

# *Alcohol affordability and cross-border trade in alcohol*

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# *ALCOHOL AFFORDABILITY AND CROSS-BORDER TRADE IN ALCOHOL*

## *Foreword*

Policy research in the alcohol field has long recognized the importance of price and affordability for the development of alcohol consumption and related harms. The Swedish National Institute of Public Health has been commissioned by the Swedish Government to produce a discussion paper on alcohol affordability in the EU, with special focus on its consequences on cross-border trade on alcohol. The present report is the result of this assignment. This report is written by the two senior scientists; Esa Österberg and Thomas Karlsson from the Finnish National Institute for Health and Welfare (THL). It is clear from the report that cross-border trade with alcoholic beverages has a profound impact on public health. It is similarly clear that recent policy developments have led to a narrowing of the repertoire of public health motivated alcohol control measures. It is my hope that this publication will contribute to the ongoing discussion in relation to policy alternatives on this important topic.

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## *Background*

Harmful alcohol use is one of the most important risk factors for the burden of disease, both at the European Union (EU) and the global level, and the alcohol-attributable burden is avoidable. These are the main reasons why Sweden decided to prioritise alcohol and health in the area of public health during its EU Presidency in the second half of 2009.

The Swedish Ministry of Health and Social Affairs, in cooperation with the European Commission's Directorate General for Health and Consumers, organises an Expert conference on Alcohol and Health in Stockholm in September 2009. The purpose of the conference is to support a sustainable, long-term and comprehensive strategy to reduce alcohol-related harm in the EU. This report on alcohol affordability and cross-border trade with alcoholic beverages in the EU, commissioned by the Swedish Ministry of Health and Social Affairs to the Swedish National Institute of Public Health and further delegated to the Finnish National Institute for Health and Welfare (THL), will be discussed at the Expert conference.

The report is divided into two parts. The first part is a review summarising the results of studies dealing with the effects of changes in prices of alcoholic beverages and purchasing power on alcohol consumption and related harm. Part two deals with cross-border trade with alcoholic beverages and travellers' alcohol imports as such and as factors limiting the possibilities to increase alcohol excise duties or otherwise affect prices of alcohol or physical restrictions limiting alcohol availability. The second part also investigates where in Europe cross-border trade with alcoholic beverages or travellers' alcohol imports may be or indeed are problematic from the perspective of public health or social policy motivated alcohol control. The report ends with a discussion tying the two parts together by looking at the implications changing alcohol prices and cross-border trade of alcoholic beverages has on public health and social policy motivated alcohol policy.

## *Part I: The effects of price and income changes on alcohol consumption and related harm*

### *Introduction*

In 1975, the so-called purple book, *Alcohol control policies in public health perspective*, by Kjetil Bruun and his colleagues discussed the research evidence of the effects of changes in alcohol prices on alcohol consumption and related harm as a part of a comprehensive public health oriented alcohol control policy. Moreover, the purple book also studied and discussed the relationship between per capita alcohol consumption and alcohol-related harm, and came to the conclusion that “changes in the overall consumption of alcoholic beverages have a bearing on the health of the people in any society. Alcohol control measures can be used to limit consumption – thus, control of alcohol availability becomes a public health issue” (Bruun et al. 1975, p. 12–13). This so called total consumption model or availability theory has since become the cornerstone or at least a vital part of alcohol control in many countries.

Does the evidence presented in the purple book on the effects of changing alcohol prices and changing consumers’ disposable income on alcohol consumption still hold, and what else has been learned on the effects of changes in alcohol prices and disposable income on alcohol consumption and related harm since the mid-1970s? Other milestones in this review are two monographs following the purple book tradition, namely *Alcohol and the Public Good* by Griffith Edwards and his colleagues (1994), and *Alcohol – No Ordinary Commodity* by Thomas Babor and his colleagues (2003). These monographs show how public health thinking with regard to alcohol prices has evolved in recent decades and how the evidence base of the effects of changing alcohol prices on alcohol consumption and related harm has accumulated.

The historical line from Bruun et al. (1975) through Edwards et al. (1994) to Babor et al. (2003) is one way to summarise the developments in econometric and other studies on the effects of changes in price and income on alcohol consumption and related harm. In addition to these three monographs, we also highlight three meta-analyses on alcohol price levels and alcohol consumption published since 2003, namely the meta-analyses by James Fogarty (2006), Craig Gallet (2007) and Alexander Wagenaar and his colleagues (2009). These meta-analyses list the latest econometric analyses on changes in alcohol prices on alcohol consumption and also give a somewhat new and different starting point to the discussion on the effects of changes in alcohol prices or consumer purchasing power on alcohol consumption.

Another way to look at the effects of changes in alcohol prices and consumer purchasing power on alcohol consumption is presented in the recent RAND report by Lila Rabinovich and her colleagues (2009). They call this combined factor of changes in alcohol prices and consumer purchasing power a change in alcohol affordability. As will be shown later in this report, dealing with changes in alcohol prices and consumer income as one entity is not a totally new phenomena in alcohol policy discussions.

### *Purple book of changes in alcohol prices and consumer incomes*

The basic conclusion in Bruun et al. (1975) regarding alcohol prices and consumer incomes was that for different countries and different time periods, econometric analyses based on the classical theory of consumer demand have shown that fluctuations in the demand for alcoholic beverages can

by and large be statistically explained in terms of prices and incomes, that is, in terms of the same variables that are involved in the fluctuations of demand for other commodities. Alcoholic drinks thus appear to behave on the market like other commodities, and changes in alcohol prices and consumer incomes appear to be closely related to observable changes in alcohol consumption (Bruun et al. 1975, p. 74).

Bruun and his colleagues noted that, in studies dealing with a variety of geographical regions and periods, different values of price and income-elasticities have been found with respect to both total alcohol consumption and the consumption of different categories of alcoholic beverages, usually divided between beer, wine and distilled spirits. These differences in elasticity values describing the ways consumers react to changes in prices and incomes may be partly explained by the methods applied in different studies, by the accuracy of the basic data or by statistical factors of uncertainty relating to the elasticity values. However, in most cases the different elasticity values describe different reactions by alcohol consumers to changing prices stemming from different preferences of consumers, which again are linked to social, cultural and economic circumstances prevalent in different regions, and at different periods.

An important notation in the purple book is that, on a very general level, consumer preferences are linked in quite a complicated way to the benefits derived by consumers from the use of different commodities. Alcoholic beverages can benefit consumers in many ways; they can serve as thirst quenchers, as appetizers, as drinks with meals and as digestives. Alcoholic beverages can also be used as medicine, as a means of recreation and enjoyment and as a means of getting intoxicated. Insofar as different consumers derive different benefits from the use of alcoholic beverages, they may react in quite diverse ways to changes in alcohol prices. Because the properties of alcoholic beverages belonging to different beverage categories vary from one beverage category to another, consumers will react differently to price changes of the same magnitude depending on the beverage category (Bruun et al. 1975, p. 75).

Bruun and his colleagues further stated that it is evident that in many uses to which alcoholic beverages are put, they both serve as complements and substitutes for other commodities, and as substitutes they can be replaced by other commodities. This means that the level of alcohol consumption and the various uses of alcoholic beverages are connected with the prices of alcoholic beverages relative to those of other commodities. According to Bruun and his colleagues, the substitutive process is linked with the use-values of alcoholic beverages and other commodities. For example, a rise in the price of wine may lead to an increase in the consumption of non-alcoholic beverages like water, if wine was used as a beverage with meals before the price increase. If wine was used as an intoxicant, it could be replaced with beer or distilled alcoholic beverages, with home-made wine or even with illegally produced or smuggled alcohol. Bruun and his colleagues also speculated that substitution between different types of alcoholic beverages is quite generally perhaps not so much determined by changes in the average price of each category of alcoholic beverage as by changes in the prices of the cheapest brands in each category (Bruun et al. 1975, p. 76).

According to Bruun et al. (1975), elasticity values, or the ways in which consumers react, are also affected by the level of the disposable income of consumers. Consumers on different income and consumption levels may respond in very different ways to changes in prices and income. According to the purple book, elasticity values are also affected by other measures aimed at controlling alcohol consumption (Bruun et al. 1975, p. 78). For instance, Bruun and his colleagues wrote that the more restricted the physical availability of alcohol, the smaller the influence of changes in alcohol prices and consumer incomes on alcohol consumption.

Bruun and his colleagues proposed that the treatment of consumers as one group need not prevent the use of elasticities as an aid in the planning of control policy. However, they also stressed that it would be a great advantage if elasticities could be estimated for subgroups representing different consumption levels and background variables like gender, age or income levels. It was also stated that since alcohol is a commodity that may lead to dependence, relaxation of alcohol control policy could conceivably have a greater effect on alcohol consumption than a later tightening of the same control measure. Therefore, the purple book proposed that temporary reductions in the real prices of alcoholic beverages should be avoided in the implementation of control policy (Bruun et al. 1975, p. 78).

### *Twenty years later: Alcohol and the Public Good*

*Alcohol and the Public Good* continued the tradition started by the purple book. It was published in 1994 and included a chapter on alcohol prices and taxation (Edwards et al. 1994, p. 109–124). Furthermore, alcohol prices were also dealt with in its companion volume edited by Harold Holder and Griffith Edwards a year later (Holder & Edwards 1995, p. 145–163). Besides updating the research evidence of the effects of price changes on alcohol consumption and related harm, these contributions also dealt with some new themes.

Updating the research evidence was very important in two ways. First, during the two decades since the publishing of the purple book, many new studies on alcohol prices and alcohol consumption had been published. In the mid-1970s, Bruun and his colleagues were able to refer to 11 studies of price elasticities for alcoholic beverages in six different countries, many of them dealing with the time period before the Second World War (Österberg 1975). Edwards and his colleagues managed to tabulate information on price elasticities from 53 studies dealing with 18 countries. The robust finding, however, was still that if prices of alcoholic beverages go up alcohol consumption goes down, and vice versa. In the same manner, income elasticities estimated in different studies showed that when other factors remain unchanged, a rise in consumer disposable income generally led to an increase in alcohol consumption and a decrease in income led to falling alcohol consumption. The accumulated evidence on the estimated elasticities of alcoholic beverages clearly showed that elasticity values for total alcohol consumption and various beverage categories deviate in different countries.

