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## **Sustained Wine Business as Reflected by the International Alcohol Policy**

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### **ABSTRACT**

**Purpose** - After a period of 20 years successful growth of sales in the international wine business the upcoming international alcohol policy is endangering the economic sustainability of the wine business. The international alcohol policy is favoring taxes and minimum prices for all alcoholic beverages to reduce alcohol caused hazards and harm. This policy is based on a large number of empirical studies on price elasticities of alcoholic beverages.

**Design** - The aim of this paper is to evaluate the results of the studies on price elasticities of alcoholic beverages by using the available results of studies on consumer decision making, focusing in particular on the relevance of price elasticity in comparison to the relevance of the individually available budgets and the preferences. In that case the contrast between alcoholics (consumer segment causing alcoholism) and average consumers is analyzed using the knowledge about great differences of the preferences between consumer segments.

**Findings** - Wine is highly affected by the alcohol policy due to the expectation of a decrease in overall consumption and the very high costs of alcohol content related taxes paid by all wine consumers. Price elasticities in demand of wine are analyzed to be much higher than for beer and wine consumers are far away from alcoholism.

**Practical Implications** - The big social problem of alcoholism has to be underlined here. This problem and its international spreading demands for an examination of the effectiveness of the alcohol policy on prices and the development and check of new instruments of direct control of the alcoholics.

**Key words:** alcohol policy, price elasticity of beverages, demand of wine, decrease of wine consumption, taxes on wine

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## 1 INTRODUCTION

Since the beginning of the 90ies the wine business has experienced nearly 20 years of economic prosperity if the development is measured by the worldwide turnover, and, despite all structural changes, not by the volume of the overall wine consumption (Anderson (2010); Hoffmann (2011)). Economic growth is up to now a criterion widely indisputable among economists for economic success, which provides the basis for sustained economic management.

The international alcohol policies (WHO (2009 / 2010a / 2010b) and Rand (2009)) suggest state market intervention in the alcoholic beverages market (e.g. the increase of taxes on alcohol and / or minimum prices for all alcoholic beverages) and to reduce the consumption of alcoholic beverages. This approach results from a large number of empirical studies which prove a mean price elasticity of -0.46 for beer, -0.69 for wine and -0.80 for spirits (Wagenaar et al. (2009)). In consideration of the large quantity of empirical price and alcohol tax analyses (Grossman et al. (1987); Chaloupka and Wechsler (1996); Chaloupka et al. (2002); Anderson and Baumberg (2006); Cook and Moore (1994)) and the theory of demand, the existence of negative price elasticities at different levels cannot be denied.

The sustained development of the wine business is endangered by the political pressure towards a taxation of all alcoholic beverages, because the price elasticity assumed for wine shows a higher decline in demand compared to beer. Some studies display for the case of wine a low involvement in alcohol-related problems (Naimi (2007); WHO (2010a); Rand (2009)).

The known factors of influence of demand behavior should be discussed in this contribution in total and in different consumer segments. Thereby, the main question is if higher taxes on alcoholic beverages can solve problems caused by excessive alcohol consumption or if they are largely ineffective while producing other sustained damages at the same time.

## 2 PROBLEM

Based on empirical studies, representatives of the alcohol producing industries are not interested in special alcohol taxes using the decline in demand as a proof of expected economic damages. On the other hand, those representatives interested in the containment of excessive alcohol consumption, use the decline in demand as an evidence of effectiveness of state intervention concerning the reduction of social damages caused by alcoholism (Elder et. al. (2010)).

The existence of great social damages caused by excessive and partly permanent alcohol consumption (in the following briefly named 'alcohol problems') cannot be denied. In fact, each producer of alcoholic beverages – and here the wine business from wine producer to wine retailer / distributor, caterer and even the engaged wine consumers (wine lovers) in particular – have to commit themselves to attend to the alcohol problems. Here a special role comes up to the wine business, because in most countries wine and sparkling wine are not the most important alcoholic beverages causing alcoholism (Naimi (2007); WHO (2010a); Rand (2009)). The wine business with its traditional cultural integration of wine (from the Christian religion to high-class table culture, or from landscape shaping economic structures to proclaimed positive effects of a moderate wine consumption) mainly addresses the opinion-leading upper class. Who explains his product as an important element of healthy, deliberate and cultural-stamped lifestyle, has the liability to look from this high social claim towards the consequences caused by false consumption.

