

BRIEF REPORT

The alcohol advertising ban in Norway: Effects on recorded alcohol sales

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Introduction. Although bans or restrictions on alcohol advertising are recommended as one of the three most effective and cost-effective policies to curb alcohol consumption, the best evidence to support this is indirect. The aim of this study was to examine whether the complete ban on alcohol advertising in Norway in 1975 had any effect on total alcohol sales. **Methods.** Annual time series of recorded alcohol sales (1960–2006) were analysed. Autoregressive integrated moving average interrupted time series techniques were used to model the effect of the advertising ban, adjusting for alcohol prices and wages. **Results.** The autoregressive integrated moving average analyses showed a negative and statistically significant effect of the ban on total recorded alcohol sales, suggesting an immediate and lasting reduction of 7.4% ($P = 0.002$). **Discussion and Conclusions.** The complete ban on alcohol advertising in 1975 in Norway reduced recorded alcohol sales. This suggests that the ban had a protective effect by reducing total alcohol consumption. The conclusion remains tentative because of possible effects of unrecorded alcohol consumption and marketing on social media and satellite TV channels. [Rossow I. The alcohol advertising ban in Norway: Effects on recorded alcohol sales. *Drug Alcohol Rev* 2021;40:1392–1395]

Key words: alcohol, advertising ban, time series analysis, total consumption.

Introduction

Bans or comprehensive restrictions on advertising and promotion of alcohol are recommended measures to curb alcohol consumption and related harm, and they are considered one of the top three most effective and cost-effective measures [1]. To this end, the best evidence to support this recommendation is by and large indirect, and it stems from studies demonstrating associations between marketing exposure and drinking behaviour among young people [2]. For instance, longitudinal studies have found that advertising and promotion of alcohol affects drinking initiation and hazardous consumption among young people [3]. There is also evidence suggesting that engagement with digital alcohol marketing is positively associated with increased alcohol consumption [4]. Many countries have advertising bans; among the 53 Member States of the World Health Organization (WHO) European region, 37 Member States have bans or other statutory restrictions on marketing [5], and in

several countries such bans were put in place in the 1970s and 1980s [6]. However, the literature on effectiveness of these advertising bans is small, and it shows mixed results [7].

Notably, bans on advertising differ with regard to how extensive they are. In many countries, advertising bans pertain to broadcast media only, whereas other countries, including Norway, hold a full ban on alcohol advertising; that is, it applies to all alcoholic beverages and all media, including digital platforms. The ban in Norway took effect from 1 July 1975 and applied to all beverages with an alcohol content above 2.5%. In 1997, the ban was extended to include brands for which there were also products with a higher alcohol content. From eyeball inspections of annual alcohol sales data in Norway, it is evident that there was no large immediate effect of the ban on total consumption, and previous studies of advertising bans across many Organisation for Economic Co-operation and Development countries, including Norway, have reported mixed findings; that is, Saffer and Dave [8]

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found that bans led to a small decrease in consumption, whereas Nelson [6] found that bans had no effect on sales. So far, no studies have examined possible effects of the full advertising ban in Norway specifically.

The aim of this study was to examine whether the ban on alcohol advertising in Norway had any effect on total alcohol sales.

Methods

Data

Annual time series of total recorded alcohol sales in Norway, measured in litres of pure alcohol per inhabitant 15 years and over, were analysed. Alcohol sales data were obtained from Statistics Norway and spanned the years 1960 through 2006. For a single year (1998), recorded sales data were not produced and data were thus imputed. During the observation period, purchase power increased and an index of real annual wages (1998 = 100) was constructed from data available from Statistics Norway. An index of real prices on alcohol (1998 = 100) was constructed based on beverage-specific real price indices obtained from Statistics Norway. The indices on real annual wages and real alcohol prices both spanned the years 1960–2006.

Statistical analyses

Data were analysed using interrupted time series analyses in auto-regressive integrated moving average (ARIMA) models. A semi-log model was specified and as the ban took effect 1 July 1975, the exposure variable took the value 0.5 in 1975, the value 0 in the

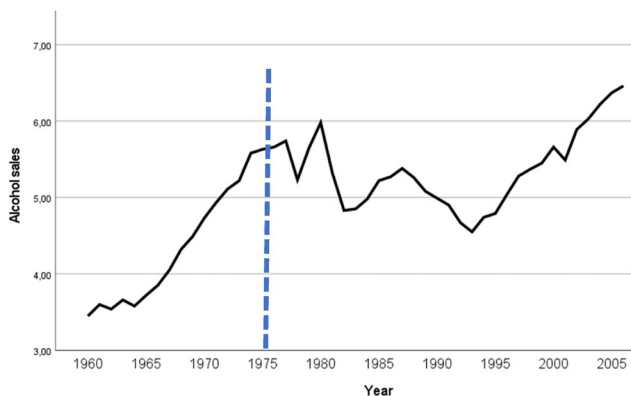


Figure 1. Total recorded alcohol sales per year 1960–2006, in litres of pure alcohol per inhabitant 15 years and over, by year. The vertical dotted line indicates the time when the ban took effect.

preceding years and the value 1 in the subsequent years, assuming an immediate and lasting effect.

Sensitivity analysis. The advertising ban did not pertain to journalists' reviews and recommendations of alcoholic beverages in newspaper articles and TV programs, and in 1982, a Norwegian newspaper started the first wine column [9]. Other media followed with similar journalism and in the mid-1990s, journalists' assessments and recommendations of wines and beer were common in Norwegian print media and some TV channels [9]. Horverak [9] found that wine sales in Norway increased in response to favourable newspaper reviews of wines. It is therefore possible that this journalism served as a kind of marketing and thereby attenuated any effect of the advertising ban. Moreover, some exposure to alcohol advertising may have started after 1988, when satellite TV channels (broadcasting from UK) were first allowed in Norway and thereby contributed to attenuated effect. The analyses were therefore conducted also for restricted time series, up to 1996.

