Lessons learned from Sweden

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Researchers and policymakers have been intrigued and puzzled by the developments and trends in alcohol consumption and related harms in Sweden. Researchers have tried to discern the underlying “true” picture, striving to pinpoint mechanisms and explanations of the seeming “mismatch” between consumption and harm trends, but this has not been easy given the multitude of estimates that contain varying types and degrees of uncertainty and error in addition to real differences in the different dimensions of drinking (such as per capita consumption vs. binge drinking) and related harm. This has been further complicated by differences between regions and population subgroups. Kalle Tryggvesson (2013) has taken up the challenge of contributing to this undertaking by looking at fresh high-quality survey data and by trying to illuminate the development in drinking patterns and the distribution of drinking in the puzzle. In our comments, we do not seek to be judges of the “true answer” to the developments in Sweden, but will instead concentrate on two issues. First, we will look at Tryggvesson’s findings as general results about the development of drinking patterns in Sweden and compare the developments to those that have been observed for Finland – quite apart from the “mismatch question”. Second, we will discuss some challenges in answering the questions that Tryggvesson has posed and will consider whether the Swedish case has changed the way we think about how developments in total consumption predict alcohol-related harm.

Sweden and Finland in comparison

In his study, Tryggvesson utilises data from four general population surveys, conducted in pairs separated by eight years: in 1996/1997 and 2004/2005. We compare the main results of the study with Finnish data from six Finnish Drinking Habits Surveys conducted among the 15–69-old general population with an eight-year interval in 1968–2008.

According to the studies referenced by Tryggvesson, the overall consumption of alcohol in Sweden has been estimated to have increased by about 30 percent between 1996 and 2004. Using different indicators for drinking, Tryggvesson analyses how the increase in drinking is spread in the general population. In comparison, the overall consumption increased by 15 percent (from 10.9 to 12.5 litres per capita in adult population) during the same period in Finland (Statistical Yearbook of Alcohol and Drug statistics, 2012).

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Developments in different population subgroups in Finland are quite similar to those in Sweden. As in Sweden, the proportional – but not the absolute – increase in women’s drinking was higher between 1992 and 2008, and in absolute terms men also consume most of the alcohol. The gap between men and women, however, is larger in Finland as women’s drinking corresponds only to 33 percent of men’s consumption, i.e. to 25 percent of the total consumption (Huhtanen et al., 2011).

Comparing different age groups, we find that the increase in consumption has been – just like in Sweden – the highest among the aging population of men and women (age group of 50–69 in Finland). However, in contrast to the results from Sweden, changes across socioeconomic groups have not been uniform. The growth of consumption in lower educational groups has been the strongest (Mäkelä, Mustonen, & Huhtanen, 2009).

Concurrent with the increasing total consumption in Sweden there has been some changes in the drinking patterns Tryggvesson analyses. The proportion of men and women participating in weekly heavy episodic drinking has increased equally. The highest proportion of heavy episodic drinkers is found in the youngest age group. The increase across socioeconomic groups have not been uniform. The growth of consumption in lower educational groups has been the strongest (Mäkelä, Mustonen, & Huhtanen, 2009).

Tryggvesson then analyses how the increase in drinking is divided across population subgroups. Overall, the self-reported data used in the study show a 15-percent increase in drinking, catching half of the proportional increase in estimated total consumption (as a side note: it would have been helpful to also report the coverage rates for the new data). The proportional increase has been stronger among women, while in absolute terms men’s drinking has increased more. The amount of alcohol consumed by women is still only half of men’s consumption, and the proportional increase has been the highest among older men and women. Across different socioeconomic groups, there have been no major differences in the increase, and drinking is divided quite uniformly, with the exception of women in unskilled worker or skilled manual worker positions, who drank slightly less.

The first indicator Tryggvesson looks into is abstinence, defined as no drinking during the past year. The proportion of people abstaining from alcohol in Sweden has remained roughly at 20 percent in the 2000s. The rate is twice as high as in Finland, where 10 percent of the general population aged 15–69 were abstainers in 2008. While the abstinence rate has remained stable for Finnish men, women’s rates have been decreasing since the last three to four decades. In 1984, the figure was 27 percent and in 1992, 17 percent. In addition to this long decreasing trend, which has been mainly due to older women’s cohorts moving out of the study population, abstinence among 15–19-year-old boys and girls has been on the rise in the 2000s (Huhtanen, Miekkala, Mustonen, & Mäkelä, 2011).

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In Finland, heavy episodic drinking rose rapidly in the 1970s but the increase has been more moderate for men in recent decades. For women, the increase has continued until the 2000s. The growth has not been uniform across socioeconomic
groups, for heavy episodic drinking and alcohol-related harms have increased more strongly at the lower educational levels in the 2000s (Mäkelä et al., 2009; Herttua, Mäkelä, & Martikainen, 2008).