Especially the observed trend towards excessive alcohol consumption among adolescents (binge-

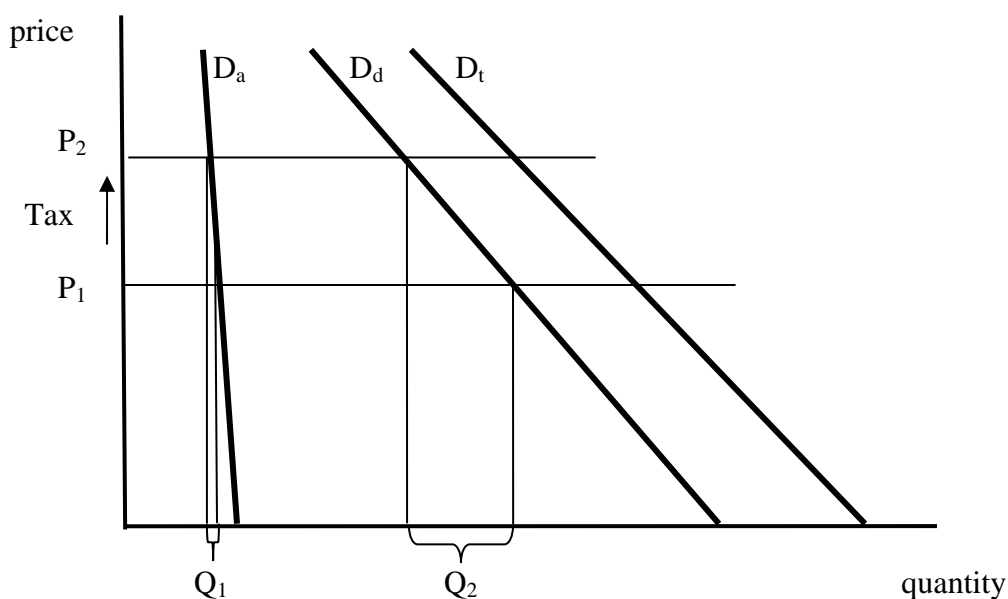
drinking) in all countries (Keng and Huffman (2007)), as well as the increased concentration of alcohol problems in socially weak classes as aboriginals in Australia (Srivastava, and Zhao (2010)) lead to the assumption that higher prices of alcoholic beverages do not solve the problems. Various macro-economic studies establish a state market intervention on the alcoholic beverage market by the reduction of the average purchase responses as a result of tax-related price increases. An increase in price seems to be an efficient public instrument to solve the alcohol problems (WHO (2009), Adams and Effertz (2010)).

### 3 HYPOTHESES

The advocates of higher alcohol taxes argue that the lower demand volume of alcoholic beverages is a result of the increasing prices. A large number of empirical studies show a considerable decline in demand, with a particular attention paid to excessive alcohol consumption, which will lead to a reduction of the overall alcohol problems (Wagenaar et al. (2009); WHO (2009 / 2010a); Sutton and Godfrey (1995); Anderson and Baumberg (2006)).

As a counter-hypothesis we invoke that the empirical studies mostly cover a broad range of consumer classes including their intrinsic average consumer behavior and are inadequate to serve as an empirical proof (Manning et al. (1995)). Excessive alcohol consumption mostly takes place in very special groups of people (e.g. adolescent, socially weak classes, etc.) or with particular

Fig. 1: Effect of different price elasticities on demand



$P_1$  = price without alcohol tax, ...

$P_2$  = price increase through alcohol tax,

$D_a$  = demand function of alcoholics,

$D_d$  = demand function of average consumers

$D_t$  = total demand of both consumer segments

$Q_1$  = demand reduction/ loss of alcoholics

$Q_2$  = demand reduction/ loss of average consumers

individuals whose demand behavior differs in specific drinking preferences with a liking regarding alcoholic beverages. The high preferences of special groups are an argument to mistrust the results of many empirical studies, which show a high decline in demand of alcoholic beverages.

Beyond, the question arises, if increased alcohol prices caused by specific alcohol taxes enforce the alcohol problem in the consumer segment of alcoholics (defined in this contribution as those people causing the alcohol-related problems)? Alcohol policies will generate new income problems and have only little influence on the demand of alcohol by alcoholics. Manning et al. (1995) prove that the group of intensive consumers (heavy drinker) with a price elasticity of -0.5 compared to the average of all alcohol buyers (-1.19) shows only the half of price reaction. In this connection we have to assume that the observed consumer group of intensive consumers is not mainly dominated by alcoholics.