The widening of the evidence base was especially important insofar as the new knowledge gave empirical support to many ideas which in the purple book were presented virtually as hypotheses. For instance, there was more empirical data on how own-price elasticity values changed when there were changes in other alcohol control measures (Österberg 1995, p. 151). New empirical data also showed that increases in income level and affluence decreased the value of own-price elasticity, supporting the idea that an increase in economical affluence meant that economic controls like high prices on alcoholic beverages lost some of their restrictive effects (Österberg 1995, p. 152).

Edwards and his colleagues also concluded that price elasticity values are different for the short and long terms. Short-term price elasticity gives the immediate effect of price changes on consumption while long-term price elasticity gives the total effect of changes in prices on consumption. They also concluded that, as a rule, short-term price elasticity has a smaller absolute value than the corresponding long-term price elasticity (Edwards et al. 1994, p. 110 and 115).

*Alcohol and the Public Good* discussed alcohol prices in a wider context and paid more attention to state alcohol income than the purple book. It noted, for instance, that because the share of taxes in



alcohol prices is somewhat low or very low in many countries, a tax increase would increase government revenue in most situations, even when demand is price elastic. Price elastic demand means that the per cent change in quantity consumed is greater than the per cent change in price, which in extension means that when alcohol prices go up the total expenditure on alcohol will go down. Only in situations when the tax rate is already very high will increases in tax rates be likely to cut tax revenues when consumption goes down.

### *Alcohol - No Ordinary Commodity*

Also *Alcohol - No Ordinary commodity* published in 2003 had a special chapter on pricing and taxation dealing with the same themes as the purple book and *Alcohol and the Public Good*. The basic facts of the relationship between alcohol prices and alcohol consumption and related harm were repeated since the evidence suggested more strongly than before that alcohol prices do have an effect on the level of alcohol consumption and related problems. The most important new adjustment was found in sentences like: "Consumers of alcoholic beverages respond to changes in alcohol prices, and heavy or problem drinkers appear to be no exception to this rule" (Babor et al. 2003, p. 112).

In econometric studies based on time-series data, the price elasticity values in many ways reflect the average reactions of consumers to changes in prices. This has raised concerns about the policy implications of price elasticity estimates. One example of these concerns is the disagreement on whether heavy drinkers are responsive to changes in alcohol prices. In the purple book, the link between alcohol availability and alcohol related harm was mediated by alcohol consumption, and the prevalence of heavy users was related to total alcohol consumption.

In later years, especially in the United States, a lively research tradition has grown where changes in alcohol prices and to a lesser extent changes in disposable income are directly related to changes in alcohol related harm and to changes in self-reported use of alcohol among specific demographic groups (Babor et al. 2003, p. 110). Some of these studies have concluded that frequent or heavy drinkers are in fact more sensitive to changes in alcohol prices than infrequent or light drinkers.

While measures of alcohol sales are not routinely available for sub-groups of the population, measures of alcohol related harm are often more specific. Thus, one way to get evidence of the effects of alcohol price changes on heavy consumers is to examine the relationship between price changes and harmful outcomes related to heavy alcohol use such as cirrhosis mortality. These kinds of studies have demonstrated that cirrhosis mortality has been quite responsive to price changes of alcoholic beverages (Babor et al. 2003, p. 111).

### *Meta-analyses on alcohol price elasticities*

The studies by Stanley Ornstein in 1980 and by Stanley Ornstein and David Levy in 1983 were not called meta-analysis at the time they were published even if the latter gave a detailed evaluation of 20 econometric studies dealing with alcoholic beverages in the United States and Canada. On the basis of their analysis, Ornstein and Levy concluded that the best estimates of price elasticities for beer, wine and distilled spirits are -0.3, -1.0 and -1.5 respectively (Ornstein & Levy 1983).

The latest meta-analysis on the effects of alcohol prices and tax levels on drinking is by Wagenaar and his colleagues published in 2009. This study is based on 112 studies reported in English (Wagenaar et al. 2009). This article also gives a short but concentrated description of earlier meta-analyses from which the ones by Gallet (2007) and Fogarty (2006) have been written after Babor et al. (2003). The meta-analysis by Fogarty, however, does not include any newer studies as it is based

on elasticity estimates from the studies dealt with in Edwards et al. (1994). Gallet (2007), on the other hand, includes 132 studies of alcohol price, income or advertising elasticities across 24 countries (Gallet 2007, p. 130).

Meta-analyses of the effects of alcohol prices on alcohol consumption have their merits in that they tell what the effects of changes in alcohol prices have been on alcohol consumption on the average. The problems with meta-analyses, however, become more apparent when they give average price elasticities for different alcoholic beverage categories. These problems are accentuated when several meta-analyses give about the same elasticity values or at least the same kind of ranking order of elasticity values for different beverage categories. This easily gives the impression that certain beverages are by nature more inelastic or elastic than others even if the explanation for similar average elasticity values could be that these analyses have used study material from the same kind of geographical, language or cultural areas, like for instance from Anglo-American English-speaking countries.

Table 1. Own-price elasticities for alcoholic beverages in three recent meta-analyses

Source	Distilled spirits	Wine	Beer	Total alcohol consumption
Fogarty 2006	-0.70	-0.77	-0.38	..
Gallet 2007	-0.68	-0.70	-0.36	-0.50
Wagenaar et al. 2008	-0.80	-0.69	-0.46	-0.51

The most important problem with meta-analyses is not a technical, sample-related problem. The real problem is, as was already stated in the purple book, that elasticity values are not properties of alcoholic beverages. In other words, the meta-analyses mentioned in Table 1 get a low own-price elasticity for beer only because beer is a common beverage consumed at free time activities or even with meals in most English speaking countries, meaning that beer is viewed as some kind of a necessity among beer drinkers. In some other countries beer is more of a luxury item with higher price elasticity. This point is better highlighted when we look at wine, which seems to have clearly higher price elasticity than beer, indicating that people drinking wine often seem to view wine almost as a luxury beverage. If we were able to conduct meta-analyses of alcohol price elasticities in countries where wine is an ordinary mealtime beverage, the average price elasticity for wine would be quite low, indicating that people drinking wine do not view wine as something special, but rather identify it as any ordinary foodstuff.

Fogarty (2006) is critical of the minimalistic interpretation by Edwards and his colleagues as well as by that of Philip Cook and Michael Moore. The former wrote: "Other things being equal, a population's consumption of alcohol will in lesser or greater, but usually significant degree, be influenced by price" (Edwards et al. 1994, p. 121). The conclusion of the latter two was that: "Estimated elasticities for beer, wine, and spirits differ widely over time, place, data set, and estimation method, but one conclusion stands out: In almost every case the own-price elasticities are negative" (Cook & Moore, 2000, p. 1639). Fogarty makes a more general interpretation by relating the price elasticity values to the level of per capita alcohol consumption and the relative share of beer, wine and spirits of total alcohol consumption. He suggests an inverse relationship between the market share of a beverage and own-price elasticity. "Alcoholic beverages with a large market share tend to have a more inelastic demand than alcoholic beverages with a small market share" (Fogarty 2006, p. 323).

Gallet (2007) also examines the importance of income elasticities for the demand of alcoholic beverages. In his meta-analysis, the income-elasticity for all alcoholic beverages was 0.50, meaning that a one per cent increase in consumer income led to a 0.5 per cent increase in alcohol consumption. The corresponding elasticity values for beer, wine and distilled spirits were 0.39, 1.10 and 1.00. In the European comparative alcohol study, Kalervo Leppänen and his colleagues estimated price and expenditure elasticities for 13 EU member states and Norway mainly in the time period from 1960 to 1996 (Leppänen & Sullström & Suoniemi 2001). The mean expenditure elasticity in their study was 0.78 and the mean price elasticity -0.55.

Like the results of Fogerty and Gallet concerning own-price elasticities of alcoholic beverages, the results of Wagenaar and his colleagues also confirm previous reviews of this literature (Table 1). Wagenaar and his colleagues concluded that price changes affect the whole population of drinkers from light drinkers to heavy drinkers but that the effect in this respect was not as large as the effects on overall drinking (Wagenaar et al. 2009, p. 104).

### *Affordability*

The latest innovation in the alcohol field regarding economic determinants of alcohol consumption is to speak of alcohol affordability encompassing alcohol price and consumer income. As the RAND report states “research on the combined effect of income and price on alcohol consumption is, however, extremely limited. Alcohol affordability refers to people’s ability to buy (consume) alcohol; it is therefore a fabrication of price and (disposable) income. (It is worth noting, however, that by combining measures of income and price, affordability as a measure obscures the differential impact of income and price changes on behaviour, in this case on alcohol consumption)” (Rabinovich et al. 2009, p. 21).

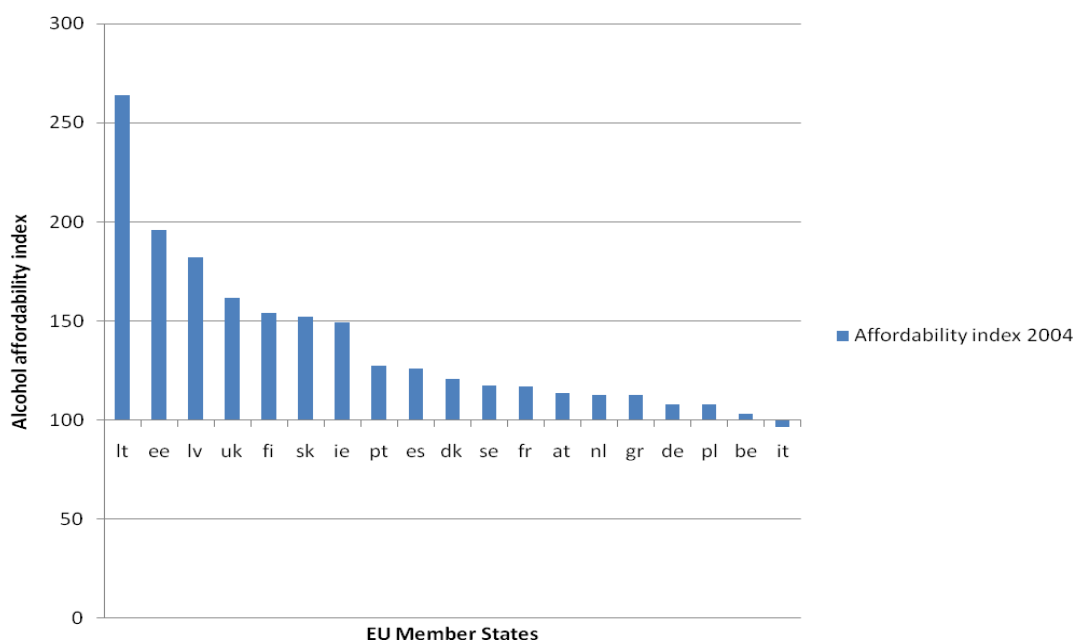
According to the RAND report “the affordability index captures how ‘affordable’ the consumption of alcoholic beverages is for an average citizen” (Rabinovich et al. 2009, p. 22). In the RAND report, the affordability index has been defined as the ratio of the real disposable income index to an index presenting relative prices of alcohol. This means that the disposable income can change due to changes in wages, income tax and other taxes, social contributions, and other transfers. Similarly, the relative price of alcohol can change due to changes in the price of alcohol and/or changes in the price of other goods. The usefulness of the affordability index is that it summarises all these different indicators in one convenient measure. We know that changes in total alcohol consumption are an outcome of many factors. Therefore, an increase in alcohol prices, which under the condition of other things being constant would lead to decreases in alcohol consumption, may in reality be connected to increases in alcohol consumption if disposable incomes are increasing at the same time. The affordability index also gives a hint how much alcohol prices have to be increased to eliminate the effect on increasing disposable incomes on alcohol consumption.

