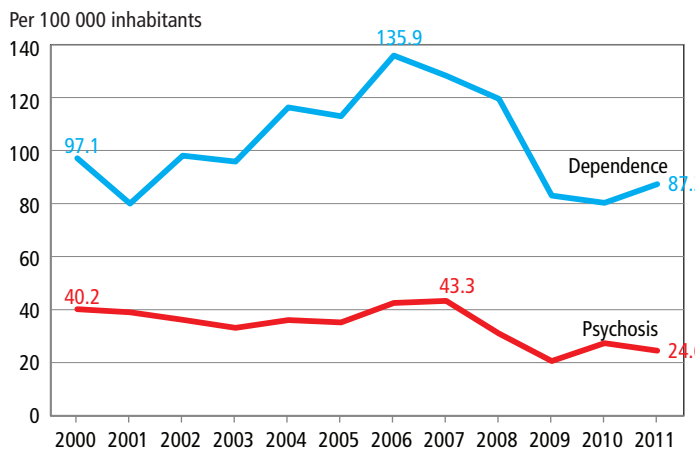
are based on alcohol sales data from the State Revenue Service, which has been proposed and accepted as the new Latvian estimation method of recorded alcohol consumption.

It is unclear to what extent increases in alcohol prices followed by a decrease in recorded alcohol consumption in 2009–2010 has affected the market for unrecorded alcohol. According to the alcohol industry, the illegal alcohol market is 38% of the legal alcohol market, although there is no clear methodology on how this figure is obtained (Pelne et al. 2011). A recently conducted general population survey on substance use provides a more conservative estimate of around 16% of total annual per adult consumption obtained from the unrecorded alcohol market, for example from travellers' imports of alcohol, illegally acquired alcohol, and home-brewed alcohol (Sniķere et al. 2012).

Impact on alcohol harm

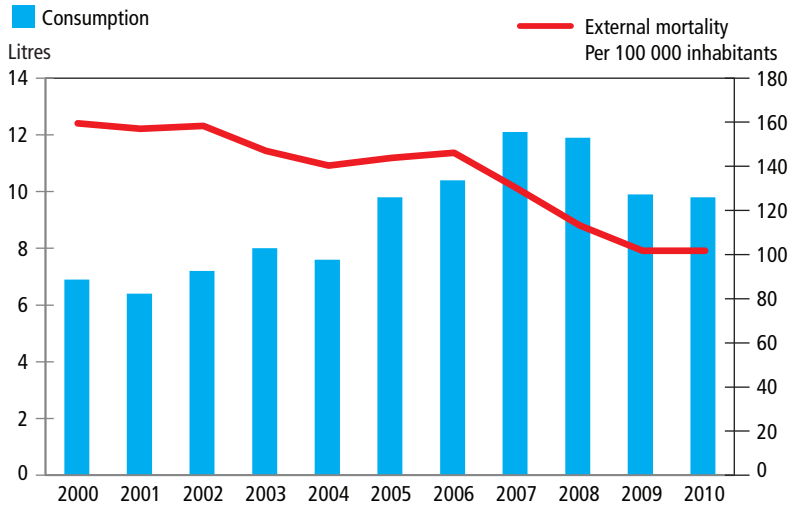
Treatment data on alcohol dependence and alcohol psychosis suggests that in 2011 there were 1 801 (or 87.3 per 100 000 inhabitants) first-time registered cases of alcohol dependence and an additional 507 cases (24.6 per 100 000) with first-time registered alcohol psychosis. Trend data shown in Figure 7 suggest that over the last 10 years the incidence of alcohol psychosis has decreased from 40.2 to 24.6 per 100 000 inhabitants, and has remained rather stable for the last three years. We also see that first-time treatment of alcohol-dependent patients decreased significantly in 2009, which is related with the decreased availability of alcohol treatment, i.e. decreased funding of public addiction treatment facilities.

It is not clear to what extent the recent decrease in alcohol consumption has had an impact on the decreasing number of people seeking alcohol treatment, but probably the



Source: The National Health Service 2011; The Centre for Disease Prevention and Control (unpublished data); authors' calculations

FIGURE 7. Incidence of alcohol dependence and alcohol psychosis per 100 000 inhabitants, 2000–2011



Sources: World Health Organization; State Revenue Service; Central Statistical Bureau; authors' calculations

FIGURE 8. Alcohol consumption in litres of absolute alcohol per capita and external causes of death per 100 000 inhabitants, 2000–2010

effect is not large. A recently conducted survey about alcohol and drug use suggested that according to the CIDI alcohol dependence scale, 12.5% of the population in 2011 might be alcohol dependent, which means that only a minor part of those in need of alcohol treatment receive it (Sniķere et al. 2012).

Trend data suggest that mortality from external causes has significantly decreased since its peak in the mid-1990s. As shown in Figure 8, even with alcohol consumption increasing between 2003 and 2008 there has been a declining trend in mortality from external causes, for which a significant fraction can been attributed to alcohol consumption, e.g. deaths from traffic accidents, suicides, drownings, alcohol poisonings, etc. The mortality data should be interpreted with caution as there have been significant changes in reporting death cases as of 2006 and a steady decline in the number of performed autopsies (The Centre for Health Economics 2010).

Detailed cause-specific analyses of mortality from external sources reveal that

- deaths from alcohol poisonings have decreased from 583 in 2004 to 125 in 2010.
- the number of people who have died in traffic accidents involving an alcohol-intoxicated driver has decreased from an all-time high of 188 persons in 1995 and 148 persons in 2002 to 22 persons in 2010.
- the number of lethal suicides has decreased from 770 in 2000 to 436 in 2010 (Pelne et al. 2011; Pulmanis et al. 2011).

A record-linkage study that analysed suicide mortality in Latvia in 2009 revealed that among alcohol treatment clients, mortality from suicide was 8.8 times higher compared with the general population. Mortality from suicide was 5.6 times higher among males and 12.2 times higher among females (Pulmanis 2011).

A study analysing person-years of life lost due to alcohol attributable diseases estimated that in 2010 alone the number of people who died was 1 244 or 95 per 100 000 inhabitants while the number of person–years (PY) lost was 1 301 per 100 000 PY. It was higher among males (2 244 per 100 000 PY) compared with females (410 per 100 000 PY). Alcohol attributable diseases accounted (not taking into account diseases for which alcohol use might be protective) for 20% of all person-years lost (23% among males and 12% among females) among the 15–64-year-old population (Skrule et al. 2012).

Conclusions

This chapter has examined changes in alcohol policy in Latvia with regard to if and how policy has had an effect on alcohol consumption and alcohol-related harms. In nominal value, alcohol excise duty rates have been raised many-fold since the introduction of alcohol excise duties in Latvia, especially for spirits. Simultaneously, disposable income at the family and individual level, in addition to inflation rate, has increased substantially. The Latvian example of rapid transformation from a centrally planned economy towards a market economy shows that by prioritising economic interests, the restrictions and implementation of alcohol control policy have had little impact on alcohol consumption during the first years of independence. Moving from a state-controlled alcohol monopoly through to privatising alcohol sales and the emergence of thousands of alcohol retail outlets in a short period of time has meant that the administrative apparatus has not been able to control the market, and the unrecorded alcohol market has increased.

The data analysed suggests that up to 2008, alcohol became more affordable compared with 1995, thus leading to higher alcohol consumption per capita. With the economic downturn in 2008, alcohol excise duty has been seen as one of the sources for increasing budgetary income; in 2009 and 2010, the price of alcohol has increased in real terms and with a simultaneous decrease in income, alcohol has become less affordable, thus leading to a decrease in per capita alcohol consumption. Similar decreases in per capita consumption have been seen also in neighbouring Estonia, which some researchers have explained by means of decreases in alcohol affordability (Lai & Habicht 2011). In 2011 Latvia saw an increase in per capita income and with the alcohol price remaining somewhat constant or even decreasing, the affordability of alcohol has been increasing. The recent increases in alcohol excise duty during 2009–2011 did not increase the income for the state budget. On the contrary, the budgetary income from alcohol excise duty decreased by LVL 3.24 million (or 3%) in 2009 with a further decrease of LVL 2.74 million in 2010.

The first alcohol strategy was developed for the period 2005–2008. Although between 2005 and 2008 Latvia was experiencing double-figure annual increases in GDP, funding was not provided to ensure its far-reaching implementation. Consequently, only a minor portion of the tasks mentioned in the alcohol strategy was implemented without having a great impact on alcohol consumption in Latvia. Discussions on raising alcohol excise

duty have always included strong messages and seeking public support, as well as the alcohol industry objecting through the mass media to any rise in excise duty.

In 2009 there have been several discussions in Parliament and the mass media advocating for dismissing the ban on selling alcohol during the night hours or at least increasing sales hours by one hour – the latter proposal was supported by the Parliamentary commission in its second reading in 2009, but did not get adopted by Parliament. Furthermore, in 2012 a public discussion was initiated on the need for a referendum on dismissing the ban on alcohol sales during the night hours, with some activists starting to collect the necessary signatures to initiate a referendum.

In recent years, most interventions that can affect alcohol availability have been implemented to some degree in Latvia:

1. Alcohol is subject to excise duty and since 2009 the duty has increased substantially, especially for spirits. Nevertheless, the beer industry has been very successful in keeping alcohol excise duty rates from increasing to an extent that has had an impact on alcohol consumption, and beverage-wise, beer consumption has been on the increase.
2. A legal drinking age of 18 years for all alcoholic beverage types was introduced in the mid-1990s, although enforcement of it still remains weak. The perceived alcohol availability as estimated in school surveys is high and several experiments using underage buyers suggests that young people have high odds of obtaining alcohol, especially in smaller shops.
3. Alcohol advertising is limited to some extent, though alcohol advertising is still prevalent during popular children's TV slots, and alcohol sponsorships for sports games are prevalent, and control of outdoor advertising is limited.
4. Off-premise sales of alcohol have been limited to the hours from 8.00 a.m to 10.00 p.m. at the national level since 2002 and the initiative is supported by the majority of the population. With enforcement still lacking, the effect of this regulation on alcohol consumption is low, e.g. a study on substance use conducted in 2011 suggested that 16% of alcohol is obtained off-premise outside the legal sales hours (Sniķere et al. 2012).
5. The BAC level for drivers has been set at 0.5‰ since 2004, and at 0.2‰ for novice drivers, which is thought to have been one of the most effective strategies implemented in Latvia, with alcohol-related accidents decreasing over the last decade. Roadside breath testing is widely practiced, and large-budget campaigns in the mass media seem to have had an effect on road traffic accidents.
6. Licensing of on- and off-premise alcohol retail sales is regulated and monitored.

In 2012 Latvia adopted a new Alcohol Action Plan for the years 2012–2014 where some of the issues discussed earlier in this chapter were addressed. The alcohol industry and other market forces have objected strongly to efforts to decrease alcohol availability; and as Latvia was still struggling with the consequences of an economic recession, the resources available for implementing activities were limited. In the coming years, more work towards gathering better evidence on alcohol consumption and its impact at national level and advocating for evidence-based alcohol policy development and implementation should be carried out.

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Aurelius Veryga and Mindaugas Štelemėkas

The effects of Lithuanian alcohol control policy

Introduction

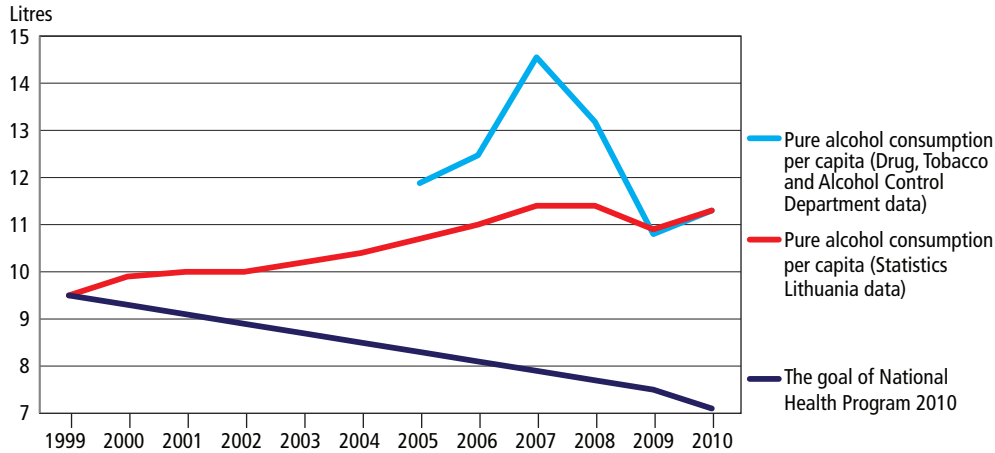
Alcohol is traditionally recognized as one of the main risk factors significantly contributing to the burden of non-communicable diseases, and most European countries bear a significant burden of alcohol-related mortality and morbidity due to Europe being the continent with the highest alcohol consumption in the world. Lithuania has an old tradition of strong alcoholic beverage consumption, and up until recently it has experienced a significant and continuous increase of alcohol consumption levels, followed by negative consequences for public health in Lithuanian society. Nevertheless, despite the drawbacks, Lithuania also has positive experiences of implementing an evidence-based alcohol control policy during the last few years, which is introduced in brief below.

Alcohol control in Lithuania

Undoubtedly alcohol is recognized as a harmful product for consumers and society among health professionals, and for this reason, a reduction in alcohol consumption was included as a key health policy priority in the Lithuanian National Program of Health 1998–2010. Reducing alcohol consumption was given a quantitative goal: Reduce the overall alcohol consumption in Lithuania by 25% (from 9.5 litres per capita to around 7.1 litres per capita) by the end of 2010. However, political decisions liberalising alcohol control, the improving economic wellbeing of the Lithuanian people, and membership of the EU have resulted in increased alcohol availability and affordability. Furthermore, aggressive advertisement campaigns by the alcohol industry targeting teenagers and women were initiated in the first years of the National Program of Health. All these factors have resulted in a constant upward trend of alcohol consumption up until 2007 (Figure 1).

To date the methodology for estimating alcohol consumption used by Statistics Lithuania is questioned and criticised by experts working in the alcohol control field in Lithuania. Traditionally alcohol consumption is evaluated according to statistics on alcohol sales, but the estimates differ considerably depending on data sources and the statistical methodology used in the estimation. For instance, according to Statistics Lithuania, pure alcohol consumption (legal and illegal together[1]) in 2007 was 11.3 litres per capi-

1 In 2012 Statistics Lithuania updated the methodology to estimate pure alcohol consumption, and only legal pure alcohol consumption per capita is now available as the official alcohol consumption data.



Source: Statistics Lithuania; Drug, Tobacco and Alcohol Control Department; National Health Program 2010

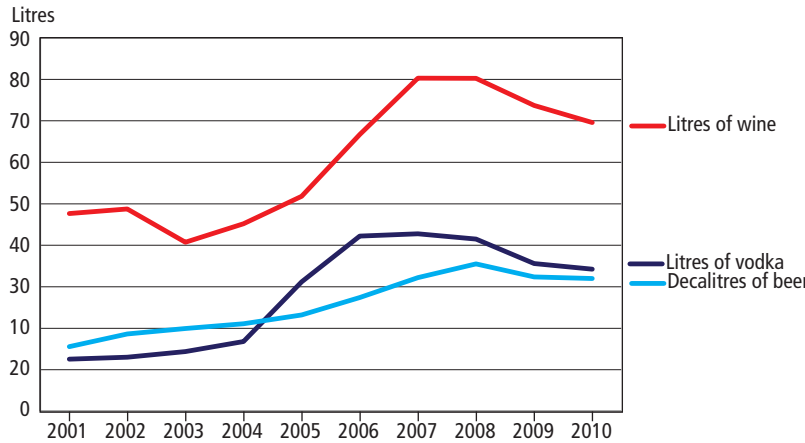
FIGURE 1. Total alcohol consumption in litres of pure alcohol per capita according to two different sources, 1999–2010

ta, where the basic data source is statistical forms from retail sales companies (sample-based methodology). Meanwhile, the Department of Drugs, Tobacco and Alcohol Control[2] independently estimate alcohol consumption using official tax statistics (excise tax, value added tax and customs duty, i.e. using full countrywide data), and it was estimated that in 2007 pure alcohol consumption was 14.3 litres per capita (legal consumption only) i.e. three litres higher than the official estimates of Statistics Lithuania. Regardless of the methodologies used for estimating pure alcohol consumption in Lithuania, there was clearly a significant increase in alcohol consumption during the period 2000–2007.

Looking back to the 1990s, according to Statistics Lithuania, the supply of strong alcoholic beverages (taking into account domestic production. imports and exports) declined by 37% between 1995 and 1999. Likewise, the Department of Drugs, Tobacco and Alcohol Control identified a similar trend of declining retail alcohol sales (i.e. consumption). This could be explained by an increase in retail prices, though, except for 1998, the overall consumption of alcohol had a small tendency to increase, mainly caused by increased consumption of beer.

The turning point in alcohol consumption appears to have been the year 2000, following the liberalisation of all alcohol excise duties in 1999, and a reduction in excise duty on strong alcoholic beverages of 44% from 0.54 to 0.3 Lithuanian Litas (LTL) for 1% concentration per litre of pure alcohol. In 2000, the supply of spirits taking into account domestic production, imports and exports increased by 60% on the 1999 figure and retail prices declined by 27%. Consequently, retail sales of spirits increased by 64%, result-

2 Department of Drugs, Tobacco and Alcohol Control is the budget funded department of the Government of the Republic of Lithuania. It also co-operates with European Monitoring Centre for Drugs and Drug Addiction (EMCDDA).



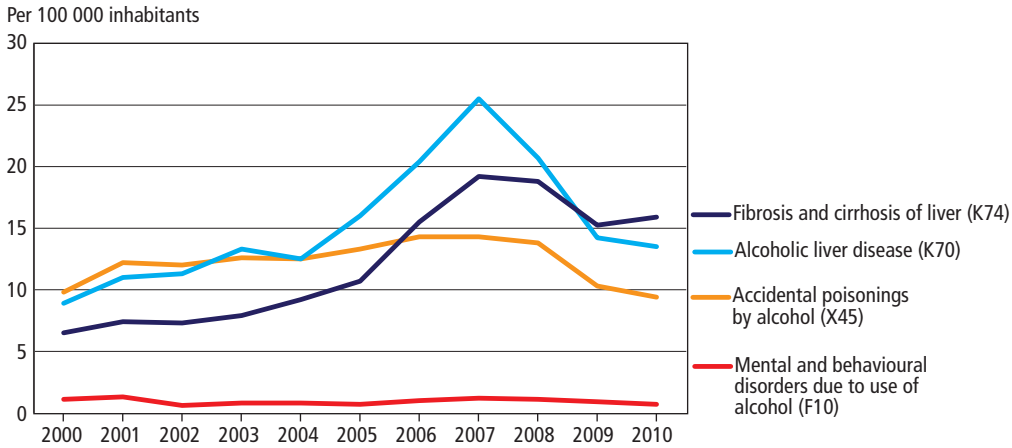
Source: Statistics Lithuania

FIGURE 2. Accessibility of alcoholic beverages: amount of litres of alcoholic beverage that can be purchased by a monthly average disposable income, by beverage category, 2001–2010

ing in a 16% overall increase in alcohol consumption (Grabauskas et al. 2009). All these have significantly increased the production, retail sale, and consumption of alcoholic beverages. At the same time, a ban on tobacco advertisement came into force, with alcohol advertising replacing tobacco advertising. The year 2000 marked the start of aggressive and extensive alcohol advertisement campaigns in Lithuania.

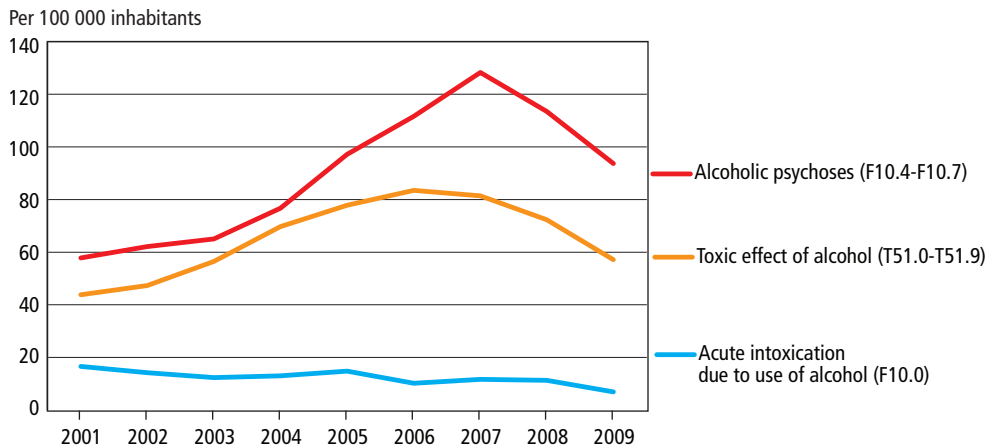
Further improvement in the overall economic conditions together with the maintaining of low retail prices for alcohol meant that accessibility and consumption of alcohol continued to increase significantly. After 2001, the sale of alcohol during the night and in gas-stations was legally permitted. In 2004 the law granting the State a monopoly in producing strong alcoholic beverages was repealed. According to Statistics Lithuania, since 2005 the average income of Lithuanians has increased by 20%, but alcohol prices have not been changing significantly, which has meant a proportional decline in the relative price of alcohol. The removal of import tax on strong spirits imported from other EU states associated with EU in 2004 has also contributed to the decline in overall prices of alcohol. On the other hand, it is important to note that the recent economic crisis in Lithuania, which started at the end of 2008, resulted in a decline in average disposable salary, and as a result, this had the effect of increasing the relative price of alcohol (Figure 2).