Following this tendency, it is adequate to hypothesize that price increases have small impact on alcoholics (s. Fig. 1 =  $Q_1$ ). This leads to the hypothesis that the short- and long-term price elasticity of alcoholics is not very much different from zero (s. Fig. 1 =  $D_a$ ).

Both, alcoholics and all other consumers of alcoholic beverages (in the following briefly named “average consumer”) have to pay for higher alcohol taxes ( $P_2$  instead of  $P_1$ ). The average consumers are defined as those whose alcohol consumption is moderate and who do not contribute to the alcohol problems. The problem of harmful use of alcohol generated by alcoholics is not solved by higher prices and the state market intervention remains ineffective.

The remaining net effect is raising government tax revenue and partial financing of the social costs of alcohol related problems. Moreover, the great majority of consumers who do not cause the alcohol problems would have to pay the costs of an inefficient alcohol policy. This leads to the question if such alcohol policies are adequate if the principle of causation does not work and is reversed into its opposite.

Are there instruments used in other social areas which are better suited to fight against alcohol problems more efficiently? The answer is: yes. For example road traffic also leads to considerable social damages with negative social, psychological and economic consequences.

Nobody claims the taxation of automobiles in order to reduce the number of accidents. Instead, a broad set of direct penalties (judicial and economic) has been established in many countries. The causer of damages is personally taken to account and has to pay for the incurred damages.

The declining accident rate and number of traffic deaths in Germany (Seiwert (2011)) shows the effectiveness of specific public instruments in the fight against frequency and extent of damages in the road traffic.

By comparing the political instruments of transport policy and alcohol policy, systematic differences become apparent. In the transport policy the acting consumer (driver = the subject) is punished for example by cash payments, while in the alcohol policy the used product (alcoholic beverage = the object) is punished by taxes.

#### **4 FACTORS INFLUENCING CONSUMER BEHAVIOR.**

Empirical consumer behavior science gives ample and differentiated proof that the demand behavior is dependent first on different factors of influence and secondly differs by consumer

segments. Influencing factors towards the demanded quantity ( $Q_i$ ) of a person for a certain good or category of goods in a purchase situation are:

- the price ( $P_i$ ) of the specific good,
- the price (cross price  $P_k$ ) of an alternative good (substitute),
- the disposable income ( $E$ ) and
- the individual lifestyle and consumption culture ( $K$ ) of the consumer and the resulting particular preference for the category of goods and / or the particular good as well as
- other influencing factors ( $U$ )

(Köster (2010), p.28; Mankiw and Taylor (2008), p.76-81; Kotler und Bliemel (2001), p. 355; Trommsdorf (2002), p. 298; Böcker (1986), p. 566-570 ).

The following equation can be derived by using the different factors of influence described above:

$$Q_i = f(P_i, P_k, E, K, U)$$

The concrete purchase situation chronologically takes place before the consumption but at the same time it is motivated by a consumption desire. Situations of consumption where the consumer does not have to buy a good himself (e. g. on the occasion of an informal invitation) will not be taken into account, because the customer is another person underlying the same context.

For this issue it is of importance how the described influencing factors can be weighted in a specific purchase situation. Another point of importance is the different purchase behavior among different consumer segments. This can be generalized with the following equation:

$$Q_i = a + p_i \times P_i + p_k \times P_k + e \times E + k \times K + \dots u \times U$$

The variables  $p_i$ ,  $p_k$ ,  $e$ ,  $k$  and  $u$  are to be understood as weighting of the different factors of influence. Consumer research (Hoffmann und Szolnoki (2011)) pointed out that people with a high income and accordingly high freely available budget usually pay not much attention to prices ( $P_i$  and  $P_k$ ). Their purchase decisions results almost exclusively from the individual preference for a product (Szolnoki (2007)). In fact the weights  $p_i$ ,  $p_k$ , and  $e$  are very low and the purchase decision is almost exclusively determined by a lifestyle-driven specific preference ( $K$ ). The factor “preference“(K) receives a high weight ( $k$ ).