On the other hand, an affordability index also has important limitations because it is not directly linked to a policy instrument or differentiates between the effects of different affordability components. For instance the affordability elasticity should be different if the one per cent change in alcohol affordability is due to a decrease in the price of beer or distilled spirits or an increase in wages or social contributions.

The RAND report changes in the affordability index between 1996 and 2004 are given in figure 1. Overall, the RAND analysis indicates that across the EU, 84 per cent of the increase in alcohol affordability was driven by increases in income, and only 16 per cent was driven by changes in alcohol prices (Rabinovich 2009, p. 26). This is because while incomes have increased considerably

across the EU countries, the relative prices of alcoholic beverages have remained relatively stable or fallen at a lower rate than the incomes have increased.

Figure 1. Changes in the affordability of alcohol between 1996 and 2004, selected EU Member States



Rabinovich et al. 2009, p 25

In Finland the changes in income and alcohol prices have been monitored for a long time by the so called "Koskenkorva index", named after the most popular domestic brand of vodka. The index shows how many hours a blue-collar industry worker has to work in order to be able to buy a bottle of vodka. As Figure 2 shows, the time needed to work has decreased to one fifth in four decades, or one can nowadays buy five times more vodka for one hour's salary than four decades ago. Here too, this change is largely due to increases in salaries as real prices of alcoholic beverages were on the same level in 2006 as they were in 1951 (Häikiö 2007, p. 44). In Estonia, a similar kind of index describes how much vodka or beer can be purchased on an average monthly salary. During the period 2000–2008, the amount of vodka had more than doubled and the amount of beer had almost doubled (Figure 3). A similar kind of affordability index can also be found in Switzerland (Eidgenössische Alkoholverwaltung 2001).

Figure 2. The number of hours that an industry worker has to work in order to afford a bottle of domestic vodka (½ litre) 1971-2008

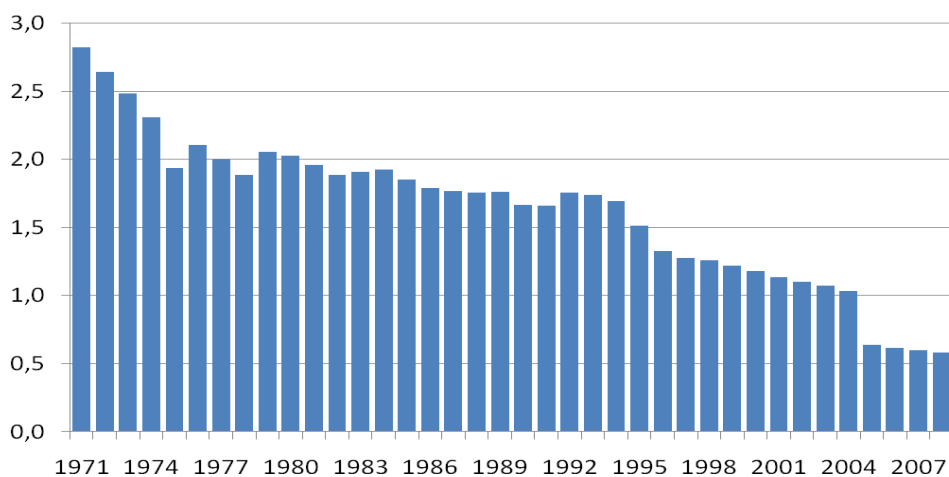
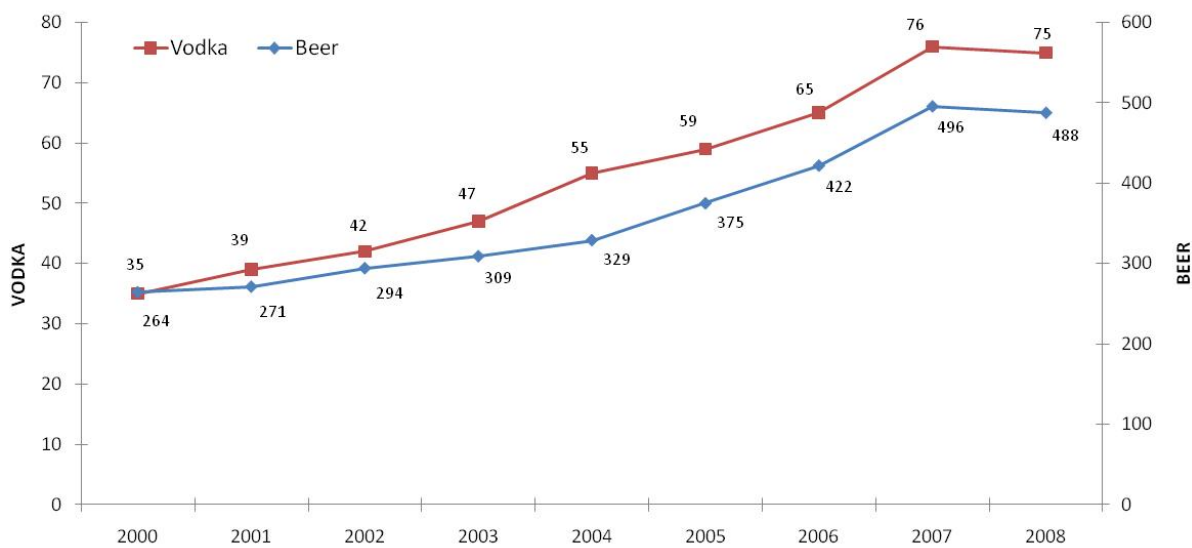


Figure 3. The amount of vodka and beer in litres that can be bought on a workers average monthly salary in Estonia



### *Summary*

We started our review by looking at what the purple book outlined on the effects of changes in alcohol prices on alcohol consumption more than three decades ago. It is remarkable that the present evidence base confirms most of the previous knowledge and does not alter the fundamental conclusions of Bruun and his colleagues in 1975. As Wagenaar and his colleagues conclude their meta-analysis: "Results confirm previous reviews of this literature, but extend results in important ways... Price affects drinking in all types of beverages and across the population of drinkers from light drinkers to heavy drinkers" (Wagenaar et al. 2009, p. 187).

The effects of prices as measured with price elasticities differ both across countries and different time periods as well as with regards to different alcoholic beverage categories, usually defined as beer, wine and distilled spirits. These differences are related to the fact that elasticities are not properties of alcoholic beverages and alcoholic beverages are not identical commodities, ethyl alcohol being the common denominator uniting them. Therefore, the way people consume alcoholic beverages in different countries varies widely as well as the way people react to price changes in different cultural settings.

To speak about alcohol affordability poses some problems, but it is also important as it reminds us that as people become more affluent they can consume more alcohol. It also reminds us that increases in alcohol prices have to be relatively large in order to counteract the availability increases caused by higher incomes. Lastly, the reports referred to in this review show that real prices of alcoholic beverages have decreased rather than increased in recent decades, which means that the trend in the real prices of alcoholic beverages has strengthened rather than limited the effects of growing affluence on alcohol consumption.

## *Part II: Cross-border trade in alcoholic beverages and travellers' alcohol imports*

### *Introduction*

Cross-border trade in different kinds of commodities has been around as long as borders have existed because frontiers, whether simply drawn on maps or clearly marked in the terrain, have always formed man-made hindrances for the free movement of people and goods. The extent and volume of cross-border trade is steered by the same factors and logic as trade in general. Cross-border trade, like trade in general, is influenced by the kinds of goods offered for sale in different places and their prices. Other elements that come into play are the demand for goods and the purchasing power of the people as well as costs of travelling, both in terms of money and time. All these factors have an impact on the frequency of crossing the borders and on the amount of cross-border trade (Karlsson & Österberg 2009).

The main difference between cross-border trade and trade in general is that cross-border trade is often concentrated around certain commodities, either because these commodities are available only on the other side of the border or because they are much cheaper there. Consequently, cross-border trade is often fuelled more by price differences in certain specially taxed commodities, such as alcoholic beverages, gasoline, perfumes, soft drinks, sweets or tobacco, than by differences in average price levels between different countries. In some cases, however, foodstuffs, clothes, or even certain services are also of significance to the amount of cross-border trade.

Besides basic elements from economic theory of consumer behaviour on a free market, the volume of cross-border trade is also influenced by natural geographic hindrances as well as by artificial structural hindrances. Natural geographic circumstances like high mountains or vast, unpopulated areas or seas, and large rivers have a bearing on the possibilities to cross the border and to control border crossings, which in turn has a bearing on how cross-border trade or smuggling can be controlled. The number of people living near border crossing points and the social relations of people on different sides of the border also have an impact on the magnitude of cross-border trade. As the standard of living and the amount of leisure time have increased, the number of border crossings and the intensity of cross-border trade have increasingly been connected to different kinds of leisure time activities, like going on short holidays across the border (Karlsson, Österberg & Tigerstedt 2005).