While the average annual increase in alcohol consumption in the period 2001–2004 was around 7%, between 2005 and 2007 it increased by over 20%, reaching a peak of 14.3 litres of pure alcohol per capita (Figure 1). As a consequence, morbidity and mortality figures also peaked in 2007 (Veryga, 2010; see Figures 3 and 4 for details).



Source: Institute of Hygiene

FIGURE 3. Mortality per 100 000 inhabitants from four important alcohol-related causes, 2000–2010



Source: Veryga 2010

FIGURE 4. Ambulatory and hospital admission rates by cases of toxic alcohol effects per 100 000 inhabitants, 2001–2009

Seeing the dramatically worsening situation in alcohol control, politicians finally began to mobilise, and in 2008 the Lithuanian Parliament introduced a whole package of effective, evidence-based alcohol control measures:

- Restrictions on alcohol advertisement were introduced. Alcohol advertisement on radio and television were prohibited between 6.00 a.m. and 11.00 p.m.
- Alcohol excise duties were increased by 20% for ethyl alcohol and fermented beverages in 2008, and again by around 15% in 2009. The excise duty rate for beer was increased by 10% in 2008 and again by the same amount in 2009.
- Small producers of beer were deprived of all taxation privileges.

- Drink driving legislation was significantly strengthened: Drink driving penalties were increased, confiscation of transport vehicles and imprisonment for repeat offenders were introduced, and the permitted BAC level were reduced for young drivers to 0.2 ‰.
- Since the beginning of 2009, off-premise retail alcohol sale was prohibited between 10.00 p.m. and 6.00 a.m.

The effects of tightened alcohol control policy have emerged rapidly. Alcohol consumption and alcohol-related health data analysis have shown that 2008 was a turning-point, showing reductions in alcohol consumption for the first time since the establishment of the Lithuanian Health Program in 1998. Pure alcohol consumption in 2008 declined to 13.2 litres per capita compared to 14.3 in 2007. The year 2008 saw a decrease in registered morbidity wholly attributable to the toxic effects of alcohol (T51.0-T51.9), which declined 10.9%, to 72.5 per 100 000 inhabitants; acute alcohol intoxications (F10.0) declined 3.4%, to 11.3 per 100 000 inhabitants; and alcoholic psychoses (F10.4-F10.7) declined 11.7%, to 113.8 per 100 000 inhabitants (Veryga 2010).

In 2009 alcohol attributable morbidity continued to decrease, paralleling further declining figures in pure alcohol consumption, which dropped to 10.8 litres per capita. In 2009 the number of diagnoses of toxic effects of alcohol (T51.0–T51.9) declined to 57.1 per 100 000 population; acute alcohol intoxications (F10.0) declined to 6.9 per 100 000, while alcoholic psychoses (F10.4–F10.7) declined to 93.7 per 100 000 (Figure 4).

The analysis of alcohol-related mortality indicators has also shown that after 2007, important indicators started to decrease, such as accidental poisonings (a decline from 14.3 per 100 000 inhabitants in 2007 to 9.4 in 2010), alcoholic liver diseases (a decline from 25.5 per 100 000 inhabitants in 2007 to 13.5 in 2010), mental and behavioural disorders due to alcohol use (from 1.2 per 100 000 inhabitants in 2007 to 0.7 in 2010). The sudden decline in mortality from cirrhosis and fibrosis of the liver (ICD-10 K74) shows the significant influence of alcohol consumption on this trend, suggesting a possibly inaccurate ICD-10 labelling for liver diseases (i.e. many cases of alcoholic liver diseases K70 might be hidden under other liver disease ICD labels, such as K74) (Figure 3).

Following a request from the WHO Lithuanian office, additional analyses have been made in 2010 estimating the wholly alcohol attributable mortality (i.e. 100% attributable to alcohol) in Lithuania. The alcohol attributable burden was expressed as Potential Years of Life Lost (PYLL) in an analysis of cases in the age group 15–75 year olds during the period 2003–2009. A number of conditions were selected following international studies defining partly and wholly alcohol attributable diseases (Gutjahr & Gmel 2005; Johansson et al. 2006; Jones et al. 2009; Grant et al. 2012), as well as the available data in Lithuanian databases according to the ICD-10 coding. The wholly alcohol attributable conditions included in the mortality analysis were: mental and behavioural disorders due to use of alcohol (F10), degeneration of the nervous system due to alcohol (G31.2), alcoholic polyneuropathy (G62.1), alcoholic cardiomyopathy (I42.6), alcoholic gastritis (K29.2), alcoholic liver disease (K70), alcohol-induced chronic pancreatitis (K86.0), accidental poisoning by and exposure to alcohol (X45), and poisoning by and exposure to alcohol, undetermined intent (Y15).

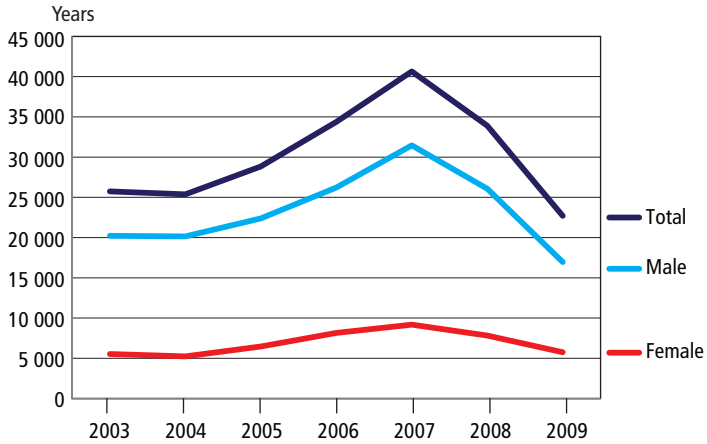


FIGURE 5. Wholly alcohol attributable Potential Life Years Lost in the age group 15–75 year olds, 2003–2009

The overall mortality and PYLL figures during the period 2003–2009 show the significant changes in the wholly alcohol attributable burden of diseases in Lithuania (see Figure 5). It was estimated that in 2003 a total number of 1 114 wholly alcohol attributable deaths were registered, of which 830 were males, and the total number of PYLL was 25 740 (976 per 100 000 population). When peaking in 2007 there were a total of 1 738 wholly alcohol attributable deaths registered, of which 1 298 were males. In 2007 the total number of PYLL increased to 40 655 (1 549 per 100 000 population aged 15–75 years). However, the declining overall mortality between 2008 and 2009 meant that wholly alcohol attributable registered deaths had declined to 1 011 cases in 2009 (727 of whom were males), and the overall PYLL declined by half to 22 700 (872 per 100 000 population aged 15–75 years).

Conclusions

Even though the goal of the National Program of Health to reduce alcohol consumption has not been achieved, in the last few years Lithuania has been experiencing a natural experiment that illustrates the effectiveness of evidence-based alcohol control policy. The continuous increase in alcohol consumption up to 2007 was fuelled by improving economic conditions in Lithuania as well as by some significant measures that increased alcohol affordability despite the aims set out in the Lithuanian Program for Health. Finally, in 2007, to address the dangerous and worsening situation, effective alcohol control measures were introduced, with the end of 2007 marking a positive turning point in alcohol-related trends.

The continuous decline of alcohol consumption and the improvement in public health indicators between 2008 and 2009 was a result of political will combined with

continuous efforts towards multi-institutional collaboration in Lithuania. The improvement in alcohol attributable problems in 2008 is usually considered to be an effect exclusively of strengthening alcohol control policies. The continued improvement into 2009 can be attributed to multiple factors. First, from the beginning of 2009, several new effective alcohol control measures were having an additional effect. Second, at the end of 2008 the economic crisis began to take hold in Lithuania, resulting in a further decline in alcohol affordability, due to declining salaries.

However, economic recovery, a lack of new effective alcohol control measures in 2010, and the adaptation of the population to the alcohol control measures introduced previously brought a halt to the positive trends. The effects of Lithuania's evidence-based alcohol control measures support the further development of alcohol control policy, although achieving further reductions in alcohol-related harms appears to be considerably more challenging. The industry, which suffers from diminished demand, is very active in lobbying behind the scenes and their economic power in many cases easily outweighs the public health arguments made by health professionals and non-governmental organizations.

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Janusz Sieroslawski

Impact of rapid decline in alcohol consumption in Poland: Increase in overall consumption or shift from illicit to licit market?

Introduction

Alcoholic beverages belong to the most commonly used consumption goods. At the same time, they are special commodities, as drinking can be associated with many negative social or health consequences that result from the psychoactive properties of the substance. In almost every culture, there is a substance with such a feature whose use is socially accepted, although it is connected with many restrictions regulated by legal sanctions and cultural norms. These norms refer to the frequency of use and the amount used at one time, and the circumstances when the substance is used.

For our culture, such a substance is alcohol. If it is used according to the norms, negative consequences are less likely to appear, but if these norms are broken, the probability of negative consequences increases. A willingness to act according to the norms is to a significant extent conditioned by the social climate of drinking, but also by State policy, which may favour alcohol consumption or may be directed towards its reduction. One of the instruments of this policy is influencing the prices of alcoholic beverages directly or through taxation. The prices and also their dynamism have a significant impact on both the extent of alcohol consumption and its structure (Österberg 2001; WHO 2010).

Alcohol policy in Poland in the 1980s was rather restrictive (Moskalewicz 1998). Alcohol supply was under strong state control. The prices of alcoholic beverages were decided by government and were relatively high. Moreover, every year the total volume of alcohol available on the market was decided by the government. The number of alcohol outlets and localisation rules were strictly defined by law. Alcohol was available only at specialised points of sale and was not available between the hours of 6.00 a.m. and 1.00 p.m., meaning that alcohol outlets were open from 1.00 p.m. until the early morning the next day. All these control measures used in Poland place our country close to the Nordic alcohol policy model.

The situation started to change at the beginning of the 1990s. During the difficult period of transition, control over alcohol supply in practical terms broke down. Alcohol appeared on the market in unprecedented volumes and outside of the registration process. The number of retailers increased significantly, without any control. The dismantling of the system of control was followed by legislative changes, which simply gave legal

sanction to the changes that had proceeded. The amendments to the alcohol law that followed weakened the control measures and increased alcohol availability. Prices were also subordinated to the market economy. Taxes appeared to be the only tool at the State's disposal to influence the prices of alcoholic beverages.

From the beginning of the transition towards a market economy, Poland experienced many alcohol scandals and issues (Moskalewicz 1998). The black market developed very quickly, especially as far as spirits were concerned. The process of liberalisation of the alcohol policy was accelerated at the beginning of the current century due to EU accession, which opened new loopholes for suppliers of illicit alcohol.

Recorded consumption of alcohol decreased almost by half, resulting in a substantial decline in alcohol revenues. In only a three-year period, 1999–2002, revenues fell by 16.4% (Odpowiedź 2006). To counteract this trend, the State decided to decrease alcohol excise tax by 30% from 1st October 2002. An additional condition was that alcohol prices would have to be decreased by at least 20% (Kilijanek 2007). As a consequence, the price of spirits dropped considerably. The idea behind this measure was that cheaper recorded spirits would make the illegal alcohol business less profitable and the black market share would be reduced as a result. The expected outcome of this intervention was a shift in at least part of the alcohol consumption from the illegal sphere towards the registered marked. The aim of this chapter is to describe the changes in the consumption of alcohol and its composition after the reduction of spirits prices, which was a result of the decrease in the alcohol excise tax.

Method

Three types of sources are used: sales statistics with data on recorded alcohol consumption, estimates of overall alcohol consumption based on alcohol psychoses statistics (which offer the possibility to estimate unrecorded consumption), and two general population surveys. The first survey was conducted first just before the decrease in taxes and prices in June–July 2002. It was commissioned by the State Agency for the Prevention of Alcohol Related Problems and the National Bureau for Drug Prevention. The second survey was conducted after the tax decrease in June–July 2003, and it was commissioned by the State Agency for the Prevention of Alcohol Related Problems. Both surveys used the same methodology. The respondents were randomly selected inhabitants aged 18 and older. Face-to-face interviews were used. Fieldwork was conducted by the same agency, the Sopot Survey Agency. In the guidelines for the interviewers, special attention was paid to the anonymity of the survey as well as the importance of not revealing the interviewer's attitude towards alcohol to the respondent, irrespective of its nature, as this may influence the results. In both surveys exactly the same methods of consumption measurement were applied. Also the time of the year (June/July) and conditions of the interviews were kept the same in order to maximise the comparability of the results.

The annual alcohol consumption per capita was estimated on the basis of questions about the last drinking occasion of spirits, wine and beer. This method, which was devel-

oped in the Nordic countries (Sariola 1956: Bruun & Hauge 1963), has been widely used in Poland since the 1960s (Święcicki 1962: Jasiński 1989: Sierosławski 1993; Sierosławski 2004). In this estimation, vodkas, cognacs, brandy etc., as well as cocktails prepared with a spirit base were included in the spirits consumption. Wines included grape wine, fruit wine, and champagne. Beer included all kinds of beer beverage, including dark beer, but not non-alcoholic beer.

The issue of purchasing illegal alcohol was carefully studied. The aim was to get an idea of the scale of this phenomenon. In that part of the survey respondents were asked to answer a set of questions concerning beer, wine and vodka purchases from the illegal market in the period of the last 12 months, the frequency of these purchases and the amounts usually bought at one occasion.

Alcohol sales statistics are routinely gathered by the Central Statistical Office at the retail-sale level (GUS 2000-2006). Data on spirits, beer and wine are reported separately as hectolitres of beverage and then recalculated into 100% alcohol by using the average alcohol content (spirits: 40%, beer: 5% and wine: 12.5%). Unregistered alcohol consumption was estimated on the basis of statistics of first admissions to hospitals due to alcohol psychosis, using the reverse regression model (Moskalewicz et al. 2000; Moskalewicz & Wieczorek 2009).

Alcohol consumption according to survey results

Table 1 presents the survey estimates of the average annual use of the three main categories of alcoholic beverages calculated as 100% alcohol and all alcoholic beverages generally. In 2003 as well as in 2002, beer dominates alcohol consumption. Spirits take the second position and wine the final position. The shares of spirits and beer are almost similar, whereas that of wine is considerably smaller.

Comparisons between 2003 and 2002 indicate an increase of 15% in average alcohol consumption. This difference, however, is not statistically significant. A statistically significant increase has only been noted in spirits consumption (increase of 25%, $p<0.05$). Wine consumption increased by 13% and beer consumption by 4%.

Changes in the consumption of alcoholic beverages resulted in changes in the pattern of alcohol use. In 2002 almost 52% of all alcohol used was beer and about 40% spirits. In 2003 the share of beer decreased to less than 48% and the share of spirits increased to 44%. It is important to notice that the share of wine has not changed and remained at the same low level of below 9%.

Further analyses allow us to observe how alcohol consumption is distributed between the frequency of drinking and intake per occasion. The presented data are limited to the consumers of individual beverages only. Table 2 presents data on average frequency of the use of alcoholic beverages as well as percentages of persons who had drunk alcohol in the previous two days and seven days before the interview. Changes that are observed while comparing the results of both surveys show that an increase in the frequency of drinking contributed most to the consumption growth.

TABLE 1. Consumption of alcoholic beverages according to surveys in litres of 100% alcohol per capita according to beverage categories in Poland, 2002–2003

	2002	2003	Increase, %
Spirits			
Consumption in litres of 100% alcohol	1.36	1.70	25%
Share of total consumption, %	39.4%	43.5%	
Wine			
Consumption in litres of 100% alcohol	0.30	0.34	13%
Share of total consumption, %	8.7%	8.7%	
Beer			
Consumption in litres of 100% alcohol	1.79	1.87	4%
Share of total consumption, %	51.8%	47.8%	
Total alcohol			
Consumption in litres of 100 % alcohol	3.34	3.85	15%

TABLE 2. Frequency of drinking by beverage categories according to surveys in Poland, 2002–2003

	Average number of occasions in a year		Percentage of consumers having drunk during the previous 2 days		Percentage of consumers having drunk during the previous 7 days	
	2002	2003	2002	2003	2002	2003
Spirits	26*	37*	5.8	10.0	27.3	30.9
Wine	15	16	5.1	5.7	14.4	12.7
Beer	75	79	37.3	40.9	65.9	69.0

* Statistically significant $p<0.05$.

Data on the volume consumed during previous use of different alcohol beverages are presented in Table 3. The average spirits consumption on a single occasion in 2003 is almost the same as in 2002, and is true for both wine and beer.

The changes in alcohol consumption are not limited to average consumption. The distribution of drinkers has changed as well. Table 4 shows a shift for all categories of drinkers in the direction of higher volumes of annual consumption. The share of respondents with the two highest consumption estimates increased substantially.

TABLE 3. Distribution of the quantity of consumption on a single occasion (percentage among consumers of a particular beverage) and average quantity by single occasion, 2002–2003

	Spirits	
	2002	2003
< 100 millilitres.	28.4	27.5
100–200 millilitres	41.0	42.8
201–300 millilitres	18.8	17.6
300 millilitres and more	11.7	12.1
Average in millilitres.	182	183

	Wine	
	2002	2003
< 100 millilitres.	62.7	63.2
101–300 millilitres	27.8	27.5
300 millilitres and more	9.6	9.3
Average in millilitres	173	170

	Beer	
	2002	2003
< 0.5 litres	27.2	27.9
0.5 litres	46.0	43.1
0.5–1.0 litres	18.1	21.3
1 litres and more	8.6	7.7
Average in litres	0.640	0.633

TABLE 4. Alcohol consumers according to level of annual consumption of alcohol beverages as 100% alcohol, percent of respondents, 2002–2003

	Percentage of consumers %			
	among all respondents**		among alcohol consumers**	
	2002	2003	2002	2003
Abstainers	18.8	17.2	0	0
< 1.2 litres	39.1	36.9	48.1	44.6
1.2–6.0 litres	26.9	25.8	33.1	31.3
6.0–12.0 litres	8.7	11.2	10.9	13.4
12.0 litres and more	6.4	8.8	7.9	10.7

** Statistically significant $p<0.05$.

Purchases of unrecorded alcohol beverages – survey data

Unrecorded purchasing of alcoholic beverage in the previous 12 months was reported by 6.4% of the respondents in 2002 and 6.3% in 2003. This difference is not statistically significant, so it can be assumed that in the period between the two surveys, the number of clients using the illicit alcohol market had not changed.

Data on the frequency of the purchases of different alcoholic beverages on the black market collected in 2002 and 2003 are presented in Table 5. In 2002 the percentage of respondents who had bought wine (2.0%) was the smallest of the alcoholic beverage categories, followed by beer (3.5%) and vodka or other spirits (4.8%). In 2003 the percent-

TABLE 5. Frequency of the purchases of different alcohol beverages on the illegal market, percent of respondents, 2002–2003

	Beer*		Wine		Spirits	
	2002	2003	2002	2003	2002	2003
Daily	0.2	-	0.1	-	0.1	-
3–4 times in week	0.5	0.2	0.1	0.2	0.0	-
1–2 times in week	0.7	0.2	0.1	-	0.2	0.2
2–3 times in month	0.7	0.5	0.2	0.2	0.7	1.0
6–11 times in month	0.3	0.3	0.1	0.4	0.5	0.3
2–5 times in 12 months	0.7	0.2	0.8	1.0	2.0	1.5
Once in 12 months	0.4	0.7	0.6	0.8	1.2	1.4
Not in the last 12 months	96.5	97.9	98.0	97.5	95.2	95.6

* Statistically significant $p<0.05$.

ages for those who had purchased spirits or wine illegally had not significantly changed. However, the percentage of people who had bought beer illegally had decreased, while the frequency of beer purchases also declined.

Alcohol consumption according to statistical data

Data on the registered annual consumption of spirits, beer and wine for the period 1999–2004 are presented in Table 6 and in Figure 1.

Table 6 shows consumption in litres of 100% alcohol per capita, while figure 1 illustrates the relative trends as an index when 1999 is 100. The annual spirits consumption per capita went down by 20% from 2.1 litres in 1999 to 1.7 litres in 2001. A stabilisation is observed in 2002 and then a rapid increase in 2003. As a result of this process the spirits consumption in 2003 was 41% higher than in 2002 and 15% higher than in 1999. In 2004 a slight increase was observed, followed by stabilization.