## 5 DIFFERENTIATION OF CONSUMER SEGMENTS

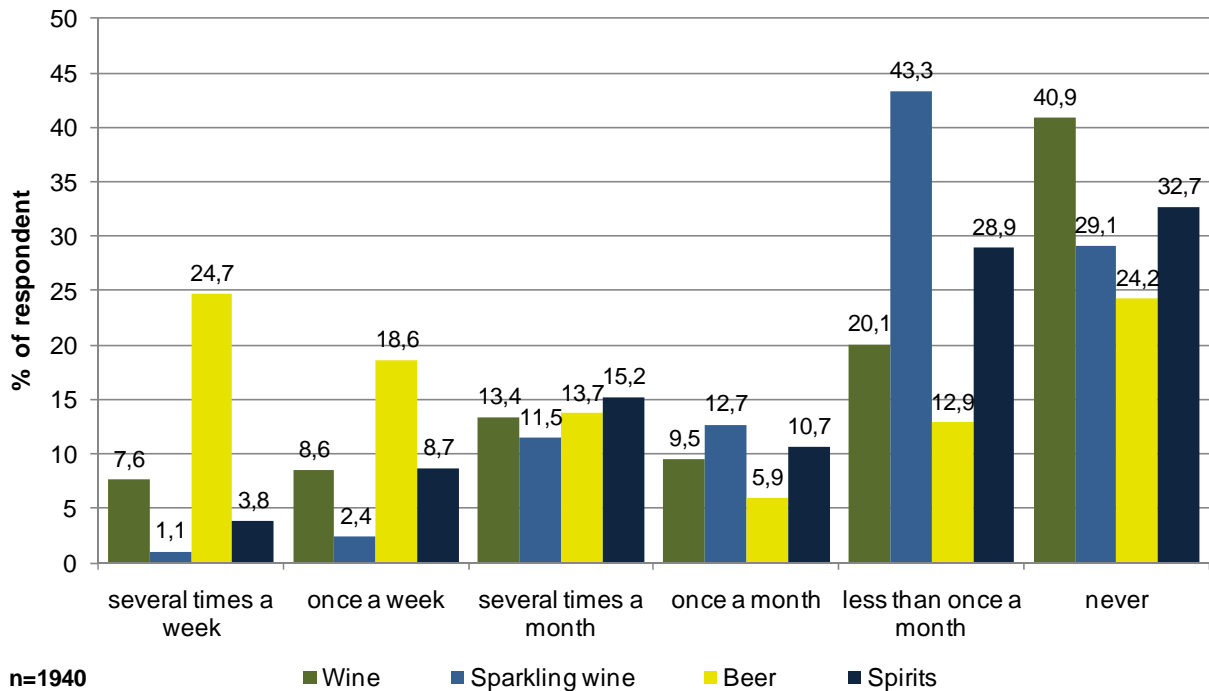
Transferred to our issue, the importance of increasing prices by alcohol taxes in order to reduce alcohol problems, the following questions will be discussed by opposing two consumer segments: alcoholics and average consumers.

1. Which are the characteristic preferences of alcoholics on the one hand and those of average consumers on the other hand?
2. Do prices of alcoholic beverages have the same impact on both consumer segments?

3. How do these two consumer groups reallocate their budget for alcohol consumption when prices for alcoholic beverages change?

Ad 1. Preferences play a central role in the evaluation of the raised questions. Regarding the demand functions above the factor preferences possesses the highest weighting value. The question towards consumption volume of alcohol in general and in the specific purchase and consumption situations is exclusively determined by individual preferences of alcoholic beverages on the whole, and of the preferred kind of beverage, like: beer, wine, sparkling wine or spirits (Fig. 2).

Fig. 2. Frequency distribution of different alcoholic beverages consumed in Germany in 2009



Source: Hoffmann and Szolnoki (2011), p.6

On account of the frequent and regular consumption of alcoholic beverages of alcoholics for one or very few beverage types, it can be stated that alcoholics have a distinct preference for alcoholic beverages. Contrary to alcoholics, average consumer will adapt the consumption of alcoholic beverages in type and quantity towards a specific situation with the preferences becoming less important. Attention should be paid to the great individual differences in matters of preferences inside the group of average consumers (Hoffmann and Szolnoki (2011); Hübinger, T. (2005); Szolnoki, G. (2007)).

Hence it is undisputable, that the preference of alcoholics marks their alcohol consumption and dominates their lives. Average consumers have a different but clearly weaker preference mostly dependent on the occasion using alcoholic beverages. Because wine is significantly less preferred by alcoholics (Naimi (2007)), the average consumers, who is mostly using wine event-orientated, constitute the relevant consumer segment for the wine business.