The artificial structural hindrances may include extra travel expenses, like visa requirements as well as other payments needed to be allowed to cross the border. Costs for exchanging foreign currency and the regulations for carrying it over the borders may also be considered as artificial hindrances to cross-border trade. Others are, for instance, few and poorly placed crossing points, rigorous and time consuming border controls, quantitative restrictions on carrying goods across the border, time spent abroad required in order to be allowed to take certain goods back into the home country or limitations of how often a traveller is allowed to cross the border with certain goods. Laws, rules and regulations against smuggling are also hindrances to illegal forms of cross-border trade.

On the other hand, there are also various measures for stimulating cross-border trade. Widely used measures include policies of paying back value added taxes (VAT) on goods purchased by foreigners and taken out of the country. In many instances, retailers at the borders try to attract customers from neighbouring countries by making their stores easily accessible, by adjusting their supply to meet the demand of people living on the other side of the border, and by advertising their

products on the other side of the border. The retailers may also adjust their sales practices to the needs of customers from other countries, for instance, by accepting foreign currency as payment. In this second part of the report, we will take a closer look at the cross-border trade in alcoholic beverages first in the Nordic countries and then in the EU Member States in general. By examining the patterns of routes and directions of cross-border trade in alcoholic beverages, we try to identify the important and significant cross-border trade areas for alcoholic beverages in Europe.

We start our analysis with the Nordic countries, Denmark, Finland, Iceland, Norway and Sweden, as cross-border trade in alcohol has been investigated in these countries in a multitude of studies over the years (Bygvrå & Hansen 1987; Thorsen 1988; Bygvrå 1990; 1992; 1994; 2007; Bygvrå & Westlund 2004; Österberg 2005; Österberg & Pehkonen 1996; Österberg et al. 1996; Nordlund 2003; Ericsson 2004; Lavik 2004; Matthiessen 2004; Lavik & Nordlund 2009; Norström 2000; Trolldal 2000; Boman et al 2007; Karlsson & Österberg & Tigerstedt 2005; Karlsson & Österberg 2009). Some of these studies are ongoing, like the Swedish Monitor project that has collected data on travellers' alcohol imports on a monthly base since July 2000 (Boman et al. 2007). Travellers' alcohol imports are also monitored in Finland with a similar kind of system, collecting weekly data on travellers' alcohol imports since May 2004. Before then, travellers' alcohol imports in Finland were studied on a yearly basis from the mid-1990s, and during the period 1968–2000 in eight years intervals (Österberg 2000; Metso et al. 2002).

In the Nordic countries, cross-border trade in alcoholic beverages or travellers' alcohol imports have usually been studied from a national perspective. The most important exceptions in this respect are two Swedish studies where special attention was paid to the distance to Denmark (Norström 2000; Trolldal 2000) and two Finnish studies which paid special attention to certain geographical areas, like northern and south-eastern Finland (Österberg 1995; Österberg et al. 1996). Our motivation to concentrate first on cross-border trade in alcohol in the Nordic countries is that the base of data is much larger and better in the Nordic countries than in EU countries in general. Therefore, we will test our ideas with the Nordic data and take advantage of the Nordic analyses when trying to identify the most important cross-border trade areas for alcoholic beverages in other parts of the EU. First, we recognise the areas where cross-border trade in alcoholic beverages might exist after which we identify where cross-border trade in alcoholic beverages in fact occurs. Our aim is to show that, besides purely economic factors based on supply and demand of goods, man-made restrictions and attractions as well as geographical circumstances also have an important bearing on the volume and frequency of cross-border trade in alcoholic beverages.

### *Alcohol taxes and prices in the Nordic countries*

In this review, we are using excise duty rates for alcoholic beverages as surrogates for differences in alcohol prices across different countries. There are two reasons for this. First, data on excise duty rates on alcoholic beverages is more accurate and timely than data on alcohol price levels. Secondly, in connection with the creation of the single European market in 1993, the EU adopted a directive (92/84/EEC) on the harmonisation of the alcohol excise duty structures in the Member States. This directive determines how alcoholic beverage categories are defined and the way alcohol excise duty rates are set in these beverage categories (Österberg & Karlsson 2002, p 58–61). Consequently, in the EU, comparable data on excise duty rates on alcoholic beverages is available on different beverage categories, and the cross-border trade may concentrate only on some beverage category or categories and there may even be cases like between Finland and Sweden, where Finnish people are buying beer and wine from Sweden and Swedish people distilled spirits and fortified wine from Finland.



Prices of alcoholic beverages are composed of production and transportation costs, including producers', importers' and wholesalers' margins, and the costs and margins of the retailers and of taxes – VAT and excise duties on alcoholic beverages. In the Nordic countries, taxes constitute an important share of off-premise retail prices of alcoholic beverages. In Finland, for instance, the share of excise duty and VAT in 2008 constituted 77 per cent of the price of a relatively cheap bottle of vodka. The corresponding share for a relatively cheap bottle of wine was 45 per cent and 47 per cent for an ordinary bottle of strong beer (Annual Report and Corporate Social Responsibility Report for 2007, 2008). In Sweden, the combined share of excise duty and VAT for distilled spirits was even higher than in Finland. In the beginning of 2008, its share was 84 per cent of the price of a relatively cheap bottle of vodka. The corresponding share for a relatively cheap bottle of wine was 52 per cent and for an ordinary bottle of strong beer 49 per cent (Systembolaget Annual Report 2008, p. 55).

Of the Nordic countries, the alcohol excise duty rates are lowest in Denmark and highest in Norway followed by Iceland, Sweden and Finland (Table 2). Alcohol excise duty rates are clearly higher in the Nordic countries than in their neighbouring countries. Even if taxes are not the sole factor affecting alcohol prices, their role is so prominent in the Nordic countries that differences in tax levels tend to reveal the direction of alcohol flows in cross-border traffic both between the Nordic countries and between the Nordic countries and their neighbours, Russia, Estonia, Latvia, Lithuania, Poland, and Germany (Table 2; see also Karlsson & Österberg 2009, p. 122–123). In Russia alcohol excise duty rates are clearly lower than in any EU country with the excise duty rate on distilled spirits being EUR 4.29 per litre of 100 per cent alcohol (Karlsson & Österberg 2009, p. 124).

#### *Different types of borders and border control*

Besides entry by sea and by air, all Nordic countries except Iceland can be entered by land. The way of leaving and entering the country affects the costs and time needed to cross the border and transport goods back to the home country. Borders can also be classified by their political nature. The main political difference between the Nordic borders is that they are either borders between two EU countries or borders between an EU country and a third country. Three Nordic countries, Denmark, Finland and Sweden are fully fledged members of the EU. Among the countries neighbouring the Nordic countries, Estonia, Latvia, Lithuania, Poland and Germany are also members of the EU.

In the Nordic sphere, the third country category includes three different kinds of borders, stemming from the fact that Iceland, Norway and Russia are not members of the EU. Unlike Russia, however, both Iceland and Norway have signed the European Economic Area (EEA) agreement with the EU and are also both a part of the Schengen agreement. Russia is therefore the only neighbouring country to the Nordic countries that is outside the Schengen treaty. Another category of third country borders with the EU stems from the special situation of the Åland Islands, which are an autonomous part of Finland, and thus a part of the EU, but not a part of the EU's Tax Treaty (Karlsson 1999). This enables ferries and ships that ply the Baltic Sea, mostly between Finland and Sweden, and that make a stopover at the Åland Islands, to sell alcoholic beverages and other products tax free, contrary to the common EU rule. Tax-free sales within the single market were abolished in 1999 (Österberg & Karlsson 2002, p. 64).

Table 2. Alcohol excise duty rates in EU, EEA/EFTA and EU accession candidate countries on 1 January 2009 by beverage category in EUR per litre of 100 % alcohol\*

	Distilled spirits	Intermediate products	Wine	Beer
EU minimum level	5.50	2.50	0.00	1.87
Austria	10.00	4.06	0.00	5.20
Belgium	17.52	5.51	4.28	4.28
Bulgaria	5.62	2.56	0.00	1.92
Cyprus	5.98	2.49	0.00	4.78
Croatia	8.44	0.00	0.00	5.62
Czech Republic	10.81	10.81	0.00	2.45
Denmark	20.11	7.86	7.48	6.82
Estonia	12.91	7.89	6.04	4.92
Finland	35.80	28.61	23.36	23.60
France	14.72	12.07	0.31	2.64
Germany	13.03	8.50	0.00	1.97
Greece	11.35	2.60	0.00	2.83
Hungary	9.77	4.32	0.00	5.40
Iceland	45.17	33.70	26.81	20.61
Ireland	39.25	22.01	29.78	19.87
Italy	8.00	3.81	0.00	5.88
Latvia	11.63	5.48	5.13	2.04
Lithuania	12.79	4.89	5.21	2.46
Luxembourg	10.41	3.72	0.00	1.98
Malta	14.00	8.33	0.00	1.86
Netherlands	15.04	6.62	6.23	5.02
Norway	73.49	47.94	47.94	47.94
Poland	14.67	4.91	4.25	5.07
Portugal	10.01	3.24	0.00	3.46
Romania	5.21	2.84	0.00	1.85
Slovakia	9.39	4.61	0.00	4.12
Slovenia	6.95	3.48	0.00	6.86
Spain	8.30	3.09	0.00	1.99
Sweden	51.55	22.80	20.17	17.07
Switzerland	18.33	9.17	0.00	3.20
Turkey	39.58	48.36	8.88	13.28
United Kingdom	28.03	19.63	24.09	20.39

\* For Latvia, the figures are from 1 February 2009. Calculations are based on the following alcohol contents: beer 5% alcohol by volume, wine 11% alcohol by volume and intermediate products 18% alcohol by volume. Exchange rates used to convert national currencies to EUR are from 1 November 2008.

Source: CEPS, 2009

Different types of political borders offer different possibilities for border crossings and for legally bringing alcoholic beverages over the border. The level of border control is also at least partially dependent on the type of political border. Borders between EU countries belonging to the Schengen agreement can be crossed without any formalities. Furthermore, the customs authorities within the EU can no longer conduct random checks of travellers, and in many cases there are no longer any manned custom stations, especially along land borders.