With respect to the time of week for drinking, a slight but consistent trend towards drinking in the weekends was found in Sweden, with the older respondents increasing their weekend drinking slightly more. A similar development has been observed for Finland, as drinking has become more concentrated on weekends than before (Mustonen, Metso, & Mäkelä, 2010).

The overall developments in alcohol-related harms in Finland across decades have been in line with the increasing consumption: a steady increase in acute problems and a steeper increase in cirrhosis mortality, especially since 2004 (Tigerstedt & Österberg, 2007; Mäkelä, 2011).

All in all, it can be concluded that the spread of consumption growth and developments in drinking patterns among subpopulations have been quite similar between Sweden and Finland, with the clear exception of the socioeconomic gradient which has strengthened in the 2000s in Finland and which is nearly nonexistent in Sweden.

Some challenges and suggestions

One central challenge in Tryggvesson’s undertaking is that it is not at all straightforward to study the question of whether the distribution of consumption has changed, and particularly whether there has been a change in the proportion of heavy drinkers. On the basis of Skog’s (1985) empirical findings, when mean consumption increases, the proportional increase in consumption is expected to be lower among those who drink more heavily. In fact, he suggests that there will be a point beyond which no consumption increase would be expected – i.e., such a finding would be in line with Skog’s theory of the collectivity of drinking cultures. So, Tryggvesson could have tried to assess whether the finding that light and moderate drinkers increased their consumption more than heavy drinkers was just what would be expected on the basis of Skog’s work, or whether the differences were greater than expected on the basis of this.

Furthermore, it is very difficult to study to what extent consumption actually changes in the highest consumption category. All the outliers are located in this category, and the inclusion or exclusion of single or a few extreme heavy drinkers would cause the estimates to change widely. The results in this category are therefore prone to great uncertainty, which is aggravated by the difficulties to get the heaviest drinkers to participate in surveys. A method that would be well-suited to studying changes in distributions and that would also allow better assessment of random variation would be to draw a quantile-quantile or a QQ-plot, which can be drawn with confidence intervals. It would have been interesting to see whether this method had shed more light into this hard-to-study question.

One of the central findings on the possible explanations for the "mismatch" in consumption and harm trends was that relative consumption increases were greater among various lower-risk groups, particularly older women and lighter drinkers, which means that a greater proportion of alcohol consumption in the later period
occurs in lower-risk groups. However, this change could be relatively marginal, because even relatively large changes in very light drinking groups may not necessarily have any great impact at the population level. Hence, it would be a good idea for Tryggvesson to give a quantitative estimate of what the proportion of total consumption accounted for by these light drinking groups was in the two periods and how big a proportion of the increase in total consumption was accounted for by these groups.

Can per capita consumption be used to predict the development of harms?

A central question in all Nordic countries is: as harms in Sweden have not followed the development expected on the basis of the development in per capita consumption, and similar “mismatches” have to some extent been reported in some other Nordic countries, too (Rossow, Mäkelä, & Österberg 2007), can it still be argued that controlling the level of per capita consumption is a justified aim in order to control the level of harm from alcohol consumption?

The connection between total consumption and related harm is essentially based on two mechanisms. Both of them rest on the idea of collectivity, i.e. that when alcohol consumption increases, consumption increases among light drinkers, moderate drinkers as well as heavy drinkers (Skog, 1985), and also among different subgroups of the population – if there is strong interdependence between these groups (Skog, 2001). The first mechanism is the correlation between heavy drinking and per capita consumption which follows from the collectivity. Heavy drinkers are central in determining the rate of harms such as liver cirrhosis, which requires a long history of heavy drinking to occur. The second mechanism is the so-called prevention paradox or the observation that particularly in the case of harms the risk of which increases linearly such as injury or alcohol-related cancer, it is the great majority of “ordinary drinkers”, whose risk is often increased through binge drinking, who are important in determining the rate of harms (Poikolainen, Paljärvi, & Mäkelä 2007).

There are many scenarios for why either the collectivity of drinking or the connection between per capita consumption and harms would not hold, as Ole-Jorgen Skog (2001) himself pointed out, and as was also sketched by Tryggvesson (2013). When the population is not homogeneous, different subgroups may not be a collective with strong interdependence, and hence may develop differently. As Skog (2001) points out, this can occur when there are barriers to the diffusion process or when there are significant changes in formal or informal control of drinking. This would not be very surprising particularly with respect to age groups, ethnic groups or socioeconomic groups if their socialisation across group borders was limited. Then again such differential trends would be expected to be much rarer for consumption groups, as there is no reason to assume lighter and heavier drinkers not to socialise with each other. Structural determinants of drinking, too, such as affordability of alcohol, were mentioned by Skog as potential causes of differential trends in consumption across groups, and these would be a very potential reason for some discordant changes among socioeconomic groups in particu-
lar. For discordant trends in consumption vs. harms, a potential cause — also mentioned by Tryggvesson — is changing drinking patterns. Furthermore, all other factors not directly related to alcohol use which have an impact on alcohol-related harm may change and cause discordance in trends, such as developments in treatment and hospital care, increasing availability of liver transplants or an increasing number of mobile phones which can be used to get help more quickly in emergencies.