Ad 2. The availability of alcoholic beverages in different price segments leaves space for many

adaptations if prices increase due to alcohol taxes, both within and between the categories of alcoholic beverages. The easiest way to hold alcohol consumption stable despite generally increasing prices is to substitute it by a cheaper alternative product. Many consumers react in this way when the disposable budgets decline caused by dropping incomes, e.g. recently observed in times of the economic crisis, or in view of increasing prices for other consumer goods (income effect of cross prices (Köster (2010) p. 31). Therefore, advocates of the alcohol taxes attach great importance to price increases in the lower price segment as can be seen from the proposed invention of minimum prices for all alcoholic beverages (WHO (2009 /2010a), Rand (2009))

At the same time it is known from micro-economic consumer behavior science (Mankiw and Taylor, (2008), p 506) that the reaction to price changes, expressed by price elasticity and cross price elasticity figures, depends on individual preferences. Demand is considered to be completely inelastic to price if the preference is strong. For example in cases of emergency, if for the satisfaction of an actual need (deficiency situation), there is hardly an alternative to renounce the purchase (s.  $N_a$  in Fig. 1). E.g. the traveller in the desert who is close to dying of thirst would pay any price to satisfy his need. Likewise you will pay an  $n$ -fold higher price at a highway petrol station for a de-icing agent for the windshield washer system if it is used up and the street permanently muddies the windscreen because of snowfall. Alcoholics need to consume alcohol to satisfy their need and therefore often accept to become criminal. The average consumer is able to give up the purchase of alcoholic beverages if prices are very high, (s.  $N_d$  in Fig. 1) which is one reason of declining wine consumption in restaurants or bars.

We can summarize that alcoholics, due to their distinct preference for constant alcohol consumption, do not react at all or only marginally to price increases. Average consumers, by contrast, react individually differently, but in a significant way to price increases. This has been proven by comprehensive empirical studies of price elasticity of alcoholic beverages (Meier et al. (2009), Manning et al. (1995); Wagenaar et. al., (2009); Elder et. al. (2010)).

At the same time, average consumers will react with demand restrictions if alcohol taxes or other instruments to increase alcohol prices will be introduced (s.  $Q_2$  in Fig. 1), while alcoholics will not change their consumption pattern (s.  $Q_1$  in Fig. 1).

Consequently, increasing the price of alcoholic beverages endangers the alcohol producing industries but does not solve the problems caused by excessive use of alcohol.

Ad 3. The advocates of alcohol price increases often refer to the mostly modest income situation of alcoholics, binge-drinking adolescent and socially weak groups (e.g. the unemployed, etc.) and imply that higher minimum prices limit the budget disposable for alcohol consumption and therefore the quantity has to be reduced. By contrast, it has to be considered that the budget allocated to the purchase of alcohol depends on the individual importance attached to the satisfaction of the own needs. Here again, preferences influence the allocation of the budget.

Given the individual freedom to allocate the disposable budget according to the individual preferences of alcohol consumption, alcoholics will react in a specific way. Alcoholics shift their disposable budget in favor of constant alcohol consumption and rather reduce their demand for other goods.

This can also be observed regarding excessive alcohol consumption of adolescents (BZgA, (2011), p 37). In the concrete consumption situation the behavior rather depends on the social context, i.e. the group's atmosphere, on the disposable budget, which may be improved by short-term financial aid from the group which can be paid back later and the specific drinking preferences.

The permanent budget shortage, caused by higher alcohol prices motivates addicted people to search new income sources, maybe through a variety of criminal acts. The consequences of such criminal acts are mostly known and the risk of criminal prosecution (in the sense of rising costs for addiction-related consumption) is accepted (Niskanen (1992)).

## **6 RESULTS OF THE DEMAND-THEORETICAL ANALYSIS**

The discussion above describes a part of the available results from the consumer research on the decision-influencing factors price, cross price, income and preferences on the one hand and their differentiation according to consumer segments, on the other hand. It shows clearly the great importance of the factor preferences. The group of alcoholics can be divided in different segments (e.g., in binge-drinking among adolescent or long-term drinker among adults) influenced by their preferences with a specific low price elasticity which cannot be compared to other intensive consumers. In comparison, higher price elasticities are clearly to be assigned to the average consumers. They are more affected by increasing prices as a result of alcohol taxes or minimum prices of alcoholic beverages.