TABLE 6. Registered consumption of spirits, beer and wine in litres of 100% alcohol per capita, 1999–2005

	Spirits	Beer	Wine
1999	2.1	3.0	1.7
2000	2.0	3.3	1.5
2001	1.7	3.3	1.3
2002	1.7	3.5	1.4
2003	2.4	3.7	1.4
2004	2.5	4.5	1.3
2005	2.5	4.4	1.0

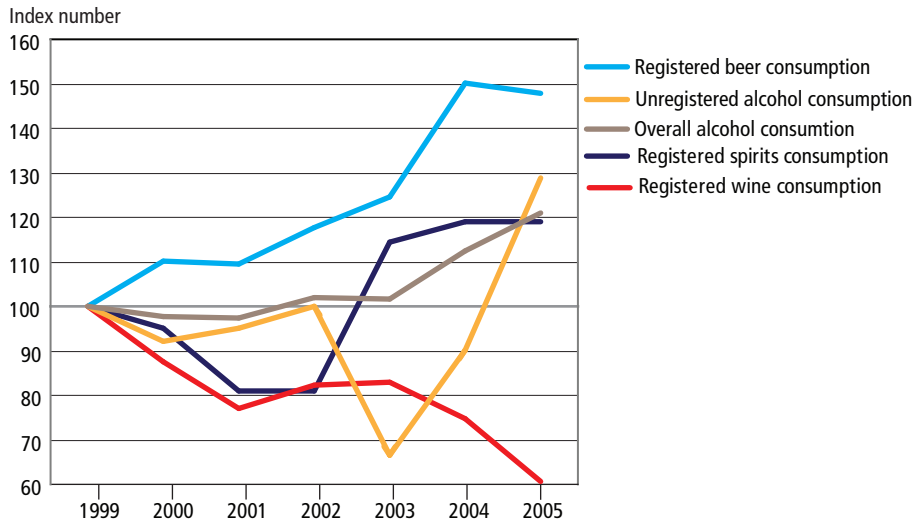

FIGURE 1. Registered and unregistered consumption of spirits, beer and wine, 1999–2005 (1999 = 100)

Registered beer consumption was in an ascending trend over the whole period 1999–2005, with some small fluctuations. The consumption in 2005 was some 50% higher than in 1999. Registered wine consumption decreased by 40% over this period.

Estimated unregistered alcohol consumption dropped by 33% in 2003, but in 2004 and in 2005 it increased. As a result, the level of estimated unregistered alcohol consumption in 2005 is 30% higher than it was in 2002, surpassing even the initial level of 1999. The estimated unrecorded alcohol consumption and recorded alcohol consumption in litres of pure alcohol per capita is presented in Figure 2.

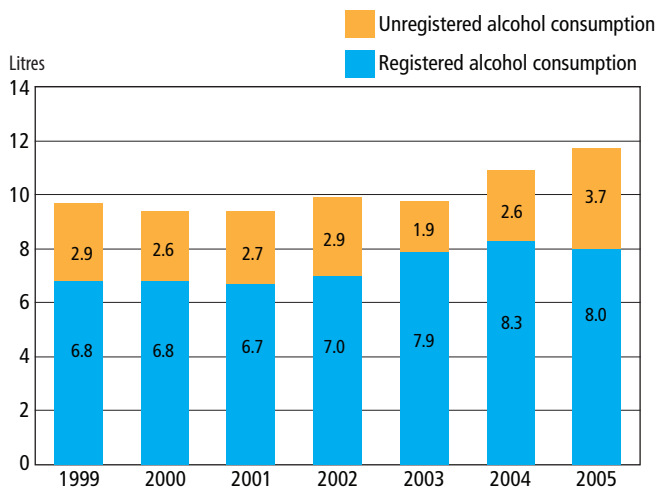

FIGURE 2. Recorded and estimated unrecorded alcohol consumption in litres of 100% alcohol per capita in 1999–2005

In the period 1999–2002, unrecorded alcohol consumption amounted to 2.6–2.9 litres per capita and constituted about 28–29% of the total per capita consumption. In 2003 unrecorded consumption dropped down to 1.9 litres, which was 19% of total alcohol consumption. In 2004 and 2005, both the quantity and share of unregistered consumption increased and in 2005 it reached 3.7 litres and 31.5% respectively.

Discussion

Survey results are mostly used to analyse the distribution of consumption and patterns of drinking. Previous estimations of consumption made on the basis of surveys, with one exception, have always been significantly lower than consumption recorded in sales statistics, in the same manner as in other countries (Jasiński 1990, Midanik 1982), which follows as a result of the characteristics of the survey method. Two basic sources of data bias can be distinguished: mis-statements in the respondents' declarations caused by memory bias concerning facts and also the circumstances of drinking, as well as underrepresentation of people excessively drinking in the sample, which in turn may result from difficulties in establishing a contact with them or from their intentional concealment of the extent of their drinking. This second source seems to be especially significant due to the high concentration of use among heavy drinkers. Although surveys results are not the best source for making direct estimations of overall alcohol consumption in a society, they allow for tracking changes in consumption if comparability is assumed.

A comparison of the results of the 2002 and 2003 surveys show a significant 25% increase in per capita annual spirits consumption. In the same period, spirits consumption recorded by sales statistics increased by 41%, which implies that unrecorded alcohol consumption decreased by 53%. Unfortunately, we are not in a position to estimate the unrecorded spirits consumption, but we can assume that spirits represent the major part of unrecorded alcohol consumption. In 2003 the estimated total alcohol consumption remained relatively stable. The described picture could be interpreted as a compensation model of change. The increase in recorded spirits consumption was compensated for by a decrease in unrecorded consumption. It could be concluded that from a short-term perspective the goal of a tax decrease was achieved. However, the success lasted for one year only. In 2004 and even more so in 2005, unrecorded alcohol consumption increased again, contributing significantly to an increase in total alcohol consumption. The recorded spirits consumption also increased in 2004, but much less, while 2005 saw a stabilisation in consumption.

An attempt to estimate the market share of unrecorded, possibly illegal alcohol failed in this survey. The number of respondents who admitted purchasing alcohol from illegal sources did not change after the excise tax diminished. It may indicate that a substantial part of the illicit supply goes through a legal network of supply and consumers are not aware that they buy illicit product. We may suppose therefore that the decrease in unrecorded alcohol consumption in 2003 was related mostly to changes in that part of the black market that is not visible to consumers.

A comparison of the survey results from 2002 and 2003 shows that a decrease in spirits prices led to an increase in the frequency of drinking. Average spirits consumption on a single occasion did not change. It seems that this model of change in the drinking pattern is less harmful from the perspective of the risk of acute alcohol problems. On the other hand, the increase in the share of heavy drinkers among alcohol consumers increases the overall risk of alcohol problems.

Conclusions

The question formulated in the title of this chapter can be answered in the following way: In the situation of extended unrecorded alcohol consumption, mostly from illegal sources, the intervention policy of decreasing the price of legal spirits appears to have led to increased legal sales and diminished unrecorded consumption in the short-term. After one to two years the effect disappeared, and the compensation model transformed into a cumulative model of change. Unregistered consumption went up and overall total consumption increased too. The changes may have caused an increase in the share of heavy drinkers, contributing to higher risks of alcohol-related problems.

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Vendula Běláčková and Michaela Stefunkova

Czech Republic: Alcohol use and related harm in the period of transition

Introduction

The Czech Republic, part of the former Czechoslovakia, is a country that after the so-called Velvet Revolution in 1989 experienced turbulence during a period of transition with respect to social and economic conditions. Due to market liberalisation, the number of private entrepreneurs rose almost ten-fold between 1990 and 1993. Societal reactions during the transition period saw increased divorce rates, a decreased number of births that reached a 20-year minimum in 1999, postponement of motherhood until later age, and other socio-demographic developments. This all brought changes to lifestyles, altered the burning issues of individual citizens, families and communities, and changed their coping strategies. The transition period also represented a historical peak in per capita recorded alcohol consumption in the Czech Republic, as shown by data provided by World Health Organization (WHO).

The Czech Republic emerged out of the peaceful break-up of Czechoslovakia in 1993, which gave rise to the Czech Republic and Slovakia. Czechoslovakia had long been a country with one of the highest rates of per capita alcohol consumption in the world, with peaks of over 16 litres of pure alcohol per capita (WHO, 2012). It had also had one of the highest beer consumption rates in the world with around 160 litres of beer per capita (VBO, 2008). In 2008, 92% of the population aged 15–64 years had drunk alcohol at least once in the previous year with 85% having done so more than once (Běláčková et al. 2011) and 19% of the population could be classified as risky drinkers and 2% as problem drinkers (Sovinova & Csemy 2010).

Longitudinal ESPAD data have shown an increase in frequent excess drinking among the school population in the previous 30 days, rising from 14% in 1995 to 20% in 2007 and 21% in 2011 (Csemy et al. 2008; Csemy & Chomynova 2012). This is, however, not accurately reflected in recorded demand for treatment (Vondráčková & Šťastná 2012). Several cultural traditions contributed to the increased levels of drinking, including a traditional beer industry with long-standing local breweries across the country, and beer taxation that was low in a European context (WHO, 2004). Alcohol was the sole drug in the era of socialism, when other psychoactive substances were scarcely available. However, alcohol use has been replaced by illicit drugs in the late 1990s (Radimecký 2007), at least in terms of the 'demand for treatment' indicator recognised by EMCDDA (Nechanská et al. 2011).

This chapter will present the trends in alcohol consumption in the Czech Republic, as well as the trends in alcohol regulation, price, demand reduction and harm reduction. Its goal is to describe the patterns and risks of alcohol use under conditions of societal transition, and the responses to this in the form of alcohol policy, which itself has undergone significant developments.

This chapter uses WHO data on alcohol consumption in the Czech Republic, OECD statistics with respect to health conditions attributable to alcohol use, and also builds upon a unique, recently published analysis of Czech healthcare registries (Mravčík et al. 2011a; Mravčík et al. 2011b). At the same time, an analysis of the legal regulations relating to alcohol was carried out, as well as an analysis on prices and excise duties using data gathered from the Czech Statistical Office.

Trends in alcohol consumption in the period of transition

Due to the lack of data on unrecorded alcohol consumption covering the whole period, we will describe the trends in alcohol consumption based on recorded alcohol consumption per capita aged 15 years and older between the years 1980 and 2009. The source for the statistics has been the World Drink Trends statistics between 1980 and 1999, and later, the Czech Statistical Office from 2000 to 2009 (Figure 1). In this period alcohol consumption declined from 15.8 to 14.7 litres in the 1980s, but thereafter rapidly increased to a historical high of 16.3 litres, stabilising at that level in the first two years of transition in the early 1990s, and then again in the years 1997–1999. The next peak of 15.5 litres was reached in 2003, a year before the Czech Republic joined the European Union. Women were responsible for a significant share of this increase, since their consumption increased significantly faster than that of men (Kubicka et al. 2006). Only after 2004 did alcohol consumption appear to properly stabilise in the country, while also declining below 15.5 litres per adult (see Figure 1). However, as this chapter will show, it was only then that the impact of previous drinking periods started to be seen in public health statistics.

In the period between 1980 and 2009, the relative share of spirits of the total consumption of alcoholic beverages declined. This has rather been to the benefit of wine consumption, which has increased moderately. Nevertheless, beer is still the beverage of choice, with its share of 60% of the alcohol market, having peaked at 63% in the early 1990s and again in 2004–2005 (Figure 2).

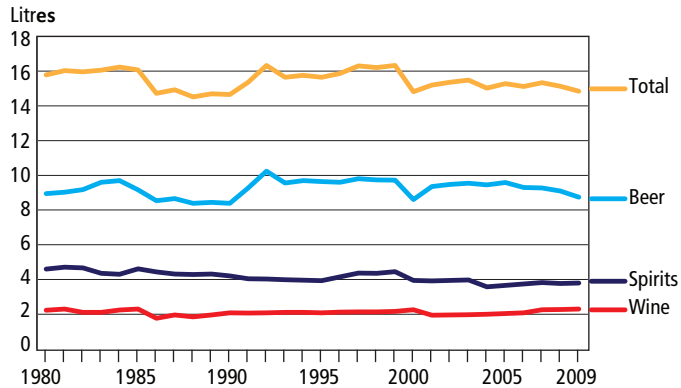


FIGURE 1. Recorded alcohol consumption and consumption of spirits, wine and beer in terms of 100% alcohol per inhabitant aged 15 years and over, 1980–2009

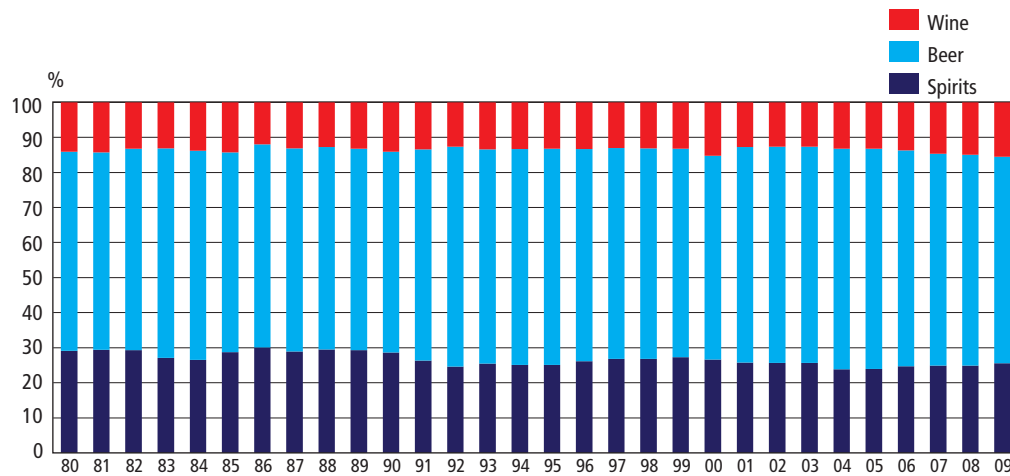


Figure 2. Alcohol consumption in the Czech Republic in 1980–2009 by beverage category, %

History of alcohol regulation in Czechoslovakia and the Czech Republic

In the decades after the Second World War, alcohol policy became largely influenced by the socialist ideology, especially with the Act on the Fight against Alcoholism (no. 120/1962) which was in force until 1989. The fight against alcohol was a duty of society. This Act was aimed especially against drinking large amounts of alcohol or drinking in inappropriate circumstances, and it replaced the Act on Combatting Alcoholism (no. 87/1948).

Co-ordination of alcohol policy became systematic in 1962 with the Act on the Fight against Alcoholism, when the Central Anti-Alcohol Committee was established. It co-ordinated and methodically guided the 'fight against alcoholism'. At the local level, the fight against alcoholism and the implementation of preventive measures were guided by National Committees through their local anti-alcohol bodies, which were in existence until 1989. Since then there has not been any independent institution that would be in charge of alcohol policy in the Czech Republic.

Right before the political changes at the end of 1989, the new Act on Protection against Alcoholism and other Toxicomania (no. 37/1989) came into force. One of the reasons for its introduction was the necessity to also pay attention to other addictive substances (tobacco and illicit drugs) that were omitted from the previous regulatory acts. In comparison to its predecessors, the Act was less strict, placing less emphasis on specific prevention and education. For example, an obligation on alcohol retailers to advertise non-alcoholic beverages was cancelled. Protection against alcoholism fell under a separate section of the Ministry of Health and Social Affairs, which set up the tasks for the Ministry and for other governmental authorities, municipalities and counties. Prevention was placed within the competence of appropriate ministries (headed by the Government), without specifying what should be covered under prevention. This regulation remained valid until 2006, when it was replaced by the Act on Measures to Protect against Damage Caused by Tobacco Products, Alcohol and other Addictive Substances (no. 379/2005). Here the focus on psychoactive substances other than alcohol has become stronger than before.

Alcoholic beverages as the subject of regulation were originally defined as beverages containing more than 0.75 per cent of alcohol by volume. In 2006, this limit was decreased to 0.5 per cent (the same level was used already between 1922 and 1948). The following section will describe the regulation in terms of availability by age and occasion, and the related sanctions.

Restrictions on availability

When it comes to availability by age, all Acts banned selling, serving, offering and mediation of alcohol to persons younger than 18 years of age, with the obligation to withhold service in the case of doubts about age unless the person requesting a drink can prove his/her age by means of an official identity card. Nevertheless, up until 1989, there was an exemption to this for minors who were carrying beer off-premises intended for adult consumption, and this, to an extent, allowed access to alcohol by minors. Moreover from 1962 to 1989, entrance to public places where alcohol was served after 8.00 p.m. was forbidden to minors aged below 15 years, unless accompanied by an adult. Since 2006, alcohol providers have been obliged to install a visible notice of a sale-ban to minors in their businesses and at all events intended for minors. It is also forbidden to sell or serve alcohol in all types of schools or school facilities and via all means that do not allow for age verification, such as vending machines or mail order.

Other restrictions on availability have been a ban on serving alcohol to persons that were drunk or visibly under the influence of alcohol. Since 1989 a person under the influence of other addictive substances could also not be served. Since 1989 it has been prohibited for these persons to enter public transportation in case they behaved dangerously or caused a public nuisance. In 2006, the list of such places was significantly extended. In the pre-1962 Act we can find bans on serving alcohol also to people who performed risky activities, such as vehicle drivers. The current law leaves the responsibility of the outcomes of drinking alcohol to the individuals themselves, who could be for instance charged under a paragraph on public endangerment in the criminal law, if tested to be alcohol-positive. Since 1962 drivers have a duty, upon the request of authorised subjects, to undergo an alcohol test.[1] According to the 2006 law, if the person refuses to undergo the test, he/she will be automatically considered as under the influence, and charged with the above.

Since 1948 it had been forbidden to drink alcohol at dance events, except beer and wine. Since 1962, it was also forbidden to serve and drink certain kinds of alcohol at cultural events, similar to prior restrictions on serving and drinking beverages other than wine or beer in factories, canteens, public meetings and sports events. The 1989 and 2006 Acts alleviated these restrictions, except for events intended for minors. On the other hand, it was forbidden to serve alcohol to medical patients until 1989; in 1989 and 2006, this restriction was even extended to medical institutions as a whole. All the above-mentioned laws also entitled local authorities to extend restrictions concerning alcohol beyond the above-mentioned prohibitions.

In 2006 the first ever restrictions on selling alcohol from retail stores were introduced. Alcohol can be sold only in designated specialised stores and specialised departments[2] or in eating, accommodation and cultural facilities, as long as they are not intended for persons under 18 years of age. An exception would be the occasional sale of alcoholic drinks served at festivals, traditional events, annual markets and similar events. The restriction was also set for people selling or serving alcohol, who must be over 18 years, except for students undergoing specific professional training. A novelty among the restrictions was the ban on the sale, production and import of toys with the shape or appearance of alcoholic beverages.

Sanctions

Prior to 1962 serving alcohol to minors to the extent that it would damage their health could lead to criminal conviction, with punishment of up to six months in prison. Under special conditions, imprisonment from three days to three months could also be imposed for serving alcohol to an adult person, for example, to somebody who could be

1 From 1989 this requirement also applies to persons for whom there are grounds for suspicion that the injury for which they are responsible was caused under the influence of alcohol.

2 However, any part of the store can be labelled as a 'specialised department'. Therefore, no significant restrictions on retail sales of alcohol can be found in the Czech Republic.

dangerous or aggressive after drinking; or even for drinking if the individual choosing to drink knows that he would behave aggressively after drinking.

The subsequent Act (1962) did not contain any direct sanctions, although a violation of alcohol-related prohibitions could be punished according to special legislation (Act No. 60/1961 Coll.)[3] as a misdemeanour contrary to the anti-alcoholism fight, with a fine of up to 500 Czech koruna (CZK). Since 1989, the Acts contain directly only sanctions for businesses operating an establishment where alcohol is served. Violations could bring a fine of up to CZK 50 000 in the case of a legal entity and up to CZK 5 000 in individual cases. These were generally discussed as too low penalties for discouraging alcohol retailers from selling to minors. Since 2006, the sanctions have been the same for both groups.

Nevertheless, as mentioned above, even for violations that do not mention formal sanctions, these can be punished according to special legislation, such as the Misdemeanour Act (No. 200/1990 Coll.) or in the case of more dangerous forms of behaviour, according to Criminal Code Act No. 40/2009 Coll., such as driving under the influence or serving alcohol to minors. At this point it is appropriate to mention the specific crime of Inebriation. This offense was amended to the Czech Criminal law in 1991, according to the model provisions of the Criminal Code from 1950. It can be applied to an offender who has become insane after drinking alcohol (i.e., at the time of the offense, he/she cannot control his/her actions or recognise its illegality, which would otherwise exclude criminal liability) and committed an act otherwise considered a crime in this state. For the crime of Inebriation, an offender can be punished with 3 to 10 years of imprisonment. The crime of Inebriation is based on the concept of 'Rauschdelikt'. This approach represents a 'middle way' between two extremes. According the first, an offender is not criminally liable as a result of his/hers insanity despite the fact that he/she himself/herself inflicted the insanity by ingesting psychoactive substances, and committed the offence in this condition. The second option is the application of full criminal responsibility if a perpetrator's insanity is caused by consumption of psychoactive substances, where the insanity as a circumstance precluding criminal responsibility is not taken into account.

Alcohol taxation and prices

The transition period brought high levels of annual inflation, with a median of 10% during the 1990s. In 1991, after significant privatisation of State industries, prices had risen 57%, and in 1993, the year Czechoslovakia split into the Czech Republic and Slovakia, the inflation rate was 21%. Overall, nominal consumer prices increased five-fold between 1989 and 2011. Some alcoholic beverages followed the same pattern. According to the Czech Statistical Office, the price of bottled lager beer in a retail store was CZK 2.50

3 This Act replaced the previous regulation (Act No. 88/1950 Coll.). According to this previous draconian law, an offender could be punished with a fine up to CZK 50 000 or even by imprisonment for up to two months.