So what can we learn from all this? There is a multitude of factors and processes that will affect the final outcome of alcohol-related harms. The course of many of these is difficult to predict, and even more difficult it would be for policymakers to steer and influence most of them. There is no reason to believe that, all other things being equal, an increase in mean consumption would not be likely to result in an increasing rate of harms. It would be very difficult to arrange those “other things” to compensate for, e.g. a considerable reduction in alcohol taxes or dissolution of alcohol retail sales monopoly. Even if such improvements in, for example, treatment could be arranged, it would be a wasted opportunity if these efforts were rendered futile by political decisions that would increase per capita consumption, which in turn would increase the number of patients with alcohol problems seeking help.

In any case, it is an important aim for research to be able to disentangle the various forces affecting the rate of harms and their unexpected changes, so that the determinants of harm rates and the conditions under which a “mismatch” in consumption and harm rates will be likely to occur will be better understood and the chances to affect the rates of harm also through other channels than per capita consumption will be improved.

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REFERENCES

Herttua, K., Mäkelä, P., & Martikainen, P. (2008). Changes in alcohol-related mortality and socioeconomic differences after a large reduction in the price of alcohol: a natural experiment based on register data. *American Journal of Epidemiology, 168*, 1110–1118.

Huhtanen, P., Miekkala, M., Mustonen, H., & Mäkelä, P. (2011). *Suomalaisten alkoholinkäyttötavat 1968–2008: Juomatapatutkimusten tuloksia*. [Results from the Finnish Drinking Habits Surveys 1968–2008]. Report 26/2011. Helsinki: National Institute for Health and Welfare (THL).

Mustonen, H., Metso, L., & Mäkelä, P. (2010). *Milloin suomalaiset juovat?* [When do Finns drink?]. In P. Mäkelä, H. Mustonen & C. Tigerstedt (eds.), *Suomi juo. Suomalaisten alkoholinkäyttö ja sen muutokset 1968–2008* [Finland drinks. Alcohol use and its changes among Finns from 1968–2008]. (pp. 55–69). Helsinki: National Institute for Health and Welfare.

Mäkelä, P. (2011). Has the boozing Finn been tamed? Changes in the relationships between drinking, intoxication, and alcohol-related harm when turning from a spirits-drinking country to a beer-drinking country. *Contemporary Drug Problems, 38*, 517–39.

Mäkelä, P., Mustonen, H., & Huhtanen, P. (2009). *Suomalaisten alkoholinkäyttötapojen muutokset 2000-luvun alussa*. [Changes in Finnish alcohol consumption patterns in the early 2000s]. *Yhteiskuntapolitiikka, 74*, 268–89.

Poikolainen, K., Paljärvi, T., & Mäkelä, P. (2007). Alcohol and preventive paradox: serious harms and drinking pattern. *Addiction, 102*(4), 571–578.

Rossow, I., Mäkelä, P., & Österberg, E. (2007). Explanations and implications of concurrent and diverging trends. Alcohol consumptions and alcohol-related harm in the Nordic countries in 1990-2005. *Nordic studies on Alcohol and Drugs, 24*(1), 85–95.

Skog, O-J. (2001). Commentary on Gmel & Rehm’s interpretation of the theory of collectivity of drinking culture. *Drug and Alcohol Review 20*, 325–331.

Skog, O-J. (1985). The collectivity of drinking cultures: A theory of the distribution of alcohol consumption. *British Journal of Addiction, 80*(1), 83–99.

Statistical Yearbook of Alcohol and Drug statistics (2012). *Suomen virallinen tilasto (SVT): SVT_PTVK_2012*. Helsinki: National Institute for Health and Welfare (THL).

Tigerstedt, C. & Österberg, E. (2007). Alcoholhaitat ovat säilyneet suomalaisina ja muuttuneet ranskalaisiksi. [Alcohol-related harms have remained "Finnish" and have become "French"]. *Yhteiskuntapolitiikka, 72*(3), 330–332.

Tryggvesson, K. (2013). Mot ett kontinentalt dryckesmönster, eller inte? Förändringar i Svenskarnas alkoholkonsumtion mellan 1996 och 2005. *Nordic Studies on Alcohol and Drugs, 30*(4), 249–266.