Results

The annual time series of alcohol sales is depicted in Figure 1, which shows no clear shift in level or trend immediately after the ban was imposed in 1975. Interrupted time series analyses showed a small, statistically significant effect of the ban on total alcohol sales; the parameter estimate of -0.074 suggests an immediate and lasting effect of the ban, reducing total alcohol sales by approximately 7% (Table 1). When applying a shorter time series (up to 1996), the parameter estimate was not changed (Table 1).

Discussion

This study is the first to examine possible effects of the comprehensive advertising ban on alcoholic beverages in Norway with regard to alcohol sales. The findings suggested a protective effect of the ban on total alcohol sales. From eyeball inspection of the time series of alcohol sales, it is not obvious that the ban was effective. However, the substantial variation in alcohol sales over time reflects that a number of other—and probably more important—factors impact sales and thus, inferences based solely on inspections of trends can be misleading.

Although the estimated effect on total sales corroborates that of Saffer and Dave [8] from 20 countries, the exposure measures are not compatible, and the similar study findings may therefore be coincidental.

Table 1. Estimated effects of Norwegian advertising ban on alcoholic beverages on total alcohol sales

| Output variables (ARIMA model specification) | ARIMA model specification | Estimate | SE | P-value | Ljung-Box Q | P-value |
|---|---------------------------|----------|-------|---------|-------------|---------|
| Ln alcohol sales, 1960–2006 adjusted for real wage and real price | (0,1,0) | −0.074 | 0.023 | 0.002 | 10.63 | 0.909 |
| Ln alcohol sales, 1960–1995 adjusted for real wage and real price | (0,1,0) | −0.067 | 0.031 | 0.039 | 13.93 | 0.734 |

The general form of non-seasonal ARIMA model is (p,d,q) , where p = the order of the autoregressive parameter, d = the order of differencing and q = the order of the moving average parameter. Ljung-Box Q is the test statistic for the null hypothesis that the model residuals are distributed as white noise. ARIMA, autoregressive integrated moving average.

Nelson's [6] analyses, which mainly covered the same countries and almost the same period as those by Saffer and Dave [8], found, however, no effect. This may reflect inclusion of a broader set of explanatory variables, including an index of control policies. However, this policy index comprised bans on advertising [10] and was therefore inappropriate in the analyses. Moreover, at least with regard to Norway, Nelson applied wrong data for the year when the ban was put in place, which may also have contributed to his null-finding.

The ban on alcohol advertising added to a range of other restrictive control policy measures in Norway, including high excise taxes, a state monopoly on off-premise wine and spirits sales, and substantial restrictions on trading days and hours. The magnitude of the estimated effect of the ban on total alcohol sales corresponds roughly to the effect of the transition from over-the counter sales to self-service in monopoly outlets in Norway [11]. Moreover, the estimated effect of Saturday opening of alcohol retail sales in Sweden was also of similar magnitude [12].

The study findings pertain to effects of a ban on traditional marketing, and it is not clear whether or to what extent they are valid in the current situation. In the early 1970s, alcohol advertising in Norway was modest compared to the extensiveness and modes of influence in alcohol marketing in many countries today. When the ban took effect, advertising occurred in print media, cinemas, posters, et cetera, but not in ether media, as radio and TV broadcasting in Norway was subject to a non-commercial state monopoly. Today, digital media platforms play a major role in the advertising and marketing of alcohol in many countries [13], and marketing occurs also as sports sponsorship [14] and product placement in films, festivals and other cultural events [15]. It is therefore possible that the effect of a full ban on marketing, if implemented and fully enforced today, could be larger than that observed in the Norwegian context half a century ago.

The ban in Norway pertains to marketing in all media, including digital platforms (e.g. social media,

internet blogs, games) and currently, the reported violations of the ban appear to occur mainly on social media [16]. This may reflect that it is difficult to disentangle commercial advertising messages and user-generated content on social media [17,18], and hence, that enforcement is particularly difficult and challenging in this regard. Thus, it is claimed, for instance by the Norwegian Breweries Association [19], that enforcement of the ban on social media is lacking completely, which seems parallel to recent experiences in Finland [18]. Thus, further efforts to strengthen the enforcement therefore seem to be particularly important in ensuring that the advertising ban is also effective on social media.

Strengths and limitations

The study contributes to a small literature on the effects of a highly recommended policy measure [1]. The time series were relatively long, both before and after the intervention, which increased the precision of the estimated effects. Moreover, this also allowed for examining the significance of influencing factors that were introduced later and were not regulated by the ban. The sales data stem from a single source and they were produced in an identical way for the entire observation period, suggesting high reliability. The differenced time series limited the risk of a spurious association due to unobserved confounding factors, and the adjustment for price and wages further contributed to limiting a spurious association. Some study limitations should also be noted. Alcohol marketing seems to impact young people in particular [2,3], and therefore a major limitation is that any effects of the ban on youth drinking could not be evaluated, due to lack of suitable data. Another limitation is that recorded alcohol sales is a proxy for total alcohol consumption, and unrecorded consumption accounted for around a fifth of total consumption in Norway between 1973 and 1994 [20]. If the ban had little effect on unrecorded consumption, such as home production,

the effect on total consumption is likely somewhat less than the estimated effect on recorded sales.

Conclusion

The complete ban on alcohol advertising introduced in 1975 in Norway reduced recorded alcohol sales. This suggests that the ban had a protective effect by reducing total alcohol consumption. The conclusion remains tentative because of possible effects of unrecorded alcohol consumption and marketing on social media and satellite TV channels.

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Conflict of Interest

The authors have no conflicts of interest.

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