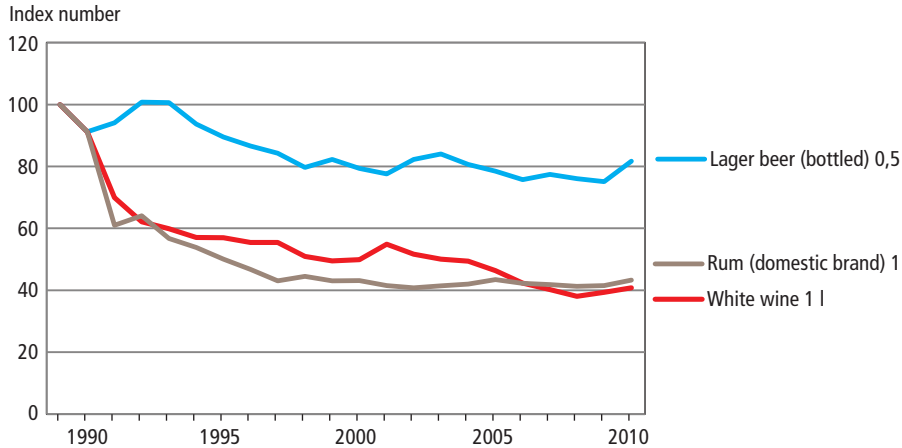


FIGURE 3 The real price of alcoholic beverages by beverage category as indices in 1989–2010, when 1989=100

in 1989, and CZK 10.5 in 2010. However, not all goods or beverages increased in price at the same pace. The price of a litre of wine was CZK 30 in 1989, and it was CZK 60 in 2010, and the price of a litre of domestically produced rum was CZK 100 in 1989, and it was CZK 213 in 2010.

This also means that in spite of rising trends in nominal prices, real alcohol prices declined. Relative prices of beer, after an initial increase in the first years of transition, declined by 20% up to 2001, and then levelled off. Wine and spirits prices dropped rapidly, a decline of roughly 40% in the period from 1989 to 1991, followed by a slower decline since 1991 (see Figure 3).

Similarly, the revenue from excise taxes on alcohol have been increasing since the early 1990s. Nevertheless, after adjusting for inflation, the State revenues from alcohol declined by one third, from CZK 7.5 billion at the beginning of the 1990s to about CZK 5 billion in 2009 (Figure 4).

When it comes to the home production of alcohol, strict regulations were in place for the whole period. In 1962 a ban on homemade spirits production was introduced, and along with this, a new crime of illegal production of spirits was added to the Criminal Code. For this offence, an offender could be sentenced up to one year of imprisonment. This crime was only repealed in connection with the Criminal Code recodification in 2010, and nowadays this activity can be prosecuted as a misdemeanour only.

However, debates on illicit alcohol production aimed at avoiding excise taxation have become more energised recently. A manifestation of this occurred in September 2012, when the Ministry of Health of the Czech Republic declared a prohibition on spirits with more than 20% of alcohol by volume as a response to 19 fatal methanol poisonings in the space of 8 days. The fact that public officials took another 10 days to discover the main source of alcohol adulterators revealed how extensive the practice of illicit alcohol production on an industrial level is in the Czech Republic. After 2010, the excise tax on liquors increased without adopting appropriate control measures. This could

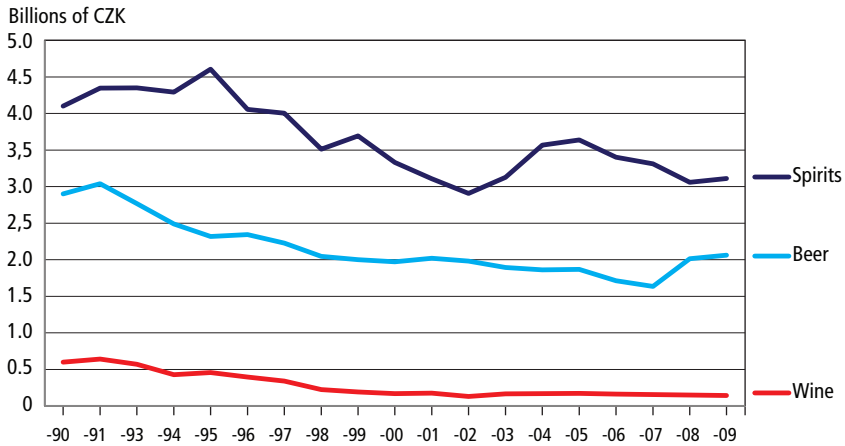


FIGURE 4. Real excise tax revenues from alcoholic beverages in 1993–2011 in billions of CZK in 1993 value.

have the effect of accelerating illicit production. However, the origins of this issue likely dates back much further. For instance, in 2008, WHO estimated that annual unrecorded alcohol consumption in the Czech Republic was 1.5 litres per adult. If this estimate was to cover liquors only, it would account for one third of the liquor market at that time.

Demand reduction

Since 1948 treatment, including in-patient treatment, for alcohol abusers has been mandatory. In 1962, an alcoholic was defined as a person whose drinking led repeatedly to states that provoke a public nuisance or had a negative effect on his family or his work performance; or that this state was otherwise harmful to public interests; or these were persons whose health was damaged by alcohol abuse. In 1989 the wording of this definition changed from alcoholic to addicted person. These were individuals who were unable to permanently refrain from excessive or otherwise harmful consumption of alcoholic beverages, and thus were causing serious disturbances to their health or having seriously disrupted social relations. Addiction was assessed by specialised clinics at the request of the person or of other subjects, with the possibility of coercive measures. There was a special register of addicted persons; one could be excluded from the register only after at least two years of abstinence. The coercive nature of addiction is a possible explanation for the trends in decreased demand for addiction treatment in the period of transition.

As an extreme protective measure in the fight against alcoholism, from 1962 to 2006 it has been possible to pay an alcoholic's salary to another recipient. These resources could only be used to cover the living necessities of an alcoholic, his children and other dependents of the alcoholic. In 2006, treatment became voluntary, payment of salary to

another person was cancelled, and the new law extended the spectrum of types of professional care. Healthcare workers were also obliged to provide a brief intervention for persons using alcohol.

The socialist regime placed a huge stigma on addiction as an issue, which was difficult to accept. Under these conditions, contrary to the experience of western countries, no self-help alcohol treatment groups could be found, and alcohol treatment was only founded by dedicated psychiatrists (Gabrhelik & Miovsky 2009). In 1948, the first alcohol treatment facility was started in Czechoslovakia by a psychiatrist Jaroslav Skala, being the Unit for Addiction Treatment at the Psychiatric Clinic of the First Faculty of Medicine. The program was based on a bio-psychosocial approach. It used cognitive-behavioural techniques, aversive pharmacotherapy with disulfiram, developing a negative conditioned reflex towards the effects of alcohol, and social work with alcoholics and their families (Popov 2005). Disulfiram has been used in alcohol treatment in the Czech Republic up to the present day.

The number of individuals in treatment has recently been analysed by a group of authors who explored health statistics between 1959 and 2008 in order to reveal trends in addiction treatment in recent decades, including the impact of the transition period (Nechanská et al. 2011). The data were presented separately for the period 1959–1991, when addiction treatment facilities kept separate records, and for the period 1992–2008, when addiction treatment data were included in overall psychiatric reporting. Due to several limitations regarding the evolving reporting requirements, we will present out-patient treatment records since 1986.[4]

In 1986, there were 61 300 addicts in out-patient addiction treatment facilities, out of which 51 800 were males and 9 400 females. The number of patients in addiction treatment services started to drop steeply after 1989, down to 40 600 patients in 1990, further decreasing until 1995, where it dropped to below 20 000 (Figure 5). Up until 1992 this figure did not differentiate between those addicted to alcohol and to other substances. However, we can expect their share to be rather small up to 1998. This partially reflected the fact that poly-substance use was practiced, and most individuals who abused available illicit drugs and pharmaceuticals typically abused alcohol in high doses based on the availability of other substances at that time (Miovsky 2007). As we can see from further statistics, 99.4% of males and 89.4% of females in out-patient treatment were only using alcohol in 1992. In 1998 the share of alcohol clients dropped to 74.7% of men and 68.8 % of women, and in 2008 only two-thirds of the patients suffered alcohol-related disorders. In absolute terms, the peak number of alcohol users in addiction treatment was 37 400 patients in 1992. In the whole transition period, the number of alcohol addicts in out-patient alcohol treatment ranged from 21 000 in 1995, to 24 700 patients in 2004, with the exception of the peak years of 1997 (29 700 persons), 2005 (26 200 persons) and 2006 (26 600 persons).

4 The data available prior to 1986 included all registered patients for every year, thus the statistics had a cumulative nature. Since 1986, actual patients in each year were reported.

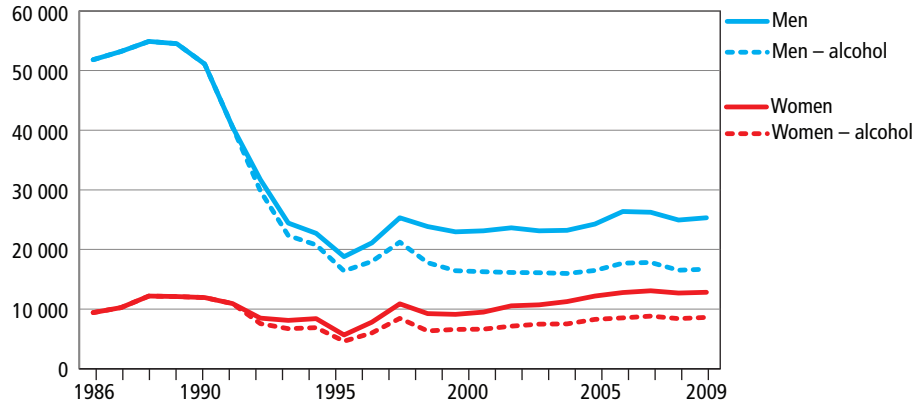


FIGURE 5. Total number of patients treated for addictive disorders and the number of those patients addicted to alcohol in out-patient treatment by gender, 1986–2009

When it comes to residential treatment, the number of treated patients with alcohol disorders since 1986 was less turbulent than seen in out-patient facilities, and was in contrast reported for alcohol separately during the whole period. There was a sudden drop in 1993, caused by a lack of data from 2 out of 15 psychiatric hospitals in those days in Czechoslovakia. Peaks in the number of people in treatment for alcoholic disorders were seen in 1989, 1997 and 2003–2005 (Figure 5).[5]

Moreover, the overall increase in alcohol treatment hospitalisation between the 1980s and 2005 were incurred despite a steady decrease in total psychiatric beds in the country. These dropped from 15 200 beds in 1985, to 14 500 beds in 1990, to 10 900 beds in 2008 (Figure 6). Alcohol-related hospitalisations in psychiatric care increased their share of overall psychiatric hospitalisations in the period, growing from 15.9% of all psychiatric hospitalisations in 1985, and 17.0–17.7% between 1990 and 2000, to 19.3% in 2005, before stabilising at 16.9% in 2008. Therefore, an increase in addiction treatment indicators was observed despite decreased availability of addiction treatment.

The above-presented in-patient and out-patient alcohol treatment indicators have shown that increases in recorded alcohol consumption were well reflected in the treatment data between 1992 and 2008. Out-patient treatment peaked in 1997, at the end of the increased alcohol consumption period, same as in 2005 and 2006, after a peak of alcohol consumption in 2003. In this respect, out-patient treatment demand was responsive to consumption volume in the short run. In-patient treatment data showed peaks in the same years as those seen in out-patient treatment. In-patient treatment data, however, were seen to steadily increase between 1994 and 2006 (see Figure 7). This suggests that in-patient treatment overtook the cumulative effect of alcohol disorders from previous periods.

5 This figure is based on statistical reporting of patients who were discharged from hospital in the given year or who died during the period of hospitalisation.

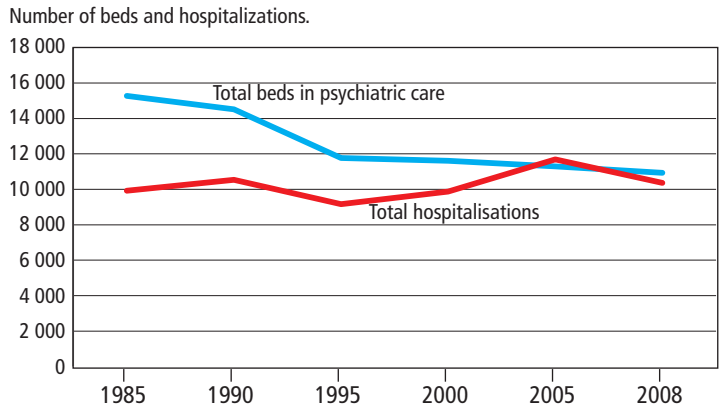


FIGURE 6. Number of beds and hospitalisations for alcohol disorders in psychiatric care, 1985–2008

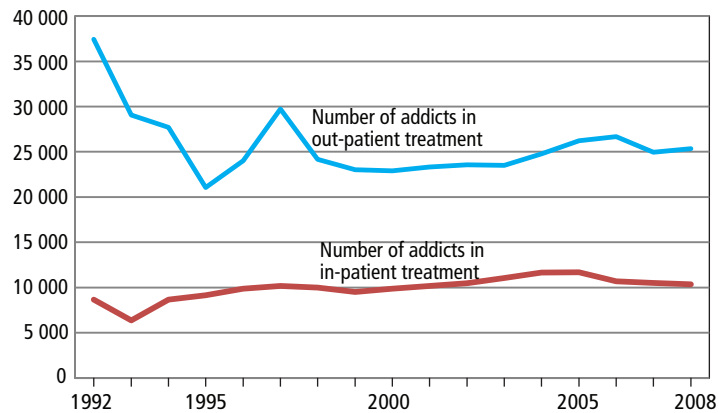


FIGURE 7. Number of alcohol addicts in in-patient and out-patient treatment, 1992–2008

Harm-reduction measures

The Czech Republic has developed a system of regionally based sobering-up stations in response to the traditional drinking culture. The stations became part of the health-care system in 1951, under the founding of Czech alcohologist Jaroslav Skala. The first references to these special facilities intended for persons who cause public nuisance or are aggressive or otherwise dangerous while under the influence of alcohol are found in the 1962 Act. These persons were obliged to undergo treatment in these facilities until they were completely sober. From 1989 the establishment, management and operation of these special facilities was described in more detail in the enforcement Decree No. 187/1989 Coll. The current regulation of sobering-up stations is only included in the 2006 Act, and is more succinct compared to previous regulation.

These services have been gathering up excessively drunk individuals, predominantly with the help of the police, and allowing them to sober-up under medical supervision (Nechanská et al. 2011). As such, their unique focus effectively merges public health and public safety measures, providing a detention facility for excessively drunk individuals under medical supervision, or to put it another way, providing a specialised medical service for excessively drunk individuals who are potentially endangering themselves. The aim of this service has been to prevent further negative health and criminal consequences. The service was not an isolated intervention in those days, and was linked to the system of addiction treatment in Czechoslovakia. The number of detention centres reached 17 in 1955, 48 in 1965 and more than 70 in 1989, many of them transforming into detoxification units in the early 1990s (Popov 2005). Currently, around 30 detention centres are operative, funded by regional governments. A fee is paid for the service by individual clients on a per night basis. Despite changing public support and the number of these stations (Mravcik et al. 2010), they have until now represented a significant harm-reduction intervention in response to alcohol use.

The number of individuals in sobering-up stations has ranged from 33 000 at its peak in 1980 to the lowest level of 9 300 seen in 1996. Similar to out-patient treatment, the availability of the service suffered after the health-care transition, and a steep drop in detained patients was observed (Figure 8). Only since 2005 has the use of the service reached the level of the early 1980s, that is, 27 500 patients. Signs of an increase in service use could be seen in the late 1990s and after 2004; however, the number of patients did not perfectly correspond with recorded alcohol consumption in the Czech Republic, but rather reflected service availability and the turbulent financial situation of the 1990s, as seen also in the changes in reporting and institutional use of the service.[6] This need not mean that the peak in actual service demand was not hidden in the sudden increase of service use that happened after 2004.

6 Since 2006, a new form was implemented in sobering-up stations reporting. Despite the required fields seeming to be identical, no other plausible explanation has been provided for a steep increase in their patients since then. It shall be noted however that sobering-up stations are commonly used by police officials to perform toxicological analysis on blood samples of individuals who are suspected of committing a crime under the influence of alcohol, including drink driving. Different patterns in this police practice, possibly linked to implementation of 2006 Act, could potentially alter the reported number of serviced patients.

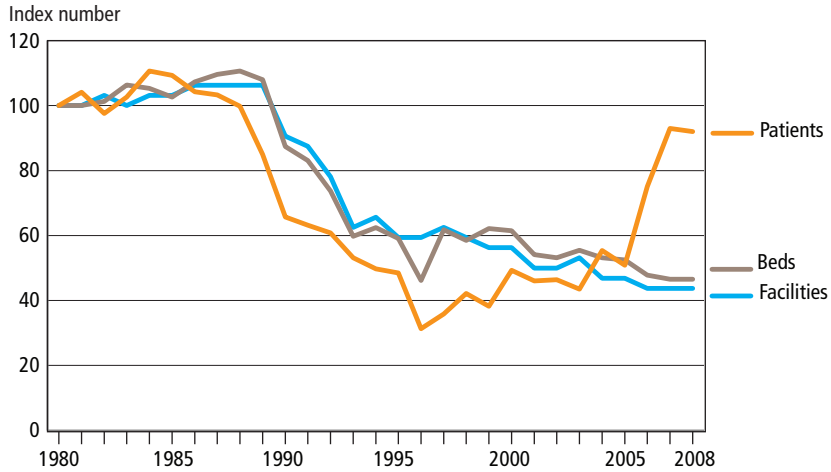


FIGURE 8. Number of sobering-up stations, beds and patients as indices in 1980–2008, when 1980=100

Health-related outcomes

We also tried to assess the impact of increased alcohol consumption in the transition period on those health indicators directly attributable to alcohol consumption. We extracted from the OECD database the relevant data on mortality due to chronic liver disease and liver cirrhosis, due to accidents, and due to alcohol use disorders, and constructed a yearly percentage change compared to the baseline year 1986, when the data were first available (Figure 9). These health conditions were highly correlated with risky patterns of alcohol use. In the Czech Republic as of 2007, the aetiological fraction of liver cirrhosis (K70 in ICD10) due to alcohol use was estimated to be 0.86 for males and 0.34 for females (Jones et al. 2008; Single et al. 1998; Zábranský et al. 2001). The aetiological fraction of accidents (V01–V09 in ICD10) was estimated to be 0.74 for males and 0.22 for females.

Interestingly enough, there has been no increase in mortality related to alcohol use disorders in the years when recorded alcohol consumption was peaking (1993, 1997, 1998 and 1999). The peaks of such alcohol-related deaths were rather in the transitional years 1988 and 1990, with a significant drop during the 1990s, and a steep increase in 2005, shortly after another alcohol consumption peak in 2003 was identified in the country. Similarly, the period 1989–1991 were peak years for mortality related to chronic liver diseases and liver cirrhosis; with minor peaks in 1989, 2003, 2005 and 2007 that are, however, negligible compared to the previously mentioned elevation in mortality for the period 1989–1991. When considering mortality related to accidents, there was an ongoing, decreasing trend over the observed period, except for the years 1995 and 2003. Only in 2003 could we directly associate it with an increased volume of alcohol consumption.

Available mortality-related health indicators in the selected period of the pre-transition era, the period of transition, and from the current period have shown only a mod-

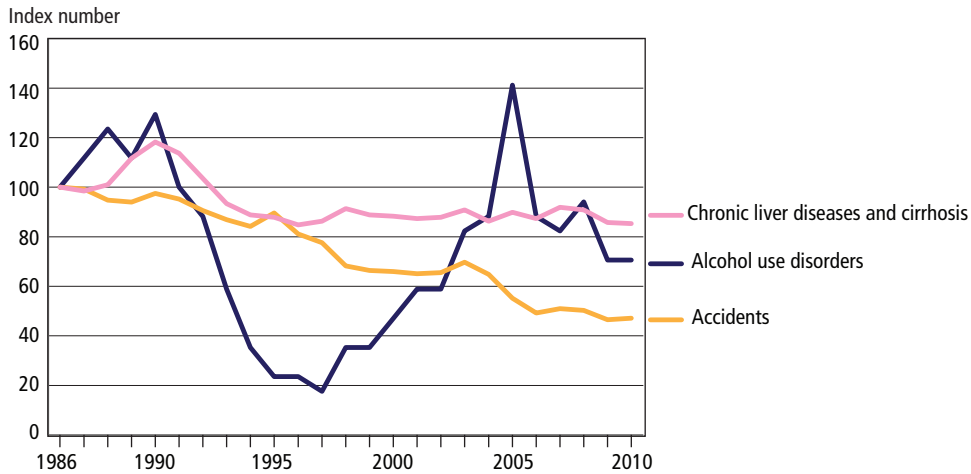


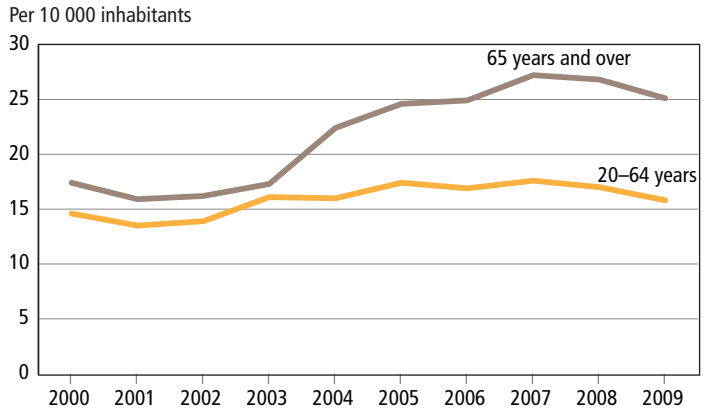
FIGURE 9. Mortality due to chronic liver disease and liver cirrhosis, due to accidents, and due to alcohol-use-disorders-related mortality as indices in 1986–2010, when 1986=100

est effect from increased alcohol intake in the period of the 1990s. We could hypothesise that the observed peaks in the transitionary years were rather reflective of the share of the beverage type consumed - the lesser the share of spirits, the lesser would be alcohol-attributable mortality, as known from the experience of alcohol prohibition (Hall 2010: Miron 1999;, Levine & Reinarman 1991). If the recorded peak in alcohol-related mortality in accidents shown in 2005 is accurate, and an accumulation of alcohol disorders contributed to it, we could suggest that in 2006 and the follow-up years, alcohol-related harms decreased as a consequence of the increase in the use of sobering-up stations.