Differentiating beverages by type this applies even more to a great extent to the wine drinkers because better wines in particular have higher alcohol content and require higher prices anyway.

The benefit of moderate alcohol consumption (Corrao et al. (2000)) by the average consumers and here in particular the wine drinker is completely faded out in all publications on alcohol policies. The interlinking made in the publications (Adams and Effertz (2010), WHO (2010a)) of tax-related price increases and government revenue attainable through the alcohol taxes raises the question which aim has the higher priority: reduce the harm done by alcohol or provision of capital by the government. Undoubtedly, wine drinkers would contribute considerably to the financing, without being involved to a considerable extent to the cause. Because wine drinkers come predominantly from the middle- and upper-class, their financing contribution seems reasonable.

Alcohol policy gives priority to the object policy (regarding the object “beverage” for the taxation) instead of the subject policy (punishment of alcoholics for their failure). In no publication a subject-related political instrument was discussed, except for a reference to the inefficiency of training and educational programs (WHO (2009)).

The availability of a large number of empiric studies on price elasticities conveys the impression that increasing alcohol prices would be the most effective political instrument. Nearly all studies on determination of price elasticities measure the price reaction in average of all consumers (partly divided in different segments by men and women, juveniles and adults, or light and heavy drinkers). Heavy drinkers (according to the definition used here those who do not cause alcohol problems despite their high consumption) (Hoffmann et al. (2006)); Hoffmann und Szolnoki (2011)) are between alcoholics and average drinkers, but in case studies this group is added to alcoholics. Specific studies regarding the price reaction of heavy wine drinkers do not exist.

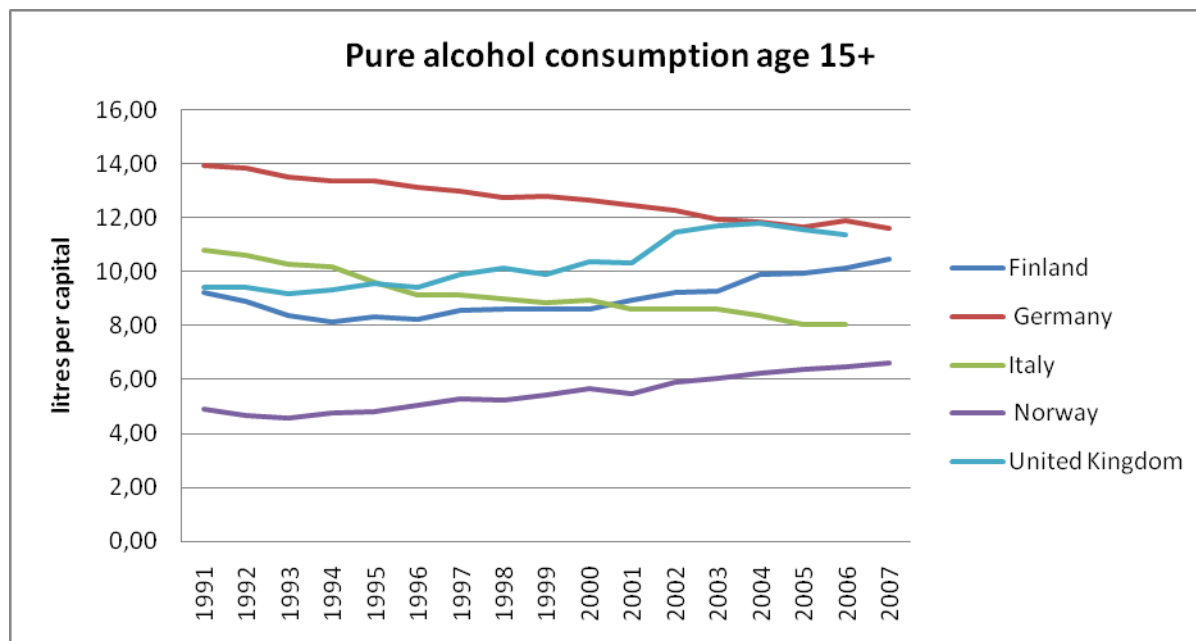
## **7 COMPARISON BY COUNTRIES**

The international alcohol policy has come to an agreement about widely uniform instruments (WHO (2010b)). The question arises if the alcohol demand can be also based on the comparison



between the countries with high and low alcohol taxes. Fig. 3 shows the development of the pure (effective) alcohol consumption per capita of selected countries with high alcohol taxation and partly regulated marketing (Finland, Norway and the United Kingdom) on the one hand and countries with lower (partly zero) alcohol tax and very liberal distribution networks (Italy and Germany) on the other hand.