On 1 January 2004, Denmark, Finland and Sweden abandoned all quotas for travellers' tax-free imports of alcoholic beverages from other EU countries and accepted the EU principle according to which travellers within the EU can take with them any amount of alcoholic beverages as long as taxes have been paid in the country of origin, and as long as the beverages are intended for personal use. Like other EU countries, Denmark, Finland and Sweden still have import quotas for alcoholic

beverages for travellers arriving from non-EU countries. In Iceland and Norway, travellers' alcohol import quotas apply to all travellers.

Table 3. Travellers' alcohol import quotas in the Nordic countries in January 2009, in litres of the product

	Distilled spirits	Intermediate products	Wine	Beer
From outside the EU to Denmark, Finland and Sweden	1 or 2	2	16	
To Iceland (One of these 3 alternatives)	1	0	1	0
	1 or 0	1	6	0
	0	0	2.25	0
To Norway (One of these 3 alternatives)*	1	1.5	2	
	0	0	3	2
	0	0	0	5

\*The Norwegian regulations do not mention different beverage types, but the quotas are defined by alcohol content. cf. Lavik & Nordlund, 2009.

Source: Information on the Nordic alcohol market 2008

### *The amount of travellers' alcohol imports*

In most cases, travellers' alcohol imports are estimated with the help of various survey instruments, and the estimates are included as a part of the estimate for unrecorded alcohol consumption. For instance, in Denmark, the estimates are made by the Danish Ministry of Taxation and in Finland by TNS Gallup together with state authorities like the National Institute for Health and Welfare (THL), National Supervisory Authority for Welfare and Health (Valvira) and the Ministry of Finance, and private industry representatives like the Finnish Brewery Association and the Finnish Food and Drink Industries' Federation. In Sweden, the estimates are made by the Centre for Social Research on Alcohol and Drugs (SoRAD) at Stockholm University and in Norway mainly by the Norwegian Institute for Alcohol and Drug Research (SIRUS).

Travellers' imports of alcoholic beverages are by far the largest component of unrecorded alcohol consumption. For instance, in Sweden or Norway, the level of unrecorded alcohol consumption has constituted 20 to 35 per cent of the total alcohol consumption in recent years, of which a majority has been travellers' alcohol imports (Karlsson 2008). The highest per capita imports of alcoholic beverages by travellers are found in Finland and Sweden.

Table 4. Alcoholic beverages imported by travellers, million litres, and total alcohol imports in litres of 100 % alcohol per capita in 2007\*

	Spirits	Wine**	Beer	Cider & long drinks	Total in 100 % alcohol	Total in litres 100 % alcohol per capita
Finland	9.0	8.0	21.8	14.2	7.0	1.3
Sweden	18.0	31.6	55.5	-	14.1	1.5
Norway	4.4	8.6	7.9	-	3.2	0.7
Denmark	5.0	10.0	80.0	-	5.0	0.9

\*Iceland excluded because of poor data on unrecorded alcohol consumption

\*\*Wines include intermediate products.

Source: Information on the Nordic Alcohol Market 2008, 26.

Per capita alcohol imports are considerably lower in Denmark than in Finland and Sweden. They are even lower in Norway, where quotas are still in force for alcohol imports. In 2007, the share of travellers' imports of total alcohol consumption measured in pure alcohol per capita was 12 per cent or 1.3 litres in Finland. The corresponding figures were 18 per cent or 1.5 litres in Sweden, 11 per cent or 0.7 litres in Norway and 9 per cent or 0.9 litres in Denmark (Information on the Nordic Alcohol Market 2008, p. 27).

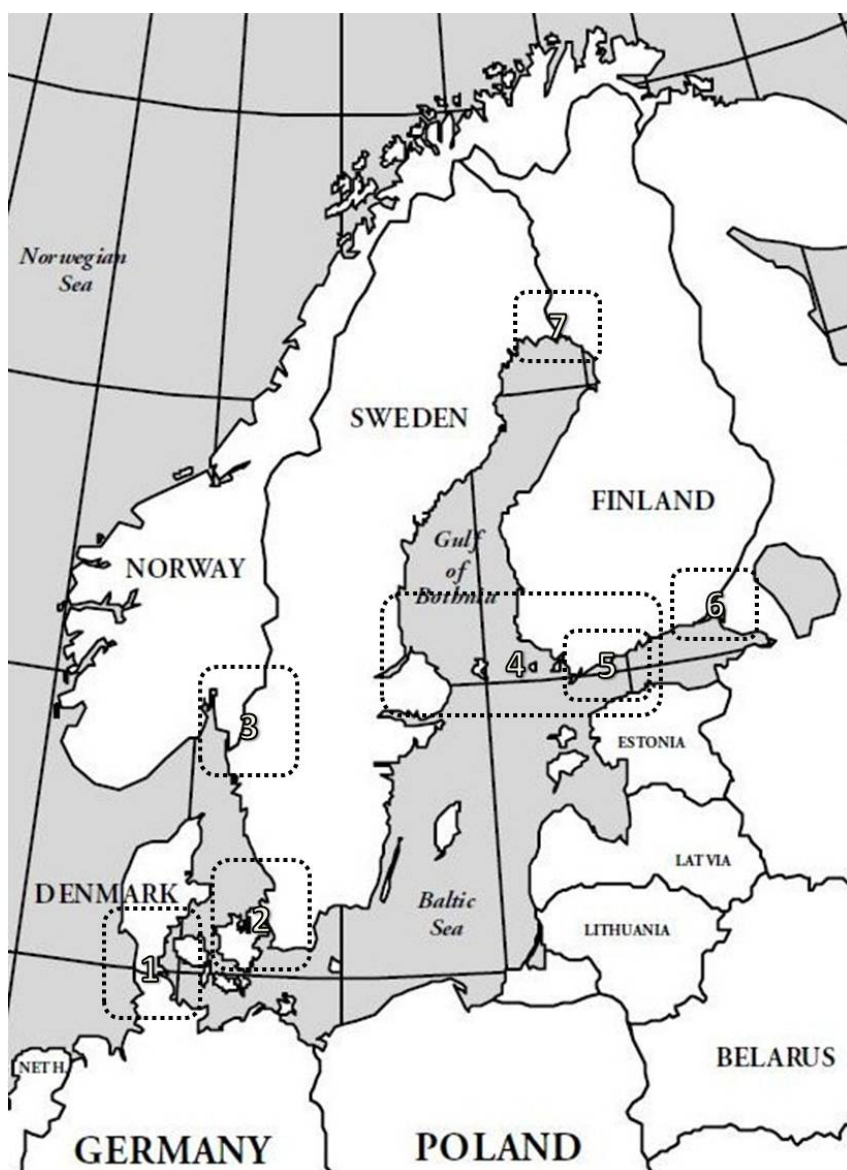
#### *Different kinds of border areas in the Nordic countries*

In an earlier article dealing with cross-border trade and travellers' alcohol imports in the Nordic countries, we investigated the Nordic borders, country by country, looking at the numbers and locations of crossing points, control practices at the borders and the number of people living near the borders, as well as the number of border crossings and how the supply of alcoholic beverages and other goods has been organised (Karlsson & Österberg 2009). We identified seven areas that might be of significance with regard to cross-border trade in alcoholic beverages in the Nordic countries.

One of the areas, the twin cities of Tornio and Haparanda, is not important as regards to the volume of cross-border trade in alcoholic beverages on a national level, but it is an area where it would be possible to further study the mechanisms affecting cross-border trade in alcohol (Area 7 in Figure 4; see also Österberg 1995). According to the northern customs district in Finland, it was calculated that 4.5 million cars crossed the Finnish-Swedish land border in 2008, of which 2.9 million car crossings were made in Tornio-Haparanda. Because of the small population and the geographic circumstances – the borders of northern Scandinavia are natural in the sense that they consist mostly of high mountains or vast uninhabited areas – cross-border trade in alcohol on a national level is measured to be very low in the northern parts of Finland, Norway and Sweden.

The border area between southern Finland and Russia is currently not an important channel for large amounts of inexpensive alcohol from Russia (Area 6 in Figure 4). This area is, however, worth keeping in mind, as it is one of the few border regions in the Nordic countries where trade in alcoholic beverages could increase substantially in the future. According to the Finnish Customs authority, nearly 4 million persons entered Finland over the Finnish-Russian land border in 2008. Most of the border crossings were made in the southern part of Finland, where most of the crossing points are located. Besides alcoholic beverages, tobacco products and gasoline are also clearly cheaper in Russia than in Finland. However, Finns visiting Russia need a visa, which is quite expensive, and the border control is often very time-consuming and rigid. Furthermore, the amount of alcohol and tobacco imported is restricted by an import quota, and to import alcoholic beverages legally from Russia the traveller has to spend at least 20 hours abroad (Karlsson & Österberg 2009).

Figure 4. The main Nordic Border Regions for travellers' imports of alcoholic beverages



Map provided by Cartographic Research Lab, University of Alabama

In our article we have identified five border areas of highest importance from the point of view of the amount of travellers' alcohol imports in the Nordic countries (Table 5). Starting from the southernmost border area, the 67 km long land border between Germany and the Jutland peninsula in Denmark (Area 1 in Figure 4) is one of the liveliest border trade areas in the Nordic countries. The Danish-German land border is crossed by some 33 million people annually. German prices are on the average one third lower than the Danish ones (Lavik & Nordlund 2009), and border control has been practically non-existent since the creation of the single market in 1993 (Bygvrå 2007). A German town, Flensburg with 85,000 inhabitants, is situated 5 kilometres south of the border, and has a long tradition of border trade with Denmark (Bygvrå 1990; 2007). Supermarkets situated in the suburbs of Flensburg accept Danish crowns and stores and supermarkets also advertise in

Danish newspapers. Besides alcoholic beverages, Danes also buy sweets, tobacco and foodstuffs on the German side.