While mortality data could be partially influenced by the quality of health care services, when it comes to morbidity trends, alcohol cirrhosis among hospitalised patients has been on the increase in the last decade, continuing patterns of elevated use seen previously (seen as an increase among population aged 65 years and older in Figure 10), same as from the current period.

Discussion

We analysed trends in alcohol consumption, its regulation and demand, as well as the issue of harm reduction. This chapter has shown increased alcohol consumption in the period of societal transition in the Czech Republic and the former Czechoslovakia, with significant peaks in 1990–1993, 1997–1999, and in 2003. This could have been partially due to the indirect effects of societal transition, lesser co-ordination of alcohol regulation, and partially due to the significant decrease in real alcohol prices. In this respect, increased alcohol consumption in the 1990s could be seen as a response to a decrease in its real prices. However, peaks in beer prices have been rather combined with increased



SOURCE: Institute of Health Information and Statistics in the Czech Republic - annual hospitalization statistics.

FIGURE 10. Hospitalised patients with liver cirrhosis per 10 000 inhabitants according to age, in 2000–2009 (UZIS 2010).

consumption, which was the case in 1992, 1999 and 2003, proving the demand for beer remained rather price-inelastic overall.

The accuracy of consumption data needs to be discussed with respect to unrecorded alcohol production. In this respect, no significant regulative change has been introduced in the period that would discourage individuals from domestic production – however, the opportunity cost of such has increased in the 1990s, when individuals had better opportunities to invest their time and labour than producing home-made wine, beer or liquors, given how relatively cheap alcohol had become. However, the issue of unrecorded alcohol consumption becomes more serious when considering industrial production that aims at avoiding excise taxation, and that is on a substantial scale. Unrecorded consumption could explain some variations in alcohol-related disorders, similarly to how some relationships between alcohol prices and recorded consumption are counter-intuitive. Since we do not have good indicators of the size of illicit production and its variations, this substantially limits our ability to draw conclusions on alcohol market dynamics.

Secondly, the period of transition brought greater tourism to the Czech Republic, and part of tourist marketing was related to beer products, potentially elevating the numbers of recorded alcohol consumption. Nevertheless, both of these hypotheses seem to be unlikely in the light of treatment data, which have peaks consistent with the consumption estimates.

In order to conclude that consumption data were well reflected in treatment indicators, we had to take into account the different frameworks and incentives of the pre-transition period. For instance, when overseeing the significant drop in out-patient alcohol clients in the 1990s, we further explored the systematic incentives related to out-patient alcohol treatment. We found two important measures. For one, anyone detained in a so-

bering-up station more than once was reported to his/her local alcohol out-patient facility, while after the first visit they were also automatically entered into a registry of 'alcoholics'. Secondly, the relative number of males in out-patient treatment decreased more than the number of females after 1989. We explored whether the alcoholic condition could lead to a permanent or temporary dismissal from mandatory military service; that is, the treatment network prior to 1989 could have had a secondary benefit for its clients.

Compared to out-patient and sobering-up services, the situation of in-patient care was more stable in the observed period. The fact that in-patient treatment has undergone an overall increase in the period despite an actual decrease in psychiatric hospital beds shall be further explained. Firstly, an overall decrease in treatment time since the 1990s was in practice due to the increased economic efficiency of the health care services, thus allowing for a greater number of patients per bed. Secondly, this reflects the increase in the relative share of alcohol treatment patients among overall psychiatric hospitalisations. These ranged from 50 200 in 1985 to 59 200 in 2008 (peaking in 2005). The increase of the relative share of alcohol-dependent patients of the total number of psychiatric hospitalisations may reflect both changes in consumption patterns and a decrease in the availability of out-patient addiction treatment care.

Conclusions

We have described the story of alcohol use in the Czech Republic as a country with one of the highest levels of alcohol use in the world. We showed that historical peaks of alcohol consumption manifested in the 1990s, the period of societal transition, which also opened Czech society to illicit drug use patterns.

When we analysed the trends in alcohol-related regulations in this transition period, we found a number of patterns in which the alcohol market became less restrictive. Until 1989, there were specific alcohol control bodies at both state and local level, while in the period of transition, alcohol policy was placed under the remit of the ministries. Age-related regulation was stricter in terms of not allowing minors onto alcohol-serving premises after 8.00 p.m. Punishment for alcohol regulation violations received higher fines in the course of time. On the other hand, alcohol serving facilities could no longer be punished for serving a driver. There remains a provision for compulsory treatment within the Criminal procedure in the Czech Republic, but an alcoholic's income can no longer be seized. Putting it all together, more responsibility has been placed on the actual drinker.

When it comes to pricing, alcohol has become more available in the transition period. Alcohol prices increased more slowly than the prices of other goods, leading to the real price of beer becoming 20% cheaper than in the pre-transition period, and prices of spirits and wine being 60% cheaper than in the pre-transition period. Despite increased consumption, excise tax revenue decreased in real terms reflecting either a decrease in the real excise tax rate or an increase in illegal alcohol import and production. This shows that alcohol consumption has been rather unresponsive to pricing, and in some

cases, even counter-intuitive to what the theory of demand and price elasticity would suggest (i.e. that there would be a relative increase in prices in selected periods when the actual volume of alcohol consumed increased).

When it comes to demand reduction and harm minimisation, societal transition has disrupted the well-developed system of out-patient services, including the sobering-up stations. Here the free market was less responsive to the needs of the population with alcohol disorders. On the other hand, the pre-1989 treatment capacity has been inflated by compulsory referrals from detention services, and the secondary motivations of clients. When abstracting from the pre-transition period statistics, out-patient treatment was nevertheless responsive to consumption levels in the short run. The stability of psychiatric hospitals and hospital departments provides a more consistent insight into the population trends in help-seeking since the 1990s. Here we can see that societal developments that lead to problematic alcohol use patterns have been reflected in treatment needs with a lagged effect, creating a public health burden in the long run.

When assessing the overall impact on health indicators, we can see that mortality related to attributable causes, such as liver disease, alcohol use disorders and accidents, did not strongly correspond to elevated alcohol consumption; the first two having relatively negligible peaks in comparison to their outbreaks in the transitioning years and the third being in constant decrease. A lagged effect from increased alcohol consumption has been further shown in the recent data on liver cirrhosis morbidity. At the same time, alcohol-related mortality peaked in 2005, also as a result possibly of accumulating effects. In this matter, we suspect that a return of sobering-up stations could have stopped this public health threat (UZIS 2005: UZIS 2010).

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Tamas Koos

Local-level alcohol regulation initiatives and duty free home distillation – two lessons from Hungary

Introduction

Alcohol-related health and social risks are among the most important health damaging factors in Hungary. The country has a deep-rooted historical heritage of alcohol production and consumption with a long tradition of wine production and distillation of spirits. Hungary is amongst the leading countries in the European Union (EU) as regards per capita alcohol consumption. According to the World Health Organization (WHO) it is estimated to be above 15 litres of pure alcohol per person aged 15 years and older. The proportion of unrecorded or illegal alcohol within the total alcohol consumption in Hungary is also very high (WHO 2011).

The proportion of illegally produced alcohol or of legal but unrecorded alcohol is high in Hungary. According to estimations by WHO, approximately 22% of the total alcohol consumption in Hungary is of unrecorded origin. The National Tax and Duty Office estimated the contribution of the illegal alcohol market to the total market at about 9% in 2008.

The high level of alcohol consumption leads to a large variety of damaging health impacts. Hungary is among the leading countries in the WHO European Region in hepatic cirrhosis mortality, cancers of the upper gastrointestinal tract and oesophagus, and suicide rate, with each related to alcohol consumption (WHO Health for all database).

Despite the high health and social burden caused by alcohol consumption, a comprehensive policy aimed at reducing the alcohol-related burden does not exist in Hungary. There were attempts in national-level public health programmes to control alcohol consumption and to reduce consequent risks and harms, but none of the previous national level initiatives has been systematically implemented and the resources devoted to the task remained extremely limited.

The lack of a comprehensive, national-level alcohol policy resulted in a lack of strategic, public health-oriented thinking in the field of alcohol-related legislation. The taxation of alcohol-products has been considered only as a tool to generate state-revenues from alcohol excise tax, and not as a public health intervention for decreasing alcohol-related social harms. The alcohol excise duty system has never been assessed as a public health tool, and the health impact of alcohol excise duty measures has not been

examined. However, in spite of the lack of comprehensive national-level alcohol-policies, some Hungarian municipalities—within the frame of existing legislation making local regulations possible—have implemented local measures to decrease alcohol-related harm and to protect their inhabitants from some of the undesired consequences of alcohol-consumption. This chapter will concentrate on the effects of local efforts to regulate alcohol sales in three municipalities in Hungary; it will also detail the effect of new national-level taxation measures introduced in the autumn of 2010, which ease excise taxation of home-distilled spirits. The examples of local-level market regulation are independent of national-level taxation measures.

Local legislation on alcohol availability in three Hungarian cities

The local municipalities are authorized by national-level legislation to regulate certain aspects of commercial activities within their scope, for example, the opening hours of food shops, and the hospitality sector. In recent years, a number of Hungarian municipalities have introduced restrictions on alcohol-trade, mainly in the larger cities, and also a few districts of Budapest. We assessed selected outcome measures in three cities in Hungary that have regulated alcohol sales within their area: Debrecen, the second largest city with a population exceeding 210 000 inhabitants; Miskolc, the third largest city with approximately 180 000 inhabitants; and Salgótarján, one of the county seats, with approximately 40 000 inhabitants. They were the first cities in Hungary that imposed restrictions on alcohol sales. This gave sufficient data to assess some of the effects of this regulation.

Local regulation was issued in the form of local decrees, based on the authorisation given to municipalities by national-level legislation (Degree of Debrecen Municipality 2008; Degree of Miskole Municipality 2009; Degree of Salgótarján Municipality 2008). The content of regulations was banning alcohol sales between 10.00 p.m. and 6.00 a.m. in off-premise shops, basically smaller food shops, but also in hypermarkets with 24 hour opening hours. The existing regulation for on-premise alcohol commerce (pubs, restaurants, bars) was not affected. However, it is important to note that the unit price of alcohol is much higher in pubs and bars than in food shops.

The declared primary purpose of the restriction in alcohol trade was to decrease public nuisance related to the off-premise retail sale of alcoholic beverages, which had resulted consumption of alcohol in public settings, streets and public parks (Degree of Debrecen Municipality 2008; Degree of Miskole Municipality 2009; Degree of Salgótarján Municipality 2008). Inhabitants living in neighbourhoods close to shops selling off-premise alcoholic beverages experienced undesired consequences, and gave voice to their dissatisfaction with the extant situation. They pressed municipalities to regulate the off-premise retail sale of alcoholic beverages, at least during the night.

The first municipality to introduce such a night ban on off-premise sales of alcoholic beverages was Debrecen, as of 1st of July 2008; Salgótarján followed on 1st of January 2009 and a third, Miskolc, from the 1st of July 2009. These local regulations were car-

ried out by concerned city councils, with no preliminary information sent to national-level structures, as sending preliminary notice is not compulsory in these cases. It was not possible, therefore, to design and implement a detailed evaluation project on these three sites.

National-level databases were used to detect changes in the three cities under study. Data were obtained from the database of the Hungarian Police Headquarters, which covered:

- road-traffic accidents resulting in personal injury, between 10.00 p.m. and 6.00 a.m.;
- drink-driving: BAC above 0.8 g/l in the case of first offence, or repeated offence with a BAC under 0.8 g/l;[1]
- any type of crime where the offender(s) under influence of alcohol.

We compared the occurrence of these criminal events before and after local regulations became operative in the selected Hungarian cities, and also compared them with national-level data. The Police provided data for the period 2006 to 2010, with a semi-annual distribution. In other words, figures covered the first half (January–June) and the second half (July–December) of the years.

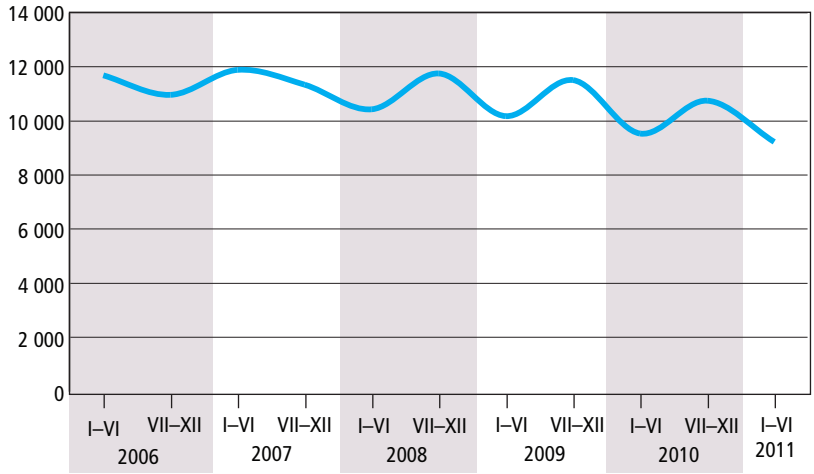
Impact on alcohol-related harm

The original intention in each of the three cities behind restricting the off-premise retail sale of alcoholic beverages was to decrease public nuisance, though we do not have exact data on these aspects. However, all municipalities assessed the local measures to be successful, based on positive feedback from inhabitants and concerned areas.

When assessing the potential effects of local regulations (i.e. off premise alcohol sale) we have to take into account that the Hungarian government initiated and enacted national-level legislation changes regarding drink driving (e.g. implementing immediate on-site withdrawal of driving licence by the police and heavily increasing the fines for motoring offences) at the beginning of the year 2008, but the communication of changes had already started in 2007. These national-level regulatory changes resulted in a consequent decrease at national level of drink-driving offences and decreased road traffic accidents involving personal injury. Therefore, the effects of local regulations can be assessed in a broader social environment, where the trend in the number of road traffic accidents is decreasing.

We compared the data on road traffic accidents with personal injury (Figures 5 and 6), drink-driving when BAC was above 0.8 g/l (Figures 3 and 4), and crime events with offender(s) under the influence of alcohol (Figures 1 and 2). Data from the first 6 months (January–June) of 2006 served as a basis for comparison, and the data from the first 6 months (January–June) of 2011 were examined against 2006. We selected 2006 as a basis, because it was the last 'native' year before the intensive communication started on

1 According to the existing legislation in Hungary, drink driving is defined as a crime if the BAC is above 0.8 g/l. Drink-driving under 0.8 g/l, but above 0.0 g/l is a motoring offence on the first occasion.

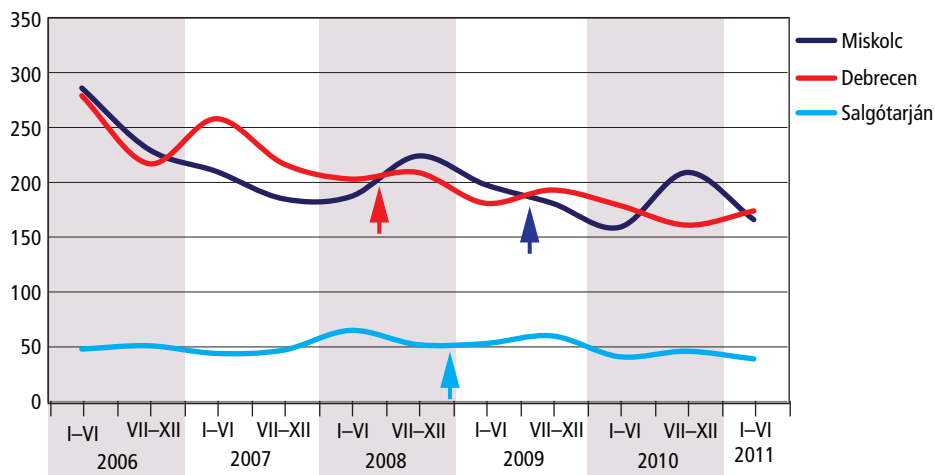


Source: Official police records

FIGURE 1. Number of crime events with offender(s) under the influence of alcohol in 2006–2011, in half-years according to national-level data

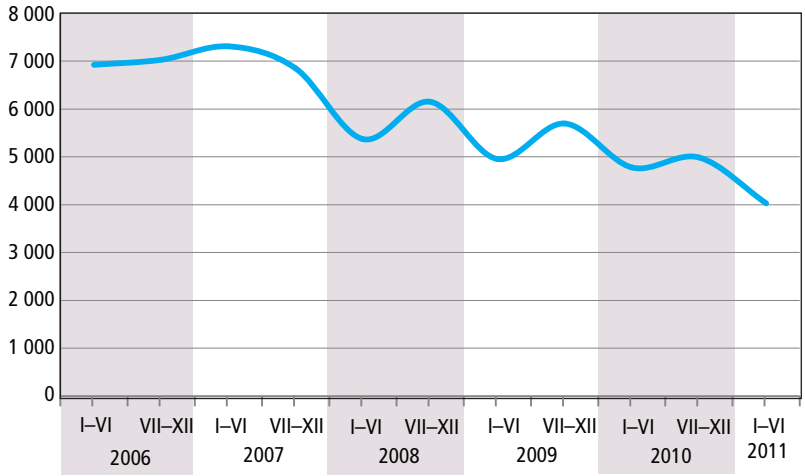
the legislative changes on drink-driving, taking into account that the intensive communication in the mass-media can itself influence the behaviour of drivers. The data from 2011 were chosen for detailed examination because these data constituted the latest data-set for a complete half-year available. It was also important to compare the same periods of the respective years.

The graphs show the change in the above-mentioned indicators at national level, and changes experienced in the three cities.



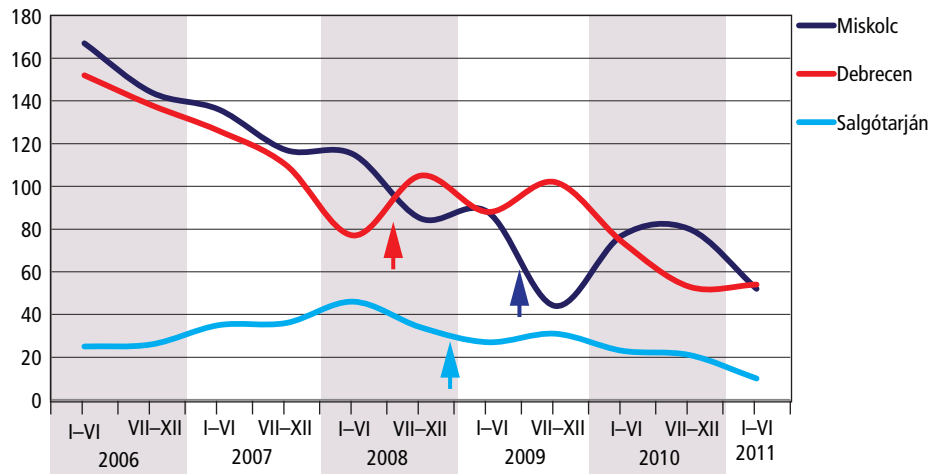
Source: Official Police Records

FIGURE 2. Number of crime events with offender(s) under the influence of alcohol, in half-years, in cities banning off-trade selling of alcohol 10.00 p.m.–06.00 a.m. in half years in 2006–2011, arrows indicate the date of introduction of the ban on off-premise retail sale



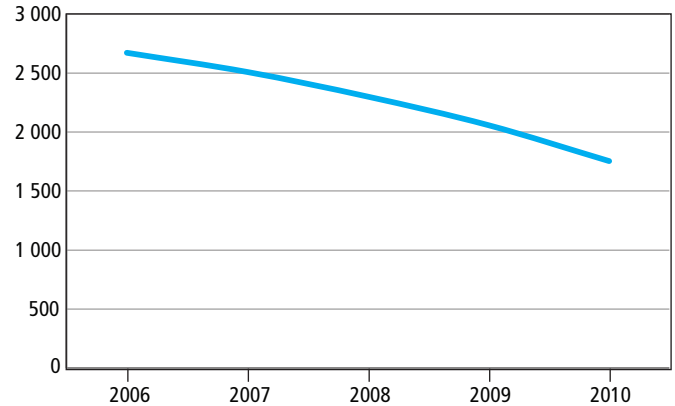
Source: Official Police Records

FIGURE 3. Number of drink-driving offences in half-years according to national-level data, 2006–2011



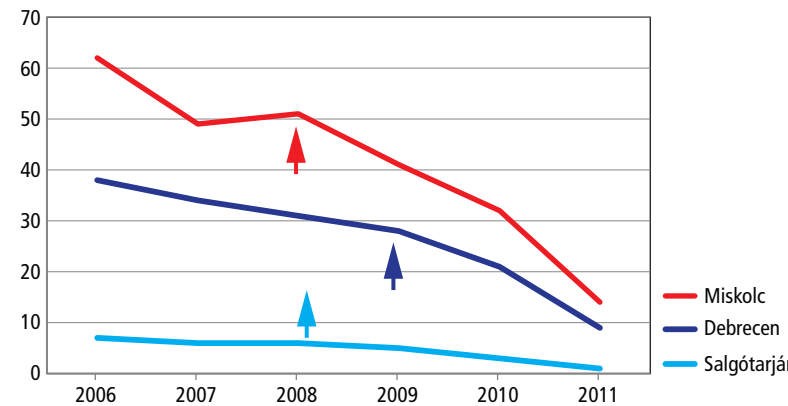
Source: Official Police Records

FIGURE 4. Number of drink-driving offence in cities banning off premise retail sale of alcoholic beverages 10.00 p.m. to 6.00 a.m. in half years, arrows indicate the date of introduction of the ban on off-premise retail sale, 2006–2011



Source: Official Police Records

FIGURE 5. Number of road traffic accidents with personal injury between 10.00 p.m. and 6.00 a.m. according to national-level data



Source: Official Police Records.