Fig. 3: Development of the alcohol consumption by selected countries

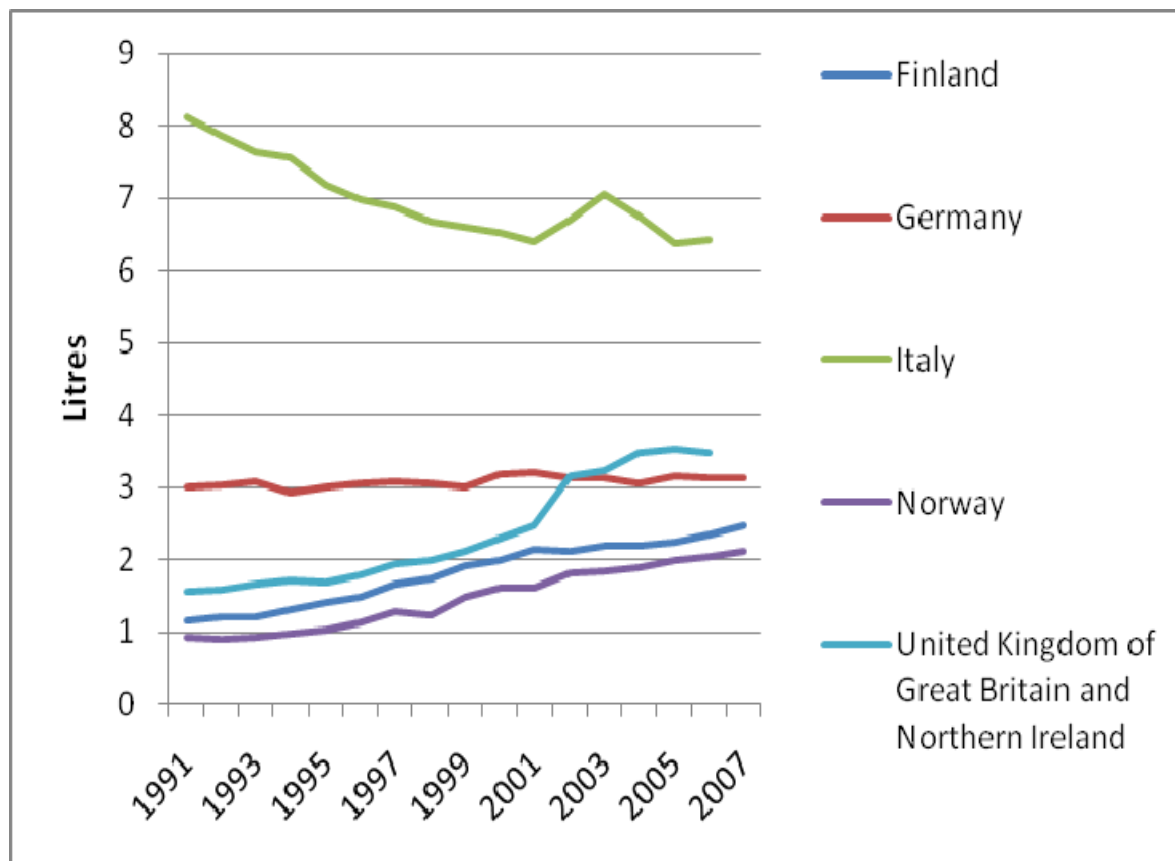


Source: <http://apps.who.int/globalatlas/dataQuery/default.asp>

The comparison shows that liberal and low taxed countries like Italy and Germany exhibit a downturn in consumption of alcohol. In contrast high-taxed and partly regulated countries show an increasing consumption of alcohol. This relation does not support the international recommendations of the alcohol policy, but rather proves the opposite. Besides, it has to be considered that in Germany the beer consumption and in Italy the wine consumption drops, while in the other countries like Finland, Norway and the United Kingdom the wine consumption rises (Fig. 4). At the same time the problem of binge-drinking by adolescents increases in all countries. This comparison shows that highly aggregated considerations used in most empiric analyses on the price elasticities for alcoholic beverages, are not enough to introduce a global policy. Instead, specific problem groups (e.g. alcoholics) must be examined concerning their specific (group) behavior, the origin of their preference and their typical price elasticity.