Table 5. Characteristics of the five main Nordic regions of border in alcoholic beverages

	1. DK/GER	2. DK/SWE	3. NOR/SWE	4. FIN/Åland/ SWE	5. FIN/EST
<b>Type of border</b>	Land	Land, Water	Land	Water	Water
<b>Price differences of alcoholic beverages</b>	Large	Large/moderate	Moderate	Large/moderate	Large
<b>Import quotas</b>	No	No (indicative)	Yes	Yes	No
<b>Severity of border control</b>	None	Medium	Medium	Almost none	None
<b>Direction of alcohol</b>	GER → DK	DK → SWE	SWE → NOR	FIN/AX ← (TaxFree) →SWE	EST → FIN
<b>Border crossings/year</b>	33.2 million	35.5 million	25–30 million	5.6 million	5.8 million
<b>Infrastructure for traffic</b>	Road, railway	Ferry, road, railway	Road, railway	Ferry	Ferry
<b>Population living near the border area</b>	Scarce (≈ 160,000)	Dense (≈ 3.6 million)	Moderate (≈ 0.4 – 1 million)	- (no coherent border region)	Dense (1.4 million)
<b>Main types of cross-border traffic</b>	Shopping, leisure	Commute, leisure, shopping	Shopping, leisure	Leisure, shopping	Leisure, shopping
<b>Commodities of interest</b>	For Danes: Alcohol, foodstuffs, sweets, tobacco	For Swedes: Alcohol, clothes, foods	For Norwegians: Tobacco, meat, alcohol, sweets, soft drinks	For all travellers: Alcohol, tobacco, perfumes	For Finns: Alcohol, tobacco, consumer goods, services

Source: Karlsson & Österberg 2009

Another border area that is trafficked as lively as the land border between Germany and Denmark is the Copenhagen-Malmö-Lund area (Area 2 in Figure 4). The Swedish-Danish border is crossed by about 35 million people annually. Ferry traffic has gradually fallen in importance in favour of the bridge, which established a land connection between mainland Europe and Sweden in July 2000. In 2007, over 70 per cent of the road traffic already used the bridge for crossing the border between the two countries. Housing more than 3.6 million people, and accounting for more than one-quarter of Denmark's and Sweden's combined GDP, the Øresund region is the wealthiest and most densely populated area in the Nordic countries (Karlsson & Österberg & Tigerstedt 2005). The main reasons for Swedes and Danes crossing the border are commuting, shopping and different kinds of leisure time activities. For people in Sweden, one important motive for crossing Øresund is shopping alcoholic beverages. Prices of beer, wine and spirits differ between the two countries, and therefore these are the most attractive buys for Swedes (Bygvrå & Westlund 2004, p. 48; Matthiessen 2004, p. 37). In fact, the Swedes' cross-border trade in alcoholic beverages reaches all the way to Germany, where alcoholic beverages are even cheaper than in Denmark. According to the Monitor surveys by SoRAD 21 per cent of total alcohol imports by travellers in 2006 came from Denmark and 41 per cent from Germany. The share of the total imports of beer, wine and distilled spirits from Germany was 51, 49 and 31 per cent respectively. The corresponding figures for Denmark were 26, 26 and 15 (Boman et al. 2007, p. 43).

Whereas the German-Danish-Swedish borders are intra-EU borders, the border between Norway and Sweden is a border between an EU and non-EU (third) country. In the southern parts of Norway, cross-border traffic with Sweden is more intensive than in the mountainous north, with about 25-30 million people crossing the border every year (Area 3 in Figure 4). The border area in the south is in itself not that densely populated, but the Norwegian capital Oslo is situated only some 100 kilometres from the Swedish border. From a border traffic point of view, if we also include Østfold, Oslo and Akershus, then the combined population in this area is more than one million. The main items for Norwegian border shoppers are alcoholic beverages, tobacco, meat, sweets and soft drinks (Ericsson 2004; Lavik 2004; Lavik & Nordlund 2009). Traffic flows in the border region first reached considerable proportions in the mid-1990s, and there have been clear improvements in the transport infrastructure. For instance, a new bridge across the Svinesund was inaugurated in June 2005, and in 2008 a new motorway was finished between Oslo and Sweden.

The fourth significant border trade area we identified is the sea border between Finland and Sweden via the Åland Islands (Area 4 in Figure 4). Almost all maritime traffic between the two countries goes through the Åland Islands, because this allows the ferries to sell tax-free products, mostly alcoholic beverages, cigarettes and perfumes, up to a certain quota (Karlsson 1999). Tax-free prices on alcoholic beverages on the ferries are higher than prices on the ferries that traffic between Tallinn and Helsinki. This is explained by the fact that ferries plying between Sweden and Finland compete with Swedish and Finnish alcohol prices, whereas the ferries plying between Helsinki and Tallinn have to compete with much lower alcohol prices in Estonia than in Finland and Sweden. Lucrative tax free sales and relatively high prices on the ferries have made it possible to keep ticket prices fairly low, making travelling on ferries profitable for ship owners and affordable for passengers. In 2008, 9.3 million people crossed the Finnish-Swedish sea border, which equals over 4.6 million arrivals on the Finnish and as many on the Swedish side.

The fifth border area we could recognise as significant from a point of view of alcohol imports is the southern Finland-Tallinn area (Area 5 in Figure 4). Almost all of the passenger traffic between Finland and Estonia takes place on the Gulf of Finland between the Finnish capital Helsinki and the Estonian capital Tallinn. Some 20 per cent of the 5.3 million inhabitants of Finland live in the Finnish capital area, and about 30 per cent live within a 200 kilometres circle around Helsinki. The distance between Helsinki and Tallinn is about 80 kilometres. In 2008, 3.2 million passengers arrived in Finland by sea from Estonia (Merenkulkulaitos 2009). It is estimated that some two thirds of them are Finnish citizens. Prices of alcoholic beverages are clearly lower in Estonia than in Finland. According to survey studies, some two thirds of travellers' alcohol imports to Finland come either from Estonia or from the ships plying the waters between Helsinki and Tallinn or Finland and Sweden.

In addition to these regions, tax-free sales in Norway and Iceland in connection with international air traffic are also an important source of travellers' alcohol imports. This is partly explained by the fact that international airports of Gardemoen in Norway and Keflavik in Iceland both have tax-free shops in arrival areas where inbound passengers have the opportunity to buy tax-free products before leaving the airport.

### *Cross-border trade in alcoholic beverages in mainland Europe*

Besides Nordic countries, cross-border trade in alcohol as well as travellers' imports of alcoholic beverages also exist in the rest of Europe and the world, in fact everywhere where push and pull factors are strong enough to get people to buy and transport alcoholic beverages over the border and where there are not big enough man-made artificial or geographic hindrances. Next we scrutinize more closely cross-border trade in mainland Europe, focusing on the EU countries.

When identifying areas where cross-border trade in alcoholic beverages may exist, we first look at actual differences in alcohol excise duty rates, acknowledging that the excise duty rates do not necessarily reveal the real differences in alcohol prices (Table 2). Secondly, we are looking on VAT rates on alcoholic beverages in EU countries (Table 6). Thirdly, we will use figures for price differences between different European countries (Figure 5). These figures are not as accurate as figures for excise duties. Still they are important because it is the difference in price levels, and not the tax levels that is the driving force for border trade in alcoholic beverages. Fourthly, guided by the tax and price differences of alcoholic beverages, studies of cross-border trade in alcoholic beverages and its magnitude in Europe will be reviewed.

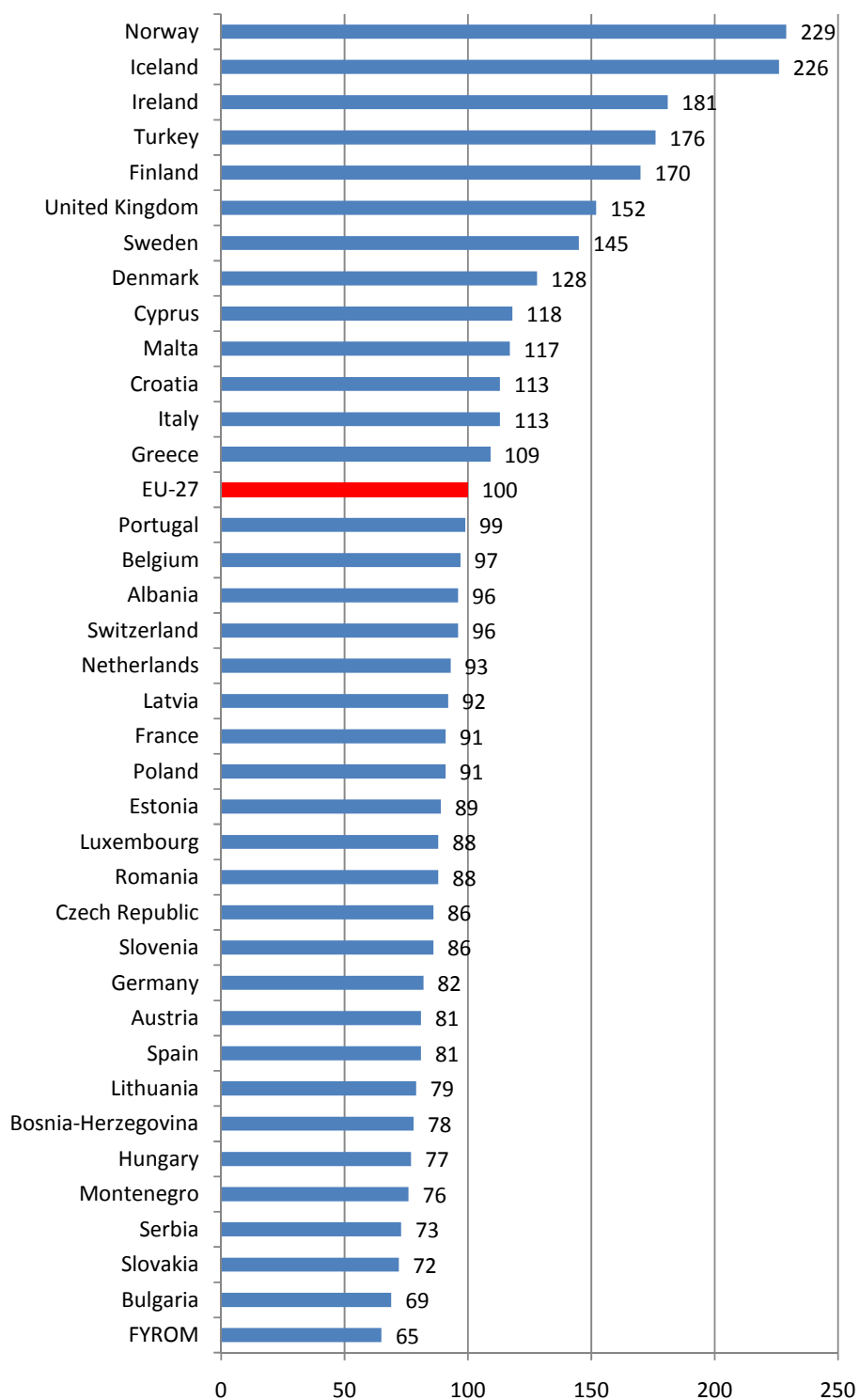
Table 6. VAT rates in EU, EEA/EFTA and EU accession candidate countries on 1 January 2009 according to beverage category in per cent