FIGURE 6. Number of road traffic accidents with personal injury in cities banning off-premise retail sale of alcoholic beverages between 10.00 p.m. and 6.00 a.m., with arrows indicating the date of introduction of the ban

We must note that the changes in the three cities took place in a national environment that heavily influenced alcohol-related road traffic offences, though not altering other types of alcohol-related behaviour at national level. That is why we can see a remarkable decrease in the number of drink-driving offences and the number of road traffic accidents at national level (Figures 3 and 5), and a much slighter decrease in the case of 'any type of crime with offender(s) under the influence of alcohol' (Figure 1). This is due to the fact that alcohol-related road traffic offences give only a part of all types of crimes, and the regulatory environment of other types of alcohol-related crime (e.g. public nuisance etc.) did not change at national level.

The number of road-traffic accidents with personal injury between 10.00 p.m. and 6.00 a.m. had decreased in the three cities by 48% (Figure 6), while the decrease at national level was 34% between 2006 January–June and 2010 January–June (Figure 5). Due to the relatively small number of cases the difference in the decreases did not prove significant when applying the chi-square test.[2]

In the same period, we observe a 21% decline in 'any type of crime with an offender(s) under the influence of alcohol' at national level (Figure 1), but a 33% decrease in the three cities (Figure 2) ($p<0.0001$), using chi-square test and pooling the data from Debrecen, Miskolc and Salgótarján. The decrease was significant when individual cities were examined in the case of Debrecen ($p=0.016$), Miskolc ($p<0.002$), but not in Salgótarján alone (due to the relatively small number of cases).

When examining the number of drink-driving related crime events, there was a decrease of 42% at national level (Figure 3) and a 64% decrease in the three cities (Figure 4) when pooling their data. The change is significant ($p<0.0001$) using the chi-square test, and also significant for Miskolc ($p<0.0001$) and Debrecen ($p=0.002$), but not for Salgótarján alone (due to the small number of cases).

Legislation on taxation of spirits in 2010 – the case of home distillation

Alcohol taxation is usually considered as a tool to increase central State budget revenues in Hungary. Sometimes, however, other considerations also influence taxation policies. Unfortunately, these considerations do not relate to public health interests. Rather they aim to influence the alcohol-market based on agricultural policy considerations.

In 2010 the Act on Excise Duties 2003 was amended in regard to the taxation of alcoholic beverages, with considerable changed in regard to spirits taxation. The legislation introduced the term 'home distillation', allowing distillation of spirits up to 50 litres of pure ethanol-content per household per year, making it exempt from alcohol excise duty. According to Hungarian traditions, it is almost exclusively fruit-based brandy: e.g. plum, apricot or grape-brandy. However, it has to be noticed that a large variety of fruit residues are used to prepare fruit-based brandy, and in many cases the quality of the fruit-mash is questionable, contaminated by mould or by plant-protecting agents.

The excise duty-free distillation can be carried out either by purchasing distillation apparatus and distilling brandy at home, or by preparing mash at home and carrying it to a locally registered brandy-distillery manufacture—usually run by local entrepreneurs—and having it distilled there. In both cases, 50 litres of 100% alcohol-equivalent brandy (e.g. 100 litres of 50% ethanol-concentration brandy) is exempted from excise duty. Officially, excise duty-free brandy can be used exclusively for consumption of the members of the producing household, and therefore it is not legal to sell it on the alcohol market. If someone intends to sell the distilled spirit, excise duty has to be paid before selling, according to the rules defined in the Act on Excise Duties. The primary in-

2 Statistical analysis was carried out by József Vitrai PhD, epidemiologist

tention of this specific measure was to make the utilisation of fruit-residues easier for households in the countryside.

The excise tax-rate in 2012 was HUF 2899 (EUR 10, at 2012 exchange rates) per one litre of ethanol. Home-distillation therefore yields a saving of EUR 500 in excise duty on distilled brandy with an equivalent content of 50 litres of pure ethanol. The legal supervision and enforcement rules of duty-free spirit distillation create the possibility to bypass legal obligations. Purchasing and keeping home distilling apparatus is not subject to mandatory registration at the National Tax and Customs Administration. Also, distilling spirits using home distillation equipment does not require official notification to the National Tax and Customs Administration if the official duty-free amount of 50 litres of 100% alcohol content is not exceeded annually.

Furthermore, supervisory rules for registered distillery manufacturers, and the mutual interests of local distillers and citizens preparing mash at home and carrying it to local brandy-distillery manufacture often create the opportunity to exceed the 50 litres ethanol-limit without taxation (for example, distilling brandy more than 50 litres ethanol-content and sharing it among different households on paper). Moreover, the regulation appears to be inefficient at preventing excise duty-free brandy from entering the illegal or unofficial market for alcohol beverages. Thus, home distillation from its start was expected by many stakeholders to exceed the officially declared purpose of the regulations. We have assessed below the outcomes of these measures on excise-tax revenues to the State budget, and also its effects on registered alcohol-trade in Hungary.

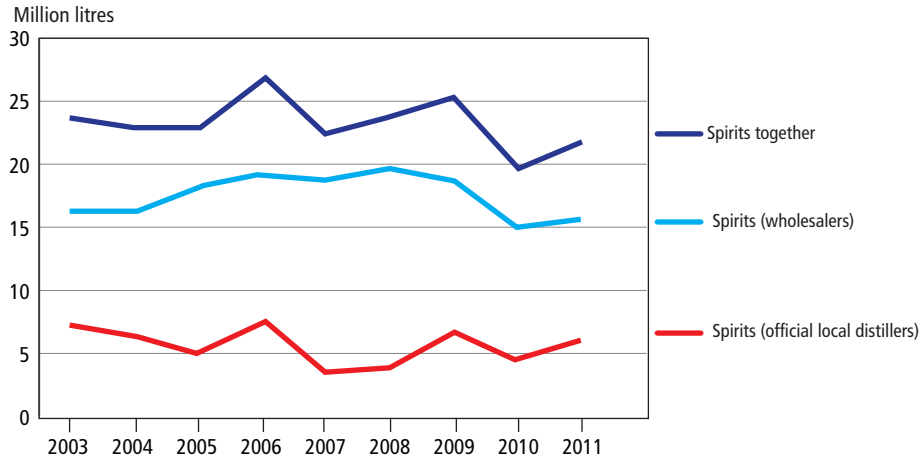
Impact on alcohol excise duty-related revenues and on registered spirits trade

National data on excise duty revenues from spirits and registered spirits consumption have been provided by the National Tax and Customs Administration. The official annual spirits trade data has two sources: official data from spirits wholesalers (purchasing official alcohol stamps from the National Tax and Customs Administration) and data from the official distillery manufactures. These two data sources—wholesaling activity of alcohol producing companies and importers, plus spirits distilled by local distilleries—add up to give the registered spirits trade in Hungary.

A third source of brandy production is distillation using home-located distillery equipment. The volume of this segment is difficult to determine, since, according to the actual rules, keeping home distilling apparatus does not require a notification to the National Tax and Customs Administration, and furthermore, home-production that does not exceed the official excise duty-free limit also does not require a notification to the National Tax and Customs Administration.

Figure 7 shows the annual spirit trade data from 2003 to 2011. Data are given in millions of litres of pure ethanol.

We can observe that from 2010, since the introduction of the so-called home distillation of spirits, the official trade of wholesalers has declined by some 16% compared to



Source: National Tax and Customs Administration

FIGURE 7. Annual registered spirit trade in million litres of pure ethanol, 2003–2011

2009 (last full year before the amended legislation) and 2011 (first full year after the legislation).

In the meantime, the amount of spirits distilled and delivered at registered distillery manufactures did not show any clear tendency. It varied between 7.5 and 4.0 million litres of pure ethanol per year. This variation can be detected in the fluctuation of the total registered trade in spirits from year to year. However, in 2011 the amount of spirits distilled and delivered at official local distillers exceeded 6 million litres pure ethanol. An explanation for this could be that the official, registered production/distillation at registered distillery manufactures included home-produced brandy mash distillation, since registration does not automatically entail excise taxation (up to 50 litres of ethanol is duty-free).

If we compare the state revenues from spirits, we can see that excise duty paid by registered distillery manufactures has practically disappeared, declining from more than HUF 8 billion in 2009 to some HUF 18 million in 2011 (more than a 99% decrease). It is also clear that the excise duty paid by spirit wholesalers (large manufacturers and importers) also declined from the more than HUF 45 billion in 2009 to HUF 43.6 billion in 2011, in spite of the large excise tax increase between the two years (excise tax was HUF 236 000 per 100 litres of pure ethanol in 2009, and it increased to HUF 276 100 per litre in 2011, some 17% increase). Meanwhile, excise tax revenues decreased due to the massive decrease in the volume of spirits trade. The consequence of the partial tax liberalisation of home distillation was a decrease in excise duty revenues for the state.

TABLE 1. Excise duty tax revenues from distilled spirits in Hungary in 2009-2011 in HUF by source of taxation

	Excie tax from alcohol products (wholesalers) in HUF	Excise tax from alcohol products (local distillers) in HUF	Total excise tax from spirits in HUF
2009	45 137 247	8 061 004	53 198 251
2010	41 433 175	2 793 480	44 226 655
2011	43 645 551	17 959	43 663 510

Summarising the direct effects of the so-called home distillation and duty-free distillation at local registered distillery manufactures, we can conclude that it heavily influenced the registered commerce of spirits. In practice, revenues from spirit excise duties have fallen by some HUF 10 billion (approximately EUR 35 million at a HUF 290/EUR exchange rate) between 2009 and 2011. Excise duty paid by local official distillers all but disappeared, and duty paid by spirit wholesalers also decreased.

The change in the spirits excise taxation system, that is the introduction of home or local distillation free-of-tax up to 50 litres of pure ethanol, has influenced the national level market of spirits considerably. The previously duty-paying distilling activity of local-registered distillery manufactures has shifted to the tax-free zone, meaning that the total amount of spirits (fruit-based brandies) is counted as duty-free distillation, even if we can assume that some households have exceeded the 50 litres of pure ethanol limit for households. Therefore, it can be said that the State has renounced its claim to duty revenues.

Furthermore, we can assume that duty-free home-distilled brandy has entered and modified the total alcohol (spirits) market, since there are indications from criminal investigations that 'home distilled' spirits are marketed and sold, thereby bypassing the official excise duty regulation. Further support for this conclusion comes for the decline in the wholesaling of spirits that followed the introduction of home distillation, with excise duty revenues decreasing in spite of the tax increase.

Conclusions

National-level legislation has many times been proven effective in reducing alcohol-related harms, through regulating alcohol availability through purchase hours or the density of outlets. Local measures regulating the alcohol product market can also exert a considerable effect on alcohol-related harms locally. When studying the case of three courageous and committed cities, Debrecen, Miskolc and Salgótarján, we found that local restrictions imposed on off-premise sales of alcohol products might have a considerable effect on alcohol-related harm.

A significant favourable difference was detected in the number of drink-driving and of alcohol-related crime, and the same tendency was observed in the number of road

traffic accidents occurring between 10.00 p.m. and 6.00 a.m., even if for this latter indicator, the change was not statistically significant. This difference was observed in a changing legislative and social environment, but we can see that in the three cities that implemented local restrictions on alcohol availability, there are positive developments, in particular compared to the national picture.

It is notable that the original intention of city councils was not to influence road traffic safety, as they targeted street nuisance connected to alcohol consumption. In this sense, the potential positive effects observed can be interpreted as unintended positive side-effects. Furthermore, local actions aimed at reducing alcohol-related harm deserve more attention and research based on local initiatives requires more resources and systematic networking with local actors.

The alcoholic beverages market is a complex system, in which different segments of the market are interconnected and influenced by each other. Any type of interventions into this complex system might result in unexpected and undesired effects. The interests of public health and the health of the population must be seriously considered when planning and changing alcohol excise taxation. When health impact assessments of alcohol taxation are not properly carried out, unexpected outcomes are likely, resulting in unfavourable health outcomes. The effects of excise-duty free home distillation appears to be an example of just such a legislative change having unforeseen negative effects. The intervention in the spirits market resulted in cheaper (in practice excise duty-free) ethanol appearing in large quantities in the market, eliminating tax revenues from registered local distilleries and most likely challenging and competing with the ethanol (spirits) products of large manufacturers and importers. The further consequences of home distillation should be investigated in depth to track changes in alcohol consumption habits of different groups of drinkers, and efforts should be made to detect the potential health effects of the appearance of cheaper spirits on the registered alcohol beverage market, as well as on the unregistered market.

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WHO Global Status Report on Alcohol and Health, 2011.

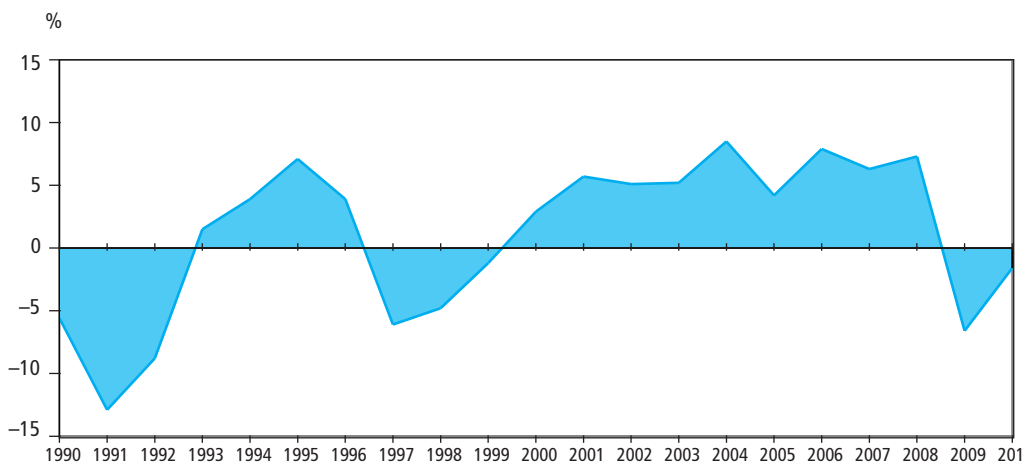
Andrei Botescu and Milica Georgescu

Alcohol policy developments in Romania

General political and economic background

Romania is an upper-middle income country and has been part of the European Union since January 1, 2007. EU accession and integration involved a long period of adaptation with European Union legislation, policies and strategies. The process of integration with the EU is still not complete, but there have been noticeable changes in the economic and social environment compared with the pre-accession period.

Despite overall economic growth and a doubling of the real gross domestic product (GDP) between 1990 and 2010, Romania has also witnessed three periods of serious recession: the first occurred at the beginning of the transition towards a market economy (1990–1993), the second occurred in the late 1990s, and the most recent in 2009–2010, the latest coinciding with the global economic downturn (Figure 1).



Source: World Economic Outlook, April 2012

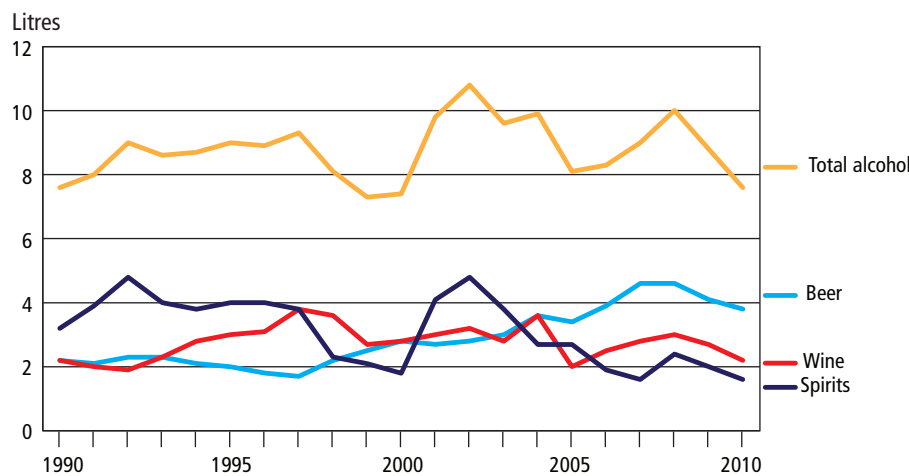
FIGURE 1. Changes in real GDP in Romania in 1990–2010 in per cent

Drinking culture

Drinking alcohol is strongly embedded in the Romanian culture. It is a tradition mostly for men and in many regions of the country, drinking alcohol is considered a manifestation of manhood. Public drunkenness is socially condemned but problematic use of alcohol is rarely seen as a medical condition, but mostly as a result of lack of self-control. Therefore, the treatment demand for alcohol problems is manifested typically in the late stages of dependence (National Evaluation of Alcohol-related Health Services 2011).

The traditional alcoholic beverage in Romania is called tuica or palinca. It is a homemade distilled spirit containing about 30–40% alcohol by volume. It is made from fruits such as apples, pears and plums. In the last 20 years, beer has became one of the most preferred drinks by Romanians, but wine and especially homemade wines are also very popular (Figure 2).

Data regarding the total annual per capita alcohol consumption are often inconsistent and lack continuity. The recorded annual consumption per person aged 15 years and older was about 11.3 litres of pure alcohol in 2006. Unrecorded consumption of alcohol accounted for about 30% of the total alcohol consumption and was estimated at 4 litres of pure alcohol in 2004. According to WHO's Global Status Report on Alcohol and Health 2011, alcohol consumption stabilized after 1989 in Romania to an average of 15 litres of pure alcohol per person aged 15 years and older. In 2009 overall alcohol consumption was estimated to be as high as 16.3 litres per capita aged 15 years and older (Anderson et al. 2011). However, if this amount is calculated per drinker, the quantities are higher: 24.5 litres for drinkers aged 15 years and older – with 31.8 litres for men and 15.2 litres for women (Global Status Report on Alcohol and Health 2011).



Source: National Institute of Statistics 2011

FIGURE 2. Recorded consumption of alcoholic beverages in litres of 100% alcohol per capita by beverage type in 1990–2010

As estimates of unrecorded alcohol consumption are often arbitrary and unsystematic and do not make any distinction between beverage types, it is often more feasible to use recorded consumption figures to trace trends in consumption and changes in beverage preferences. Figure 2 shows that per capita alcohol consumption increased at the beginning of the transition period by one litre, stabilising throughout the 1990s at the relatively high level of 9 litres. The final years of the 1990s witnessed a substantial decline, which was then followed by a rapid increase at the beginning of the 2000s. After its peak at close to 11 litres per capita, consumption declined again to 8 litres, to then grow just after EU accession in 2007, reaching 10 litres in 2008. The next two years showed a marked decrease to the 1990 level of less than 8 litres per capita.

In the last decade and a half, beer has become the most preferred alcoholic beverage. Still in 1997 its share in recorded alcohol consumption was lower than that of spirits or wine. Between 1997 and 2007 its consumption more than doubled and its contribution to the overall recorded alcohol consumption could be regarded as the lion's share.

Despite an overall increasing tendency in alcohol consumption there is some evidence that the prevalence of drinking is declining and that the proportion of abstainers has been on the rise. This trend is also sustained for the last-year and last-30-days timeframes according to general population surveys completed in 2004, 2007 and 2010 (Table 1).

When comparing the three surveys in Table 2, the following can be noticed:

- There is a decrease in the prevalence of drinking in the three alcohol prevalence categories (ever drank, drank in the last year or drank in the last 30 days) from 2004 to 2010 for all age groups and for both genders (Figure 3).

TABLE 1. Alcohol use prevalence, lifetime, last-year and last-30-days by age group and gender in 2004, 2007 and 2010, per cent of alcohol users

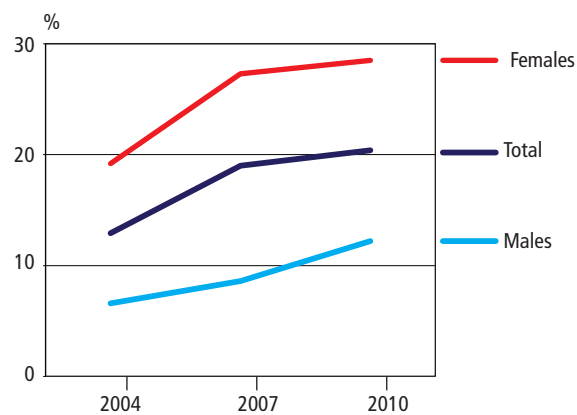
		Age					Gender		Total
		15–24	25–34	35–44	45–54	55–64	Male	Female	15–64
Lifetime	2004	81.8	89.0	91.1	88.4	85.7	93.4	80.8	87.1
	2007	71.5	83.4	84.7	86.5	84.8	91.4	72.7	82.0
	2010	70.8	79.2	81.9	83.9	83.3	87.8	71.5	79.6
In the last year	2004	69.1	77.4	75.0	72.2	62.0	83.7	59.9	71.7
	2007	62.2	73.4	71.8	69.7	61.1	81.3	54.9	68.1
	2010	58.8	64.3	71.7	67.3	59.6	76.6	52.7	64.6
In the last 30 days	2004	54.6	66.7	63.0	58.7	49.3	73.9	44.3	59.0
	2007	46.8	58.9	60.6	58.0	49.4	72.1	38,0	55,0
	2010	40.9	47.9	55.9	54.5	47.5	65.4	33.5	49.4

Source: Romanian National Antidrug Agency, 2010

- The lowest prevalence rates are recorded for the youngest and the oldest age groups (15–24 and 55–64 years old) in all alcohol prevalence categories, while the highest rates in the last year and in the last 30 days alcohol use are found in the age groups 25–34 and 35–44 years.
- There is a statistically significant relation between last-30-days alcohol use and gender. Males tend to be more frequent users than females. It is worth mentioning that in 2007, males were 3.4 times more likely to use alcohol than women. In 2010 the fold change between males and females dropped to 2.9.
- The highest prevalence of lifetime and last-year alcohol use is recorded in urban areas and the highest prevalence for last-30-days use is recorded in rural areas.
- By geographic area, for the last-30-days use, Moldova recorded the highest prevalence in 2004 and 2007, followed by Bucharest, while the eastern part of Romania recorded the highest prevalence in 2010.