In countries with high alcohol taxation the wine consumption is rising. Wine is distinctly more expensive in these countries than beer but the consumption preference changes in certain consumer segments in favor of wine. This shows again that preferences have a clearly higher influence on the consumer behavior than the product prices. At the same time wine is the drink less preferred by alcoholics. A higher taxation of wine would rather hinder the positive preference change than promote it.

Fig. 4 Development of the wine consumption by selected countries



Source: <http://apps.who.int/globalatlas/dataQuery/default.asp>

## 8 STATE INCOME FROM ALCOHOL TAXES AND COSTS OF THE ALCOHOLISM

The advocates of the alcohol taxation (Adams and Effertz (2010), WHO (2010a)) show the recommendations for taxation with the attainable revenues, in order to let the 'cause' pay the costs of alcoholism. Thereby, it is accepted tacitly that the biggest part of this specific tax revenue is not paid by the causes (alcoholics), but by the average consumers. The benefit decrease (in terms of restrictions of the consumer's pension) for the average consumer by consumption renunciation (released by effects of the price elasticity) and budget absorption (payment of the alcohol taxes) goes unnoticed or is as 'deterrent' even desired. So the social impact considering the use and costs is not discussed any more.

The calculations of economical costs caused by alcoholism (Adams and Effertz (2010)) are incomplete, because, among other things, the costs for illnesses and old-age pension of the

average consumers (in the normal case getting older) were not deducted. Then calculations of the same kind could be also demanded for other areas of life. In general, such calculations are to be classified as very problematic because the necessary demarcations between alcoholics and average consumers are extremely difficult in the single positions. Anyway, such calculations are very questionable because they reduce the problem to an exclusively economic calculation thus becoming very vulnerable. However, the determined high figures of costs serve to impress the public and possibly justify the alcohol taxation, instead of a more differentiated instrument analysis in the specific segments.

## 9 CONCLUSION

The empirical studies on price elasticities on which the international alcohol policy is based are mostly monocausal. They do not consider the complicated purchase decision with the individual weighting between product price, cross prices, available income and preferences. And they do not take attention to the important influence of the differences in the preferences between alcoholics and average consumers.

The international alcohol policy using alcohol taxes and price increases for alcoholic beverages is supported by the empirical studies about price elasticities of alcoholic beverages to found the political instruments academically. At the same time the effects of this alcohol policy oriented to price are limited in changing the behavior of alcoholics and lead, beyond it, to a considerable loss of benefit among the average consumers.

The big social problem of alcoholism has to be underlined here. This problem and its internationally spreading demand for an examination of the effectiveness of the alcohol policy on prices. In addition, special investigations are necessary among the different segments within the alcoholics, as the development and check of new instruments of direct control on the alcoholics.

The cause of the alcoholism problem would be taken up by a change in the fundamental strategy of the alcohol policy from the object (product taxation) to the subject policy with the individual punishment of the alcoholics (e.g. how it exists in the traffic policy). This would make the real cause of the alcoholism clearer in the public. By threats of penalties for excessive consumption of alcohol in the public with a modified catalogue of financial and juridical punishments the alcoholism problem could be approached directly and not indirectly like by the taxation. The public proscription by juridical attached punishments could flow in early into the child education and would bring the alcoholics in big financial distress. A comparison with the punishments, in the traffic shows the possibly individually expected negative results also to be there. Who drives a car as a youngster, often too fast or under alcohol, also loses his driving license and must pay high fines.

The fact of the matter of the high alcohol consumption can be determined by the available breath tests fast and indisputably. The sentences can be differentiated very much and, they can be developed time wise, and can be introduced gradually. How effective this direct proscription of the public failure is could be proved by the ban on smoking in public buildings or the establishment of special smoker's zones on platforms.

The wide and internationally growing problems of the excessive consumption of alcohol need more effective instruments than the alcohol price and – tax policy provides. At the same time the average consumers have to be allowed to drink in a moderate way their alcoholic beverages and enjoy them without financial punishment. The problems of the high social costs of alcoholism are

decreased by an effective alcohol policy more efficiently than by constantly rising taxes which do not diminish the problem.

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