	Distilled spirits	Intermediate products	Wine	Beer
Austria	20.00	20.00	20.00	20.00
Belgium	21.00	21.00	21.00	21.00
Bulgaria	20.00	20.00	20.00	20.00
Cyprus	15.00	15.00	15.00	15.00
Croatia	22.00	22.00	22.00	22.00
Czech Republic	19.00	19.00	19.00	19.00
Denmark	25.00	25.00	25.00	25.00
Estonia	18.00	18.00	18.00	18.00
Finland	22.00	22.00	22.00	22.00
France	19.60	19.60	19.60	19.60
Germany	19.00	19.00	19.00	19.00
Greece	19.00	19.00	19.00	19.00
Hungary	20.00	20.00	20.00	20.00
Iceland	24.50	24.50	24.50	24.50
Ireland	21.50	21.50	21.50	21.50
Italy	20.00	20.00	20.00	20.00
Latvia	21.00	21.00	21.00	21.00
Lithuania	19.00	19.00	19.00	19.00
Luxembourg	15.00	15.00	12.00	15.00
Malta	18.00	18.00	18.00	18.00
Netherlands	19.00	19.00	19.00	19.00
Norway	25.00	25.00	25.00	25.00
Poland	22.00	22.00	22.00	22.00
Portugal	20.00	20.00	12.00	20.00
Romania	19.00	19.00	19.00	19.00
Slovakia	19.00	19.00	19.00	19.00
Slovenia	20.00	20.00	20.00	20.00
Spain	16.00	16.00	16.00	16.00
Sweden	25.00	25.00	25.00	25.00
Switzerland	7.60	7.60	7.60	7.60
Turkey	18.00	18.00	18.00	18.00
United Kingdom	15.00	15.00	15.00	15.00

Source: CEPS, 2009



Figure 5. Price levels of alcoholic beverages in 37 European countries, EU-27 = 100



Source: Statistics in Focus 90/2007 Eurostat

*Border areas and travellers' imports of alcoholic beverages in Europe*

Looking at the differences between excise duties for alcoholic beverages in the EU countries and the surrounding (mostly former Soviet Union) countries, we can note that there is potential for cross-border trade in alcoholic beverages between the Baltic countries of Estonia and Latvia and Russia. Tax levels for distilled spirits in Russia were one third of the corresponding tax rate in the Estonia in the beginning of 2009. The price difference between the countries results in lively cross-border traffic, especially in Estonia's third largest city, Narva, which with its 67,000 inhabitants is situated at the Estonian-Russian border. One reason for the lively cross-border traffic is that 80 per cent of the city's inhabitants are ethnic Russians, 34 per cent have Russian nationality, and 20 per cent have undefined citizenship. Those with Russian and undefined nationality have the right to enter Russian territory without a visa. Although cross-border trade in alcohol has considerable significance on a local level, alcohol imports from Russia do not have any great significance to the total alcohol consumption in Estonia.

With regard to the Baltic countries, we know that there has existed lively cross-border trade in alcohol both before and after the countries joined the EU in May 2004. For the time being, however, the price levels of alcoholic beverages in Estonia, Latvia and Lithuania do not differ in any great extent, which is also apparent in the volume of cross-border trade. One explanation for this is that Latvia increased its excise duty rates for alcoholic beverages by 30 per cent in February 2009, which levelled out the price differences for alcoholic beverages between the three countries (Table 2).

There might be some cross-border trade in alcohol in the EU countries bordering with Belarus, Ukraine and Moldova, but as these countries are neither members of the EU nor the Schengen Treaty, border controls are quite rigid and it is fairly safe to assume that alcohol imports from third countries do not occur on a large scale. This is further corroborated by the fact that the excise duties as well as prices of alcoholic beverages in the bordering EU countries, Latvia, Lithuania, Poland, Slovakia, Hungary and Romania are on a fairly low level.

When looking at the excise duties in rest of mainland Europe we note fairly high differences in alcohol taxes between France and Spain as well as between Slovenia and Austria (Table 2). One could assume that French travellers would buy alcohol from Spain, as the VAT rate is lower in Spain than in France. Also in Slovenia alcohol taxes are lower than in Austria, but because of the mountainous border areas there are not that many border crossing points between these countries, nor is the border traffic lively enough that alcohol consumption on a national scale would be affected. According to one informant French people on the border area are, however, using the opportunity to visit Spain and bring back distilled spirits.

There are, however, also areas in Central Europe where large scale cross-border trade in alcoholic beverages occurs. One of these areas is found in the Benelux countries, namely in Luxembourg, which, due to its low excise duties for alcohol, tobacco, and petrol and its low VAT rate as well as its easy accessibility from the neighbouring countries, is a popular destination for cross-border shoppers. Cross-border trade in alcoholic beverages has led to the per capita consumption figure for distilled spirits being adjusted in official statistics since 1970 in order to remove the beverages the visitors have bought either to be consumed in Luxembourg or to be imported home. In 1990, visitors were estimated to account for 70 to 75 per cent of all sales of distilled spirits in Luxembourg (Österberg & Karlsson 2002, p 287). Keeping in mind the easy accessibility to Luxembourg as well as the fact that the country has a population of just 493,000, the proportion of

total alcohol sales due to exports in Luxembourg is substantial, but the imports are not necessarily that big from the point of view of Belgium, France and Germany.

Another region where cross-border shoppers take home alcoholic beverages over the border is found between Ireland and Northern Ireland. Here, the tax differences are quite substantial, especially with regard to distilled spirits, which are taxed markedly higher in Ireland than in the United Kingdom (UK). The VAT for alcoholic beverages is also 6.5 percentage points lower in the United Kingdom than in Ireland. In addition, the UK and Ireland have separate currencies, and because of the financial crisis in 2008 and 2009, the pound sterling has lost much of its value compared to the euro. This again has made travellers' imports of alcoholic beverages from Northern Ireland much more lucrative for the Irish than it has been for a long time.

Exactly how much alcohol is brought over the border to Ireland is hard to estimate. However, alcohol sales in Ireland plunged in the first half of 2009, and increased imports of cheaper alcohol from Northern Ireland has been offered as one of the explanations to the plummeting sales figures. In the first quarter of 2009, alcohol sales fell by an "unprecedented" 13 per cent compared to the same period last year (BBC News, 27 May 2009). The Irish experience is a good example of how changes in exchange rates, as well as other economic factors like purchasing power, can influence peoples' shopping behaviour and induce cross-border shopping.

The UK also has another border across which large amounts of alcoholic beverages are transported. This is the border between England and the north of France and partly also Belgium. Here, cross-border traffic has traditionally been very active, especially between the harbour cities of Dover in England and Calais in France. The Strait of Dover, in French: Pas de Calais, is the narrowest part of the English Channel, and the distance between the two cities is just over 40 kilometres. Several ferry lines operate between the two cities, and Dover, the UK's busiest ferry port, handled 13.8 million passengers in 2008 (Transport Statistics Bulletin 2009).

As excise duties for alcoholic beverages are substantially higher in the UK than in France, considerable amounts of alcoholic beverages are imported by Britons when they return from France. Even on the Internet, the city of Calais is marketed to Britons as a destination where you can easily buy and transport back home cheap alcohol on a day trip to France. For instance, on the Calais Guide, which is a website directed at a British audience, Calais is marketed as follows: "The Chancellor, Gordon Brown, may think it is okay to tax the Brits into sobriety, but we say: 'what a great excuse to hop across the Channel for a great day out and bag some bargains'." (<http://www.calais-guide.co.uk/shopping/wine-and-beer-outlets.html>).

In addition to the ferry traffic the Channel Tunnel, which was opened in 1994, is used to transport goods and passengers by Eurostar trains and Eurotunnel Passenger Shuttles between the UK and France. A trip between Folkestone, UK and Calais, France takes only 35 minutes. In 2008, Eurotunnel estimated that 16.1 million passengers were transported by train through the Channel Tunnel (<http://www.eurotunnel.com>). It is difficult to estimate how much alcohol British passengers carry back with them to the UK, but considering the fairly high ticket prices, and even higher prices for transports of motor vehicles, it is safe to assume that the major part of alcohol imported from mainland Europe to the British isles is transported by ferries and not through the tunnel (see also Rabinovich et al. 2009, p. 75-82).

The EU also has several special Member States' territories that for historical, geographical or political reasons have a special relationship with the EU and their national governments, and are in one way or other exempt from one or all EU policy areas. Although a majority of these territories

has no special rules with regard to imports of alcoholic beverages, some of them, like the Canary Islands of Spain as well as the Channel Islands, Isle of Man and Gibraltar of the UK, are outside the EU's VAT area, which allows them to sell alcoholic beverages as well as tobacco tax free. There are, however, quotas for tax-free imports from these territories into the EU, which puts restraints on the amount of alcohol that can be imported from these territories into the EU. Therefore, their significance as a source of imported and unrecorded alcohol within the EU is not that large. The only exemption to this is the autonomous region of Åland (see above), as it enables the continuation of large scale tax-free sales onboard passenger ferries that operate between two EU countries (Karlsson 1999).

In the course of this study, we took advantage of different international alcohol policy meetings such as the summer Symposium of the Kjetil Bruun Society in the beginning of June 2009 in Copenhagen to discuss the cross-border trade in alcohol with several alcohol researchers. These discussions, as well as the answers to our short questionnaire, give reason to believe that at least some travellers take alcohol from the Czech Republic to Poland, from Romania to Hungary as well as from the Former Yugoslav Republic of Macedonia (FYROM) to Greece (see also Figure 6). Then there are always some travellers' alcohol imports based on local specialities like ouzo in Greece, which by the way is also taxed less in Greece than other distilled spirits. Based on these kinds of data, we could speculate that the lower the standard of living, the more inclined people are to take advantage of the possibilities cross-border trade in alcohol offers them.