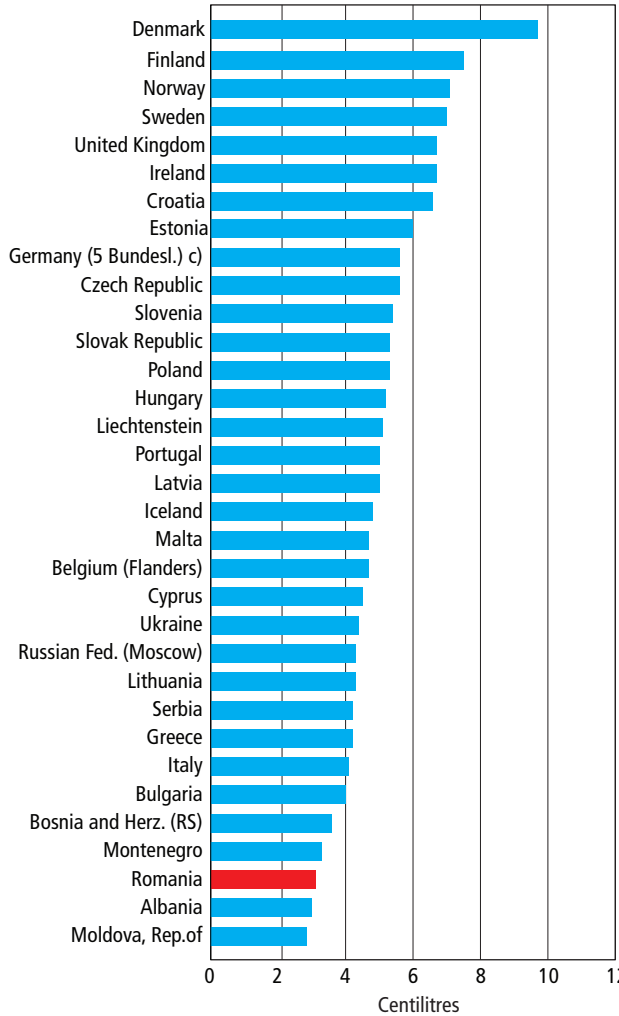
There is a significant difference between urban and rural drinking cultural patterns, in particular as regards home-made unrecorded alcohol use, which is much more prevalent in rural areas. As for occupational status, those who were employed drank most (1.38 litres alcohol a month), followed by those who were retired (1.23 litres alcohol per month). The unemployed have the lowest consumption of 0.9 litres alcohol per month, which indicates the importance of a permanent income, and affordability in general for Romanian drinking.

Despite the increase in the prevalence of alcohol drinking among Romanian young people according to the 2011 ESPAD study (School Survey Project on Alcohol and Other Drugs, 2011), Romania continues to be in 2011 among the countries with the lowest alcohol consumption among young people aged 16 years. Also, the estimated volume of alcohol consumed on the latest drinking occasion of 3.1 cl of 100% alcohol belongs to the lowest in Europe, bettered only by Albania at 3.0 cl and the Republic of Moldova at 2.7 cl (Figure 4).



Source: Romanian National Antidrug Agency 2010

FIGURE 3. Lifetime alcohol abstainers in 2004, 2007 and 2010 by gender, per cent.



Source: European School Survey Project on Alcohol and Other Drugs, 2011

FIGURE 4. Amount of alcohol drinking for young people on the previous drinking occasion in cl of 100% alcohol in the 2011 ESPAD study.

Availability and affordability

In the last 20–25 years alcohol has been widely available, except for the last years of the communist regime, when although alcohol was not missing from the shelves, the variety of products was limited to a few local brands. Legislation to regulate alcohol sales could be characterized as liberal, including no restrictions on the number of outlets and their hours of operating.

Spirits were, however, rather expensive in Romania prior to EU accession. In October 1995 a luxury custom tax was imposed on imported spirit products like whisky and vodka, which initially resulted in higher prices for domestic spirits, too. The luxury custom tax was in force up to 2007, when Romania joined the European Union and fully adopted the common taxation regime. This harmonisation began in 2003 when the regular excises for ethyl alcohol increased gradually from EUR 70 per hectolitre of pure alcohol in 2002 to EUR 750 in 2007. Despite this high increase in regular excise tax, taxes on imported spirits were overall diminished by an average of 30% after the EU accession and as a result the price of spirits decreased for the whole range of these products, regardless of whether it was national or international production (Accize alcool 2011). On the other hand, adoption of the 'acquis communautaire', the norms and regulations required by the European Commission, led to imposing taxes on home-made alcoholic beverages, which generated significant protests among civil society and appeared to be very difficult to enforce.

The luxury custom taxes stimulated the national production of spirits. The local industrially produced alcohol brands were, however, often lacking in production quality and standards, resulting in very cheap but potentially health-damaging products.

Taxes on beer and wine exist but these taxes often do not represent a strong influence on the final price. Beer in Romania often costs less than bottled water at restaurants and bars. Also, Romania has a large range of low quality cheap alcoholic beverages that are available and popular among people on low incomes. These facts may explain why according to Eurostat (2010), alcohol was priced in Romania at 70% of the EU average.

Hypothetically, growing incomes and low taxes on light beverages stimulated the beer industry and changed consumption preferences. Another reason for the low average price of drinks is the low level of enforcement of taxation measures. According to the Alcohol Spirits Association[1] the black market for spirits is about 45% of the total market, estimated to be EUR 600 million in 2008. Moreover, traditional home-made spirits like tuica and palinca are 90–95% unmonitored and undeclared (Impactul acquis-ului european de mediu asupra unor sectoare industriale în Romania 2002).

The commercial advantage of lower prices for alcohol in Romania is moderated by a similarly lower income compared with average Europeans. In the European survey 'EU citizens' attitudes towards alcohol – 2010', there is considerable variation between Member States in the distribution of opinions on the role of price levels for young or heavy consumers. In only three Member States has the majority view of respondents been that a substantial change in the price level is likely to affect purchasing behaviour, namely in Greece (53%), Romania (52%) and Finland (52%). It is worth noting that when it comes to either substantial increases or decreases in price levels, the largest proportions of respondents who think the change would make a difference to their own purchasing behaviour are found in Bulgaria, the Czech Republic, Greece, Italy, Lithuania, Romania and Slovakia.

1 http://www.businessmagazin.ro/actualitate/afaceri/criza-reduce-consumul-de-spirtoase-cu-20-5126525

If we review the last 25 years, the most influential political change in Romania was certainly the shift from a state-controlled system to a free market and consequently to a diversity of imported alcohol drinks. Suddenly facing significant freedoms, Romanians did not at first know how to deal with the new environment. Consequently, the alcohol use rate per capita has steeply increased as have the harmful consequences. It took about ten years to reduce and stabilise the use of alcohol by different means, including higher taxes, mainly for imported spirits. Another influential political change in the last years was the accession of Romania to the European Union, when a part of the taxation regime had to be changed in accordance with EU norms and the '*acquis communautaire*' started to be implemented.

Impact of the recent recessions

The first economic downturn at the beginning of the 1990s considerably affected Romania, with GDP falling by more than 20% (Figure 1). Nevertheless, this first transformation crisis did not result in lower alcohol consumption (Figure 2). On the contrary, both recorded and unrecorded alcohol consumption increased. Shifting from a state-controlled system to a free market and consequently to a diversity of imported alcohol drinks stimulated consumption. Moreover, the control apparatus that was elaborated under the previous centralised regime was incapable of stopping a high tide of illicit supply generated by exploding entrepreneurship and new economic freedoms.

The consecutive crises in the second half of the 1990s had the opposite effects (Figures 1 and 2). Hyperinflation combined with the luxury tax on spirits affected real incomes and decreased the affordability of alcohol products dramatically. Conversely, from the point of view of public health, this was one of the best periods, as alcohol-related mortality steadily decreased. The reduction in alcohol consumption levels and alcohol-related mortality appears to have been sustained after two years of economic downturn, so the reaction is not immediate, but after a so-called 'resistance' period. This data confirms the hypothesis that an economic crisis determines low alcohol-related mortality rates even if the recession correlates with high unemployment, which can be a social trigger for more consumption.

The most recent economic downturn cycle that started in 2009 has generated conservative austerity policies. The painful steps taken to reduce all salaries to within the budgetary system and the increase in VAT by five percentage points in 2010 also had important effects on consumers' purchasing power and the performance of the industry as a whole.

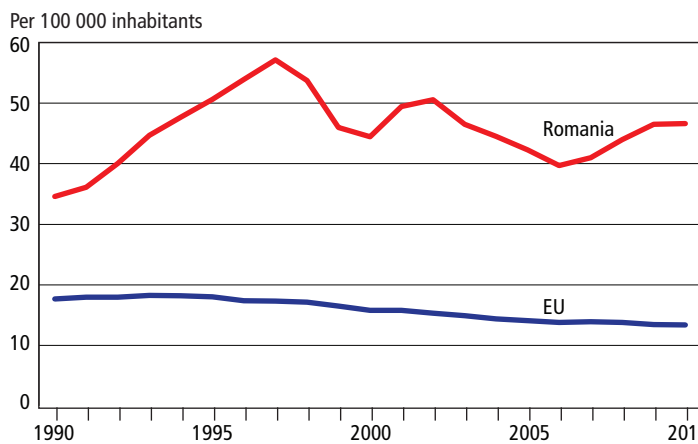
According to 'Euromonitor International', a monitoring tool for the alcohol industry, the year 2010 witnessed poor performance by the alcohol sector, with the biggest decline seen in beer consumption (Alcohol drinks in Romania 2011). However, another source, the Romanian National Institute of Statistics (Annual Report 2011) claims that higher prices and lower incomes did not lead to large cuts in alcohol spending, as the economic restrictions were mainly channelled into other areas.

Impact on alcohol-related harms

Although the level of recorded alcohol consumption is not the highest compared with other European countries, the mortality rates for alcohol-related diseases for Romania are among the highest in Europe, as is true for a few other Central and Eastern European countries. According to WHO's Global Status Report on Alcohol 2011 the highest levels of mortality due to cirrhosis and liver diseases are found in Hungary and Romania, reaching nearly 60 deaths per 100 000, against a Western European and US average of about 15 per 100 000 (Figure 5). In Hungary and Romania, female death rates due to liver diseases and cirrhosis are also the highest in the EU. Both countries in addition to the Baltic States are highlighted as being of serious concern among EU members, as alcohol is contributing to a gap in life expectancy compared to other EU countries (Zatonski et al. 2008; Figure 5).

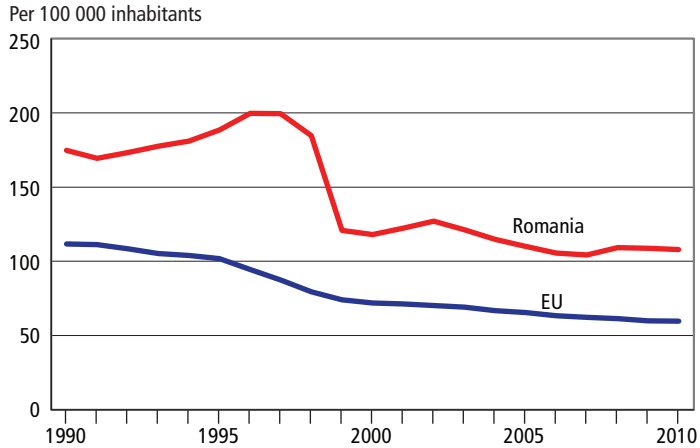
Mortality due to selected alcohol-related causes is also higher in Romania compared with the EU average. Nevertheless, the ratio between Romanian standardised rates and the EU average has recently become smaller, varying from 1.5 in 1991 to 2.3 in 1998, and then narrowing to 1.8 in 2010. The economic downturn lasting from 1996 to 2002 presumably affected the increasing trend after the 1990s, shifting the direction towards lower levels of alcohol-related causes of death.

As Figures 5 and 6 show, alcohol-related mortality has varied over time. Its substantial growth at the beginning of the political transformations was reversed in the late 1990s, probably in response to the first economic crisis. Since the beginning of 2000, mortality has fluctuated, increasing clearly again after EU accession. So far, the most recent years of economic recession have not appeared to affect alcohol-related mortality.



Source: European Database Health for All

FIGURE 5. Standardised death rate for chronic liver cirrhosis per 100 000 inhabitants in Romania and EU, 1990–2010



Source: European Database Health for All

FIGURE 6. Standardised death rate for selected alcohol-related causes per 100 000 inhabitants in Romania and the EU, 1990–2010

Conclusions

In Romania alcohol consumption and drinking patterns are strongly embedded in the national culture. The political, cultural and economic cycles that have occurred in the last 25 years have had a strong effect on drinking levels. Key events that may explain the evolution and patterns of alcohol use include the end of the authoritarian regime in 1989, the economic deregulation that followed, the decline in real GDP towards the end of 1990, the EU accession in 2007, as well as the economic recession at the end of 2008.

It is very likely that since 1990, unrecorded alcohol consumption started to grow in response to falling incomes, which resulted in a dramatic increase in alcohol-related mortality, with special impetus in liver disease mortality. Rising mortality trends can be attributed to unrecorded alcohol consumption, as alcohol sales seemed to have levelled off in that period. That increase was suddenly interrupted in 1997, as both recorded and unrecorded alcohol consumption dropped due to a new decline in real incomes that lasted until the end of the 1990s. During that period rising mortality trends were also seen to reverse.

The end of the 1990s witnessed symptoms of change in beverage preferences towards beer, whose consumption more than doubled in ten years, from less than 2 litres of pure alcohol per inhabitant in 1997 to more than 4 litres per inhabitant in 2007. This change in beverage choice reflects a long global trend of increased beer consumption, which may be attributed to more aggressive taxes on spirits compared to beer and poor enforcement of beer taxation.

At least since 2004, the drinking population had tended to decrease in all ages for both genders, which may reflect less cultural support and less pressure to drink. On the other hand, this trend implies there is more alcohol and perhaps harm per drinker, *cetera paribus*.

The economic hardships of the 1990s and the recent recession that started at the end of 2008 seem to have made people more aware of the cost of alcohol products and to search for alternatives in the unrecorded alcohol market, which has flourished in the last two decades. The control measures and regulation of the alcohol market are less restrictive compared to other European countries, but the most problematic issue seems to be the level of enforcement of existing laws and the lack of an integrative vision comprising an alcohol harm-reduction strategy. However, more restrictions have been adopted in Romania since EU accession and its subsequent legislative harmonisation and some restrictions have received strong public support also from the growing population of alcohol abstainers.

Nevertheless, the Romanian experience confirms again that affordability matters. Its reduction in the 1990s led to a wave of unrecorded supply, and then in combination with high taxes and the recession of the late 1990s to a decrease in both consumption and related mortality. Alcohol abuse remains a sensitive health problem, and treatment and prevention systems struggle to construct an integrative vision for alcohol harm-reduction policies, strategies and targeted programs, including dealing with the crucial question of enforcing the legal drinking age.

A major challenge is to control the impacts of economic downturns that may reinforce illicit and unrecorded supply, as well increase fraudulence, which poses multiple dangers in regard to the safety of alcohol products as well as bring the risk of increased crime levels. Another related challenge is to reduce the effect of alcohol harms on larger segments of the population who already suffer poverty and where the illicit alcohol supply may be particularly harmful and where the provision of medical and social care may be insufficient.

On the other hand, experiences in the late 1990s suggest that an economic recession may be associated with decreased drinking and associated harm. The evidence for policy making in the field is weak, with discontinuous and contradictory series of data making it difficult to accurately provide estimates and predictions.

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Summary

Eastern European experiences presented in this volume re-confirm, often in a very dramatic way an extended body of literature as regards the consequences of changes in alcohol affordability and availability. Over the past several decades, numerous papers have been published that examined the impact of the affordability of alcohol on alcohol consumption (Grossman et al. 1987; Nelson 1997; Grossman et al. 1998; Chaloupka et al. 2002; Fogarty 2006; Hunt et al. 2011; Österberg 2011). Studies from many countries have shown an inverse relationship between alcohol prices and alcohol consumption, and concluded that affordability of alcohol is one of the most important predictors of alcohol consumption in a population (Cook & Tauchen 1982; Manning & Blumberg 1995; Norström 2005; Trolldal & Ponicki 2005; Moskalewicz & Wieczorek 2009; Elder et al. 2010). Most of the studies evaluated the relationship between alcohol prices and consumption using price elasticity.

The majority of estimates of price elasticity fell within the range of -0.3 to -1.0, indicating that a 1% increase in alcohol prices would be expected to result in a 0.3 to 1.0% decrease in alcohol consumption (Chaloupka et al. 2002; Elder et al. 2010). A recent meta-analysis of alcohol demand that included the results from 112 English-language studies reported statistically overwhelming evidence of the effects of alcohol pricing on alcohol consumption (Wagenaar et al. 2009). This study concluded that a 1% increase in alcohol prices resulted in a 0.44% reduction in population drinking. A study focused on the relationship between the affordability of alcohol in twenty European countries between 1996 and 2003 suggested a short run elasticity of -0.22 and a long run elasticity of -0.32 (Rabinovich et al. 2009). Concerning the beverage-specific effect of elasticity, most of the estimates suggested that beer consumption is relatively insensitive to price changes, whereas demand for wine and distilled spirits is much more responsive to price changes (Chaloupka et al. 2002; Babor et al. 2010; Elder et al. 2010).

Although there is a consensus among researchers that higher alcohol beverage prices result in a reduction of alcohol consumption and alcohol-related problems, elasticity differs widely across different countries, time periods and estimation methods (Bruun et al. 1975; Holder & Edwards 1995; Grossman et al. 1998; Chaloupka et al. 2002; Young & Bielinska-Kwapisz 2003; Babor et al. 2010; Elder et al. 2010). The variation in the elasticity values between countries is highly influenced by the cultural role of alcohol in those societies. In particular, it was highlighted that price had a substantially lesser effect on consumption in wine-producing European countries in which wine is used more as an everyday product (Chaloupka et al. 2002). Selvanathan and Selvanathan (2005) exam-

ine the differences between countries in price elasticity and concluded that the greater the overall level of alcohol consumption in a country, the lower the price elasticity. The evidence also suggests that the effects of price changes on alcohol consumption vary depending on the other alcohol control measures in place (Bruun et al. 1975; Kendell & de Roumanie 1983; Coate & Grossman 1988; Kenkel 1993; Nelson 1997; Fogarty 2006; Hunt et al. 2011; Babor et al. 2010). Furthermore, the results of a study based on data from one particular country may not be generalizable to other countries since they differ from each other in social, economic and political background.

Affordability may have a measurable impact on alcohol-related problems. Grossman and coauthors (1998) have concluded that a 10% increase in the price of alcohol would reduce cirrhosis mortality by 8.3 to 12.8%. A study based on data from European countries reported a statistically significant positive association between alcohol consumption and the incidence of liver cirrhosis, with a 1% increase in consumption followed by a 0.39% increase in cirrhosis incidence (Rabinovich et al. 2009). Another study found a strong correlation of -0.87 between alcohol prices and liver cirrhosis mortality (Rush et al. 1986). A recent systematic review of studies examining the effects of alcohol prices and taxes on alcohol-related morbidity and mortality yields meta-estimates of -0.347 for liver cirrhosis and other alcohol-related outcomes (Wagenaar et al. 2010). It was also suggested that doubling alcohol taxes would reduce alcohol-related mortality by an average of 35% (Wagenaar et al. 2010). Cook and Tauchen (1982) highlighted that increases in the excise taxes on distilled spirits would significantly reduce mortality from liver cirrhosis: a USD 1 increase in the distilled spirits tax was estimated to lower the cirrhosis death rate in the US by 5.4 to 10.8%. Similarly, Gruenewald and Ponicki (2006) reported that the liver cirrhosis mortality rate was significantly related to taxes on distilled spirits, but not to taxation on wine and beer. The authors concluded that this is not an artifact, given that in the US heavy drinkers prefer spirits as the lowest-cost form of ethanol. Collectively, this research evidence showed clearly that alcohol price levels were significantly and inversely related to alcohol-related morbidity and mortality.

Besides economic availability and alcohol prices, alcohol availability is also affected by the physical alcohol availability. Retail alcohol monopolies, licensing-systems, specific restrictions on sales-hours and days, as well as places and densities of alcohol retail networks are all examples of how the physical availability can be regulated. Age limits and personal control, for example, refusing alcohol sales to intoxicated persons or applying a maximum size or numbers of drinks that can be purchased in one go, are also measures used in this context (Österberg 2012).

Availability policies are based on the assumption that easier access to alcohol increases overall alcohol consumption in a population, which in turn increases alcohol problems. Restricting alcohol availability through law is a key policy in many parts of the world. The retail markets that make alcoholic beverages available to people can be described as either formal or informal. Formal alcohol markets are regulated by governments, whether at the community, regional or national levels. Informal markets provide alcohol largely through unregulated social and commercial networks (Babor et al. 2010)

Although total bans on alcohol production and sale are never completely effective at eliminating alcohol availability, total bans on alcohol can reduce alcohol availability and problems (Paulsen1973; Rahman 2002). They can, however, bring with them new problems, particularly through the development of an illegal alcohol market (Johansen 1994). All in all, in current European societies, total prohibition does not seem to be a politically acceptable option, even if the potential for reducing alcohol problems does exist.

Alcoholic beverages are sold both off-premise and on-premise. In mature alcohol markets both ways are typically regulated through laws and licensing systems. Studies of restrictions on alcohol availability support the conclusion that such strategies can contribute for the reduction of alcohol problems. The best available evidence comes from studies on changes in retail availability, including reductions in the hours and days of sale, limits on the number of alcohol outlets, and restrictions on retail access to alcohol, including the retail sale of alcohol from state monopolies. These studies consistently show that restrictions on availability are associated with reductions in both alcohol use and alcohol-related problems (Babor et al. 2010).

For young people, laws that raise the minimum legal drinking age reduce alcohol sales and problems. This strategy has the strongest empirical support, with dozens of studies finding a substantial impact on traffic and other casualties from changes to the drinking age (Wagenaar & Toomey 2002). There is also good evidence concerning reductions in the number of outlets or outlet density. Research on large changes in the density of outlets has consistently found associations with consumption and a series of longitudinal studies has found links between gradual changes in the density of alcohol outlets and alcohol-related problems (Babor et al. 2010). There is some evidence suggesting that the concentration of alcohol outlets into high density clusters within entertainment precincts is particularly problematic, although this area requires further evaluation.

Reductions in hours and days of sale have generally been shown to reduce alcohol consumption and related problems (Babor et al. 2010). There is much less evidence on the effectiveness of measures like bans on drinking in designated public areas and the implementation of lockouts at late-night licensed premises. Well-designated and controlled studies have not yet been undertaken to evaluate their effectiveness.

Research evidence from more economically developed countries supports the hypothesis that, as alcohol becomes more available in less developed countries, heavier drinking and alcohol problems are likely to increase. This suggests that as economies grow in low- and middle-income countries, likely changes in physical availability will follow the pattern observed in more developed countries.

The scope of this book

Most of the existing research literature investigating associations between alcohol affordability and availability on the one hand and alcohol consumption and related harm on the other have approached it from a technical perspective without paying much attention to the more general social and economic context. Social perception and/or support are often neglected and the impact of prevailing economic and social policies is not sufficiently explored. This technical approach often leads to a naive question of why evidence-based strategies and measures with a proven impact on reducing volume of drinking and problems are not adopted. Explanations often consider the power of economic interests, including the fact that alcohol and related industries exert continuous pressure on decision-making bodies, which in effect leads to economic considerations having priority over public health interests.

The collection of papers in this book deviates from the majority of previous studies and shows how political, social and economic transformations may have affected alcohol policies. As the chapters presented describe countries that have undergone a deep, often dramatic shift from a centrally-planned towards a market economy at the turn of the millennium, there is much in common in their experiences. All of them survived a rapid liberalisation of alcohol policies at the beginning of the 1990s, with previous alcohol monopolies and restrictive policies dismantled as remnants of communism. New alcohol markets were built, while the number of new economic operators multiplied as did the number of alcohol outlets. Unlike many basic commodities, the affordability of alcohol increase suddenly, which could be attributed to intense competition between domestic and international industries fighting to conquer new markets, but first of all, due to the high wave of untaxed alcohol which poured into countries in transition.

Belarus, Russia and Ukraine

Disintegration of the Soviet Union and sudden transition to a market economy affected most those countries where a planned economy with a monopolistic position of the State had become most petrified and had lasted as long as seventy years. These include Belarus, Russia and Ukraine. In all of them, alcohol monopolies were abandoned, the alcohol sector was immediately privatised, old regulations and restrictions were removed, while new ones have not been adopted. As a result, alcohol consumption peaked and the prevalence of alcohol-related harms soared.

Along with Russia and Ukraine, Belarus is one of those countries where a sudden growth of alcohol consumption occurred at the beginning of the 1990s, contributing to increased overall mortality, in addition to alcohol-specific deaths. The chapter from Belarus offers convincing evidence that alcohol affordability, which increased ten times in two decades (1990-2010), with increased vodka affordability in particular, had a significant impact on recorded sales despite substantial unrecorded supply. This experience suggests that a policy of high alcohol taxation may reduce overall consumption even if

the illicit supply increases in response to high alcohol prices. In addition to affordability, the relative decline in alcohol prices compared to other commodities whose prices grow faster may lead to higher alcohol sales in spite of its diminishing affordability. The chapter also shows that increasing alcohol affordability correlates with alcohol-related harm, such as liver cirrhosis deaths and the prevalence of alcohol dependence. This confirms that even heavy drinkers are responsive to changes in alcohol affordability, increasing their consumption when affordability rises and diminishing their intake when affordability is reduced. Nevertheless, further studies are needed to separate the direct effect of affordability on alcohol harm and also controlling for the impact of consumption levels.

Russia, as described in detail, paid probably the highest price for privatising its alcohol industry and facilitating access to alcohol. The high wave of alcohol resulted in extremely high consumption levels, which produced a mortality crisis unprecedented in peace time in the industrialised world. Around the mid-1990s when consumption levels reached their peak, male life expectancy dropped well below 60 years. Despite gradual improvement, male life expectancy is still low by international standards after having been at a modest level in the mid-1980s. High mortality among men in their drinking age could have be attributed not only to record high consumption levels but also to a hazardous drinking pattern consisting of drinking to drunkenness, drinking several days in a row (zapoi) and drinking non-beverage alcohol with a high alcohol concentration.

Privatisation and liberalisation of alcohol controls stimulated not only the legal but also illegal alcohol supply, whose share in overall alcohol consumption was as high as 50%. In addition to domestic producers, import tax exemptions encouraged huge imports of extremely cheap alcohol. Thousands of economic operators and the hundreds of thousands of alcohol outlets could not be effectively controlled. Despite the flourishing alcohol industries, State revenues were relatively low. Following concern over the need to increase revenues, some regulatory measures were made already in the late 1990s, with a focus, however, on diminishing unrecorded supply and securing the interests of legal producers, without any reference given to public health interests. Brewers represented a particularly influential pressure group. By 2005, beer sales were not regulated as alcoholic beverages and its availability increased remarkably. Since 2006, however, stricter rules have been adopted, with particular impetus in the period 2011–2013, when diminishing alcohol consumption became an explicate aim of the new legislation. Of special interest is the introduction of minimum prices for alcoholic beverages adopted in 2010, which resulted in a two-fold increase in vodka prices in less than three years.

The affordability of alcoholic beverages matters in Russia just as much as in most other countries. However, throughout the last decade, despite the growing affordability of vodka, its consumption tended to level off at the high level and then began to decline slowly in the second half of the 2000s. This apparent inconsistency may partially be attributed to competition from beer, whose physical availability increased very substantially compared to vodka. Moreover, beer could have become a beverage of fashion and its consumption – a symbol of belonging to the new generation of Russians who broke with the old Soviet drinking pattern.

Ukraine is yet another example that affordability and availability matter. Throughout the last 25 years, Ukrainian consumers have shown themselves to be *homo economicus*; the volume of their consumption greatly fluctuated with changes in the relative prices of alcohol but also with changes in the affordability of individual beverages. These changes have had an impact on health, as shown by mortality statistics. After a few healthy years during Gorbachev's temperance crusade, a rapid transition to a free market economy resulted in the suspension of all alcohol control measures, a substantial increase in drinking, and a dramatic growth in alcohol-related mortality. The mid-1990s saw the first attempts to reintroduce control measures, which brought about temporal amelioration in health, but market forces proved to be very successful in exploiting existing loopholes and forcing new ones to evade the control measures and maximize their profits. After a short decline, consumption started to grow again, followed by a new wave of increased mortality. In particular, beer producers seemed to be very influential, as beer won the status of a non-alcohol beverage and maintained it for more than 15 years, which resulted in five-fold increase in beer consumption. Youth seemed to be even more responsive and keenly followed the new possibilities to drink more beer and alcopops. The worrying tendencies from the public health perspective were eventually reversed by a fortunate coincidence of an economic recession hitting Ukraine in 2008 and new more comprehensive alcohol policies. New restrictions adopted in the late 2000s were reinforced by an economic recession that reduced alcohol affordability and in turn improved population health.

Baltic Countries

At the beginning of the transformation towards a market economy, the Baltic Countries suffered similar experiences regarding alcohol policy and epidemiology as Belarus, Russia and Ukraine. Market interests clearly won out over public health interests, with alcohol control policies rejected as being a remnant of communism, followed by a rapid increase in alcohol consumption associated with an overall mortality crisis that reduced significantly life expectancy, particularly among men. Despite the fact that public health interests came to be more strongly articulated towards the end of the 1990s economic growth, reinforced by membership in European Union, led to continuous increase in alcohol affordability. This combined with modern marketing strategies, led to a further increase in alcohol consumption and related harm.

Already in 1998, Lithuania adopted its national health programme with an ambitious aim of reducing alcohol consumption by 25% by 2010. Soon it became obvious that this aim would fail, as the following year's excise duties on spirits were sharply reduced, resulting in an extraordinary 60% increase in spirits sales over one year. The growing trend was further reinforced by legislation that allowed the sale of alcohol during the night hours as well as at petrol stations. In the few years that followed, Lithuanian alcohol policy seemed to be 'a victim' of the integration into the European Union. On the one hand, population incomes substantially increased, but on the other excise taxes on spirits im-

ported from the EU had to be removed. In effect, the affordability of alcohol improved, which resulted in a two-fold increase in mortality due to liver diseases, as well as in hospital admissions due to alcoholic psychoses and the toxic effect of alcohol over a five-year period. In 2008, in an attempt to curb these developments, the Lithuanian Parliament adopted a package of alcohol control measures, including increased taxes, a ban on night alcohol sales, restrictions on advertisement as well as drunk diving. These measures were applied parallel to an economic crisis that diminished the real incomes of the population as well as the affordability of alcohol. These had an immediate effect, both on alcohol consumption and related problems, which dropped significantly as illustrated by the fact that the number of potential years of life lost declined from 40 000 in 2007 to 22 000 in 2009, which confirms again that alcohol affordability and availability have a direct impact on life and on deaths.

The Latvian chapter offers an excellent example of how the high physical availability of alcohol may lead not only to increased consumption of legal beverages but also that it reinforces illicit supply. As argued in this chapter, the emergence of thousands and thousands of new outlets, often open around the clock, made the State incapable of controlling the alcohol market at all. Despite the rapid increase in consumption, as indicated by the growing trends in alcohol mortality at the beginning of the 1990s, the State alcohol revenues were at a record low level. The sources of illicit alcohol varied, including smuggling and local untaxed production. Efforts to impose higher taxes focused on spirits, while taxes on beer were very low indeed. This policy could be seen as an attempt to abandon a tradition of vodka drinking inherited from the Soviet times and to reinvigorate traditional Latvian beer culture. Teenagers seemed to be most responsive to this new policy, which was reflected in the ESPAD study, which showed that the prevalence of last-month beer drinking increased from one third in 1995 to almost 60% four years later, at the expense of vodka drinking. Nevertheless, growing prices of alcohol had not caught up with growing incomes, which increased remarkably since the beginning of the economic transitions and grew even faster after the EU accession in 2004. According to the data available, alcohol consumption and related problems reached their peak in the period 2007–2008. The economic crisis forced the State to introduce high alcohol taxes and to enforce them, which is what, in connection with declining incomes, eventually brought consumption down. Few years later, despite strong resistance from the alcohol industry a new comprehensive Alcohol Action Plan 2012–2014 was adopted, which took under consideration both public health interests as well as public revenues.

As with all the other Baltic countries regaining independence, Estonia in 1991 embarked on a fundamental political and economic transition, which directly affected alcohol production, distribution and consumption. Alcohol control policies and the alcohol monopoly were abandoned, which had both symbolic and practical implications. Against other competing priorities, such as political sovereignty and economic transition towards a market economy, health and welfare policies were neglected, leading to dramatic health crisis affecting firstly men in their productive and drinking ages. The 1990s saw alcohol consumption soar. Alcohol affordability multiplied in contrast to other foodstuffs, which became relatively more expensive. In addition to the widespread le-

gal supply, illicit alcohol was also increasingly consumed, in particular by a substantial proportion of poor inhabitants, which tended to drink alcohol smuggled from Russia, as well as non-beverage alcohol. According to the available data, alcohol consumption increased by 75% over less than ten years, which was followed by a steep increase in alcohol-related mortality. Deaths due to drunken driving had a particularly high visibility because of the rapid motorisation of the country, which received special momentum in the second half of the 1990s. These disastrous trends from the public health perspective started to reverse only in 2008, in connection with the economic crisis, which badly hit Estonia. Alcohol affordability suddenly declined. Measures to control its availability were introduced, such as a ban on night and morning sales. Enforcement of existing restrictions on illicit supply became crucial to securing state revenues and seemed to receive popular support against a background of an earlier mass methanol poisoning, which killed 68 people. After recovering from the economic crisis, however, the alcohol industry increased investments in promoting its products, counterbalancing the State efforts towards a more comprehensive alcohol policy.

Poland, Czech Republic, Hungary and Romania

The chapter from Poland is focused on a single policy experience, namely on the reduction of alcohol taxes by 30% in 2002. The purpose of that measure was three-fold; first to reduce the black market share in overall vodka consumption, second to harmonise Polish prices with those in the neighbouring Czech and Slovak Republics as well as in Germany so as to curb legal and semi-legal private imports, and thirdly to make Polish products competitive on the domestic market, in particular after the anticipated EU extension in 2004. According to the population surveys carried out just prior to the tax reduction and one year later, overall vodka consumption increased by 25%, without a measurable impact, however, on unrecorded consumption. This experience confirms once more the modest price elasticity of alcohol demand. Moreover, it demonstrates that lower taxes do not have an immediate impact on the consumption of unrecorded alcohol, whose prices are very likely to diminish in response to lower taxes so as to continue to attract those consumers who look for cheap booze. It has to be stressed that this observation may not hold true in countries applying effective control of legal sales parallel to an active tax policy.

Compared to other countries represented in this book, the Czech experience is unique indeed. The Czech Republic belongs to countries where alcohol consumption has been very high by international standards already in the 1980s, approaching perhaps saturation level at that time. Therefore, its 10% 'peaks' in consumption identified at the beginning of the 1990s in association with economic and political transitions and then about ten years later are not so remarkable as in the remaining countries, where consumption could change by 25–40% in the course of one year. Unlike other countries, the impact of alcohol consumption on health seems to be moderate also when compared against the high variation in mortality rates recorded in the countries that emerged after the disso-

lution of the Soviet Union. Modest changes in alcohol consumption could also be related to its relatively high availability and affordability already before the 1990s, which did not change remarkably after the transition towards a free market economy. Despite an impressive decline in real alcohol prices, in particular for wine and spirits, whose real prices fell by 60%, their share in recorded consumption did not change much. Beer, whose real prices decreased by 'only' 20%, still represented about two-thirds of overall consumption, which confirms the low price elasticity of demand for beer, in particular in the countries where it is traditionally a beverage of choice.

Intriguing is the question of unrecorded alcohol consumption in a country highly saturated with alcohol, where prices are low and physical availability is high. Unrecorded alcohol exploded into the public consciousness in 2012, when 19 deaths due to methanol consumption were recorded in barely a week, indicating dramatically that demand for black market alcohol existed. Therefore, the unrecorded supply may partially explain the inconsistencies between changes in recorded consumption and the health outcomes observed in the Czech Republic. Last but not least, the role of harm reduction in alcohol policy needs to be reflected upon. Sobering up stations, which were invented and introduced in Czechoslovakia and then in other Eastern European countries, including the Soviet Union, played a crucial role in reducing alcohol harm for and from a drunken individual. Currently, the sobering up stations are disappearing due to a number of critical issues, such as human rights violations and declining welfare, though they still exist in the Czech Republic and their reinvigoration since 2006 may partially explain an almost two-fold decline in mortality due to alcohol disorders, as hypothesised in the chapter on the Czech Republic.

The Hungarian chapter focuses on two contrasting alcohol control experiences: attempts at municipal level to decrease alcohol availability in the night hours in order to reduce public nuisance and legislation at national level waiving the excise duty on home-distilled spirits for up to 50 litres per household. The primary purpose of the latter was to facilitate utilisation of fruit residues in rural households but it may also have been designed to contribute to higher political support among farmers in the countryside. The municipal-level interventions proved to be efficient, as numbers of crimes under the influence of alcohol, drunk-driving offences, as well as night time vehicle accidents with injuries declined in two out of three municipalities at a higher pace compared to the national trends. (Beneficial but statistically insignificant changes were also recorded in the smallest municipality, where the overall number of crimes and drunk driving cases, however, were very small indeed.) National level legislation also had an impact on recorded spirits sales, which decreased by 16%, as well as on budget revenues, which decreased by almost 20% overall. This drop in taxes is almost fully explained by taxes from local distilleries, which practically disappeared, which would seemingly suggest that they had been exclusively kept busy by distilling untaxed volumes not exceeding 50 litres per household annually.

The Romanian chapter offers a very broad perspective on alcohol policy in the last 20–25 years. It shows the role of general economic changes, such as the impact of the economic crises, the influence of EU accession, as well as the effect of alcohol-specific

factors, including the alcohol industry, cultural changes and finally the effect of alcohol policies. Following the fall of the Ceausescu regime, Romania survived three economic downturns, which seemed to have varying impact on alcohol. During the first most acute economic recession at the beginning of the 1990s, both recorded and unrecorded alcohol consumption increased thanks to rapid de-regulation and privatisation, which made the State apparatus incapable of controlling illicit supplies. The growing trend in consumption continued after the recession was over and was followed by a dramatic growth in alcohol-related mortality, particularly for deaths due to liver diseases and cirrhosis, whose rate almost doubled and reached a level three times higher compared to the EU average in 1997. The next recession at the turn of the millennium had immediate beneficial health effects, manifested in a clear drop in alcohol-related deaths. In that wave of recession, the State imposed a 'luxury tax', which covered imported spirits and which decreased the affordability of spirits in general. The global recession that also hit Romania in 2008 just after EU accession did not strongly affect alcohol consumption, as the luxury tax on foreign spirits was removed just in 2007 to harmonise taxes with the EU, which might have increased alcohol affordability and consequently consumption. In addition, legal measures to impose taxes on home-made beverages adopted due to EU accession were not strongly enforced, as they generated significant public protests. Still, unrecorded consumption in Romania is estimated to be as high as 4 litres of 100% alcohol per capita, which constitutes about a third of its overall alcohol consumption. Parallel to unrecorded supply, the brewing industry made substantial gains in Romania; in less than 20 years, beer consumption more than doubled, which can be attributed to cultural shifts reinforced by successful promotion and low prices of beer.

Conclusions

The experiences of the ten Eastern European countries presented in this volume confirm that the relationship between alcohol consumption, alcohol problems and alcohol policy do not represent an autonomous arena that can be studied without considering the wider political, economic and cultural developments. Summarising their varying experiences will always be a simplification. Nevertheless, some common trends can be distinguished:

1. The transition towards a market economy had a remarkable impact on the alcohol economy;
2. Immediately after the transition, alcohol supply had been de-regulated, with its affordability and availability substantially increased which led to increased wave of consumption and dramatic growth in problems related to drinking;
3. The liberalisation of alcohol policies increased the supply of both legal and illegal alcohol, as the previously elaborated system of centralised control proved to be helpless against a dense network of alcohol outlets and thousands of new economic stakeholders operating in an extremely laissez-faire economic environment;

4. Illicit alcohol still comprises a substantial proportion of overall consumption but its sources have differed from country to country in different periods. The illicit supply may come from a variety of sources, such as unrecorded imports, untaxed products of the domestic industry, purified technical alcohol, and home production;
5. In all Eastern European countries, the brewing industry achieved impressive gains from weakened State control over the beer market, by securing low taxes and increasing beer alcohol content, which eventually led to a doubling its consumption in less than 20 years. This process does not apply to the Czech Republic who used to be a world leader in beer consumption already in the 1980s;
6. Towards the end of the 1990s, after several years of total de-regulation, the countries made efforts to reintroduce some control measures, which were partially successful though coincidental with economic downturns. In most of the cases, however, fast economic development associated with growing incomes led to a substantial increase in the purchasing power of individual incomes, which made alcohol more affordable despite tax increases;
7. Global financial crisis in 2008-2009 which hit most of the countries represented in this book, combined with more successful control policies had a beneficial health effect, manifested by declining morbidity and mortality, associated with less drinking;
8. Nevertheless, after the crisis was overcome, the alcohol industry makes significant efforts to perpetuate its economic success in the Eastern part of Europe.

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