### *Summary*

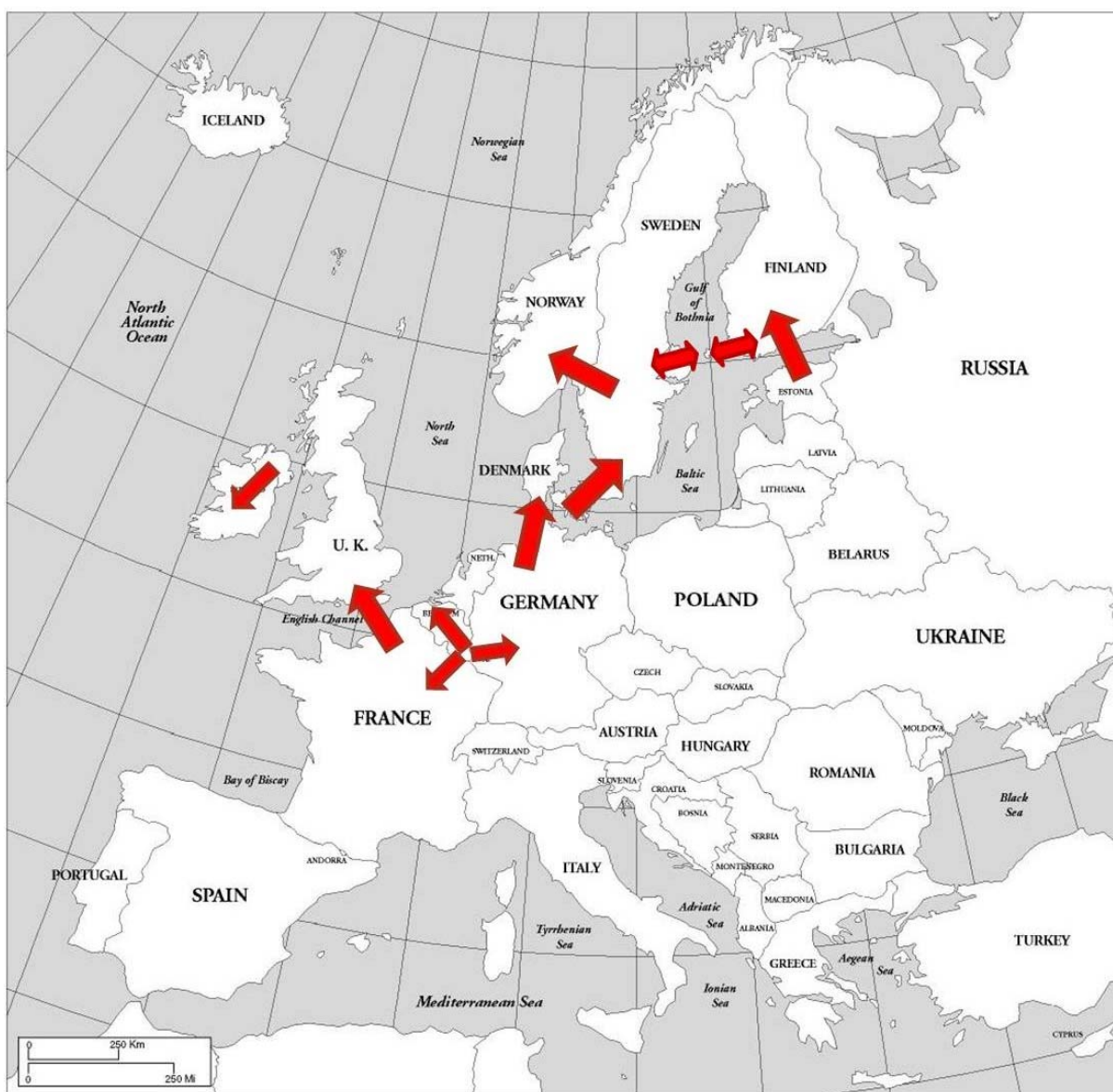
Several factors determine the magnitude of cross-border trade in alcoholic beverages: the level of price differences, existence of import quotas, severity of border control, number of annual border crossings, traffic infrastructure, the population residing near the border and motives for crossing the border. In the past decades, border control with regard to alcoholic beverages has decreased significantly, mainly due to the expansion of the Single European Market and the abolishment of import quotas for alcoholic beverages between EU member states.

The main motive for cross-border trade in alcohol is differences in prices of alcoholic beverages. The larger the price difference, the higher the volume of cross-border trade in alcoholic beverages, *ceteris paribus*. Differences in alcohol prices definitely determine the direction of cross-border trade in alcohol, but they are by no means the only factors affecting the volume of cross-border trade in alcohol. As the examples of the Norwegian-Russian and the Finnish-Russian borders show, even with very large differences in alcohol prices along the Nordic borders, strict control of border crossings as well as small quotas on travellers' tax-free imports of alcoholic beverages are able to keep the volume of travellers' alcohol imports to a low level.

The Finnish-Norwegian border and the Swedish-Finnish border are good examples of the importance of the size of the population. After the Finnish alcohol tax decreases of 2004, and before the financial crisis started in 2008, the Finnish Alko store situated in Nuorgam sold some 95 per cent of its alcoholic beverages to Norwegians, and the monopoly store in Tornio was the highest selling Finnish liquor store. For the local population of northern Finland, Norway and Sweden, cross-border trade in alcohol is an important phenomenon, but looking at the importance of alcohol traffic over the Nordic borders from a national perspective, it is clear that it is of no major significance to the state alcohol income in Finland, Norway and Sweden nor to total alcohol sales of their off-premise alcohol retail monopolies.

In central and mainland Europe, we identified three areas in particular where the cross-border trade in alcoholic beverages is particularly active (Figure 6). These areas were the border area surrounding Luxembourg, the maritime border between England and France, and the border between Ireland and Northern Ireland. The increase in the cross-border trade in alcoholic beverages from Northern Ireland to Ireland is also a good example on how sudden changes in people's purchasing power or price levels can impact people's shopping behaviour.

Figure 6. Important areas for cross-border trade in alcohol in EU/EEA.



Source: Cartographic Research Lab, University of Alabama  
Map provided by Cartographic Research Lab, University of Alabama

There are of course also other areas and regions within the EU where alcohol is imported across the borders, but in most cases the amount of imported alcohol is not that large in relation to the sales and consumption levels of alcoholic beverages in the rest of the country. From a local perspective,

travellers' imports of alcoholic beverages and even illegal alcohol products might, however, be of a greater significance and may be the source of criminal activities as well as a cause of considerable health and social problems.

In conclusion, we can be quite sure that the cross-border trade in alcoholic beverages will exist as long as it is affordable or feels advantageous for people to bring less expensive alcohol with them across the border. Price and tax differences will therefore always be relevant in determining the magnitude of the cross-border trade in alcohol. If tax levels between neighbouring countries decrease, the volume of cross-border trade also decreases. On the other hand, cross-border trade in alcohol might also increase in the future, especially on borders between the EU and third countries if there are any changes in the import quotas or the level of border control.

## *Discussion*

If the status quo remains, a population's consumption of alcohol will to a lesser or greater, but usually significant degree be influenced by changes in alcohol prices. Consequently, many countries have used high taxes on alcohol and prices as an alcohol control measure motivated by social order, and public health concerns in order to decrease alcohol-related harm. Open borders, combined with clear differences in the prices of alcoholic beverages between neighbouring countries, lead to cross-border trade in alcoholic beverages, and the amount of this cross-border trade affects the possibilities of increasing alcohol taxes and prices, thus narrowing the repertoire or effects of public health and social policy motivated alcohol control measures.

In connection with creating the single European market, the quotas for travellers' tax free imports of alcoholic beverages from other Member States were abolished. This has meant that market forces have affected alcohol taxation so that, for instance, Denmark decreased its beer and wine taxes by half at the beginning of the 1990s before it had to abolish its import quotas for wine and beer in the beginning of 1993 (Österberg & Karlsson 2002). In 2004, Denmark was forced to give up its import quota for distilled spirits at the same time as Finland and Sweden also had to give up their derogations from 1995 for travellers' alcohol import quotas for all alcoholic beverages. This time, Denmark lowered its excise duties for distilled spirits by 45 per cent in October 2003 (Karlsson & Österberg 2009). Finland lowered its alcohol taxes by an average of 33 per cent in March 2004 after it had become clear that its neighbouring country, Estonia with low alcohol taxes, was to join the EU on May 2004 (Mäkelä & Österberg 2009). Unlike Denmark and Finland, Sweden did not lower its alcohol excise duties at this time (Karlsson & Österberg 2009).

Comparing changes in total alcohol consumption, both recorded and unrecorded, the conclusion from experiences of the Nordic countries and the UK is that high alcohol excise duty rates and open borders lead to high unrecorded alcohol consumption, especially in the form of travellers' alcohol imports and cross-border trade. However, lowering alcohol taxes in order to combat increases in travellers' alcohol import, like the Finnish decision in 2004 means that total alcohol consumption will be higher than in the case where taxes would have been kept unchanged, which in fact was the Swedish solution in 2004. In a similar manner, despite the border trade with alcohol, the UK has since 1993 several times increased excise duties on alcoholic beverages, especially beer and wine. In a world with open borders, countries using alcohol taxation as a public health and social policy motivated alcohol control measure must balance between the level of alcohol taxes and the amount of cross-border trade in alcohol.

If alcohol tax decisions are motivated by agricultural goals in order to guarantee the livelihood of farmers and to secure the supply of wine to consumers at reasonable prices, then it is logical to have low or zero excise duty rates for wine. This, however, poses problems if the country tries to raise alcohol excise duties on other alcoholic beverages than wine. In about half of the EU member states the excise duty rate for wine is zero and also for other alcoholic beverages the alcohol excise duties constitute only a low share of the price. This means that if alcohol taxes would be used by the government as a mean to collect tax revenues, the situation would be almost ideal, as increases in alcohol excise duty rates in most countries would lead also to increased alcohol tax revenues to the country. In this sense, increasing alcohol excise duties would serve fiscal as well as social and health interests.

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