



Deconstructing Alcohol Affordability

Comment on “Investigating Indicators to Assess and Support Alcohol Taxation Policy: Results From the International Alcohol Control (IAC) Study”

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Abstract

Casswell et al examined two indicators for alcohol excise taxation: tax as a share of the lowest retail price (the tax-to-price ratio, T/P) and a reversely scaled measure of affordability—the percentage of gross national income (GNI) *per capita* required to purchase 100 drinks (the price-to-income ratio, P/I). They found that T/P did not predict P/I and recommended further research on measures of affordability. This commentary argues that this null finding may arise because two indicators alone cannot capture the complex relationships among price, taxation, consumer income, and drinking behaviour. In particular, industry pricing strategies, which can weaken any association between T/P and P/I, should be taken into account. We contend that in-depth analyses of affordability should consider the broader national context, including factors such as unrecorded consumption, tax design, delayed response to changes in taxation. Some of these factors are best studied longitudinally. Finally, methodological choices may also influence the observed relationships between taxation and affordability.

Keywords: Taxation, Alcohol, Policy, Price, Affordability, Alcohol Industry

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Introduction

Excise taxation of alcohol is among the most effective and cost-effective alcohol control policies for reducing harmful alcohol consumption.¹ The underlying mechanism holds that increases in taxation raise alcohol prices, which in turn reduce alcohol affordability among consumers^{2,3} and, consequently, reduce consumption and alcohol-attributable harm.⁴ Identifying robust indicators to assess the effectiveness of alcohol taxation is therefore important for public health.

The World Health Organization (WHO) has based some of its recommendations on minimum tax shares as an indicator of an effective taxation system for tobacco and alcohol. For tobacco, it recommends that taxes constitute 75% of the retail price, including both excise duties and indirect general consumer taxes such as value added tax or goods and services tax (eg, WHO⁵). For alcohol, tax shares are generally much lower, and no equivalent normative benchmark exists. The WHO European Region has, however, recently proposed minimum excise tax levels as part of an initiative to achieve equal minimum prices per standard unit of alcohol across beverage types.⁶

The International Alcohol Control Study: Advancing Alcohol Policy Tools Through Taxation Indicators

The International Alcohol Control (IAC) multi-country survey framework evaluates the impact of national policies affect alcohol consumption patterns and related harms. As

part of this initiative, the IAC developed the Alcohol Policy Tool to collect policy data and calculate an index reflecting policy stringency and its association with *per capita* alcohol consumption.⁷ To identify reliable indicators for evaluating alcohol taxation, the IAC study network⁸ examined data from a convenience sample of 21 countries, including 13 middle-income and 8 high-income countries (HICs). The researchers evaluated two primary indicators. The first was the tax-to-price ratio (T/P), defined as tax as a proportion of the lowest retail price, excluding indirect general consumer taxes such as value added tax or goods and services tax; price was measured at purchasing power parity. The second was a reverse-scaled affordability measure, the price-to-income ratio (P/I), representing the percentage of gross national income (GNI) *per capita* required to purchase 100 drinks. Unlike the price measure, GNI was not adjusted for purchasing power parity, presenting a methodological asymmetry between the two indicators—and such an adjustment may have been appropriate to ensure consistency between them.

Data on alcohol tax designs and rates were sourced from government documentation and supplemented by interviews with officials. The lowest prices for beer, wine, and spirits were gathered through outlet observations, physical and online retail price surveys, and national statistics, with key informant interviews used to triangulate findings. Across the 21 countries, 126 distinct country-beverage tax profiles were identified for beer, wine, and spirits, applying taxation

methods either individually or in combination. Unitary tax (volume-based; U) was used in 40.5% of profiles, specific tax (ethanol-based; SP) in 30.2%, and ad valorem tax (price-based; AV) in 29.4%. Low- and middle-income countries used AV taxation more frequently than HICs across all three beverage types, while HICs applied AV more often within combination tax structures than in single-method structures. This pattern mirrors global trends, in which HICs rely more on SP taxation and low- and middle-income countries rely more on AV and U taxation, particularly for spirits² (See Table S1 of [Supplementary file 1](#) for more details).

Based on this multi-country methodology, the authors found that T/P does not predict P/I, prompting them to call for further research into affordability metrics.

Missing Elements in Understanding Changes in Affordability

Several factors warrant consideration when interpreting these indicators.

First, many economic mechanisms regarding price changes develop longitudinally. For instance, Shang and colleagues⁹ found that increases in beer and wine taxation demonstrated only delayed reactions on price. The effects of taxation are typically assessed as tax levels or rates change over time: tax increases are expected to raise prices, thereby reducing consumption and alcohol-attributable mortality.¹ Comparing indicators cross-sectionally, as in Casswell et al,⁸ yields much weaker associations, since numerous additional factors influence consumer behaviour beyond a single point-in-time snapshot. However, while longitudinal studies may yield deeper insights, cross-sectional comparisons are still of value.

Second, price depends heavily on industry behaviour. Beyond direct and indirect taxes, retail price reflects production costs, producer profit margins, supply chain logistics, retailer margins, minimum unit pricing and other financial non-tax regulatory measures, and marketing costs including brand positioning. For instance, for premium spirits, marketing costs alone can constitute a substantial double-digit percentage of the pre-tax retail price, in some cases representing the majority of these costs. Industry therefore has considerable latitude to set and adjust prices independent of tax policy.

Third, tax shares are sensitive to how the reference beverage is selected. The WHO uses the most widely sold beverages for each beverage type in a particular region to calculate tax share,^{2,3} while the European Union relies on a statistical average, and Casswell et al⁸ used the cheapest beverage-specific price. Each approach produces different values and different associations with other indicators such as income, particularly when combined with a country's average income level. The rationale for using the cheapest beverage is that people with heavy drinking patterns—including, but not limited to, those with alcohol use disorders—tend to select the cheapest available source of alcohol for a given ethanol content, whether this is cider in one country, vodka in another, or wine in a third. Preventing alcohol-attributable harm in this population therefore requires assessing affordability specifically for the cheapest beverage in each country, typically a single beverage type, rather than a weighted average across beverage types.

Given that alcohol use disorders tend to be more prevalent in lower socioeconomic groups,¹⁰ the affordability for this group is clearly different than the average affordability for an entire country. However, it should be noted that alcohol use disorders do not constitute the majority of alcohol-attributable burden of disease.¹¹

Finally, other factors such as the level and type of unrecorded consumption or specific elements of tax design may become critically important, depending on the national context. Clearly for a country where the majority of alcohol use is unrecorded such as Viet Nam, tax shares have a different importance compared to countries with lower unrecorded consumption.¹² As for tax design, within an oligopolistic market structure such as the alcohol industry,¹³ industry-driven price reductions produce contrasting effects depending on the taxation method applied.¹⁴ Under SP and U taxation, where the tax liability is fixed regardless of retail price, price reductions by industry cannot offset the impact of a tax increase. Under AV taxation, by contrast, tax liability is directly tied to price, so a price reduction also lowers the tax owed, reducing the retail price further and increasing affordability. Price-reduction strategies can therefore manipulate both T/P and P/I simultaneously, systematically altering the association between them.

Taken together, these are only some of the most important factors shaping the relationship between tax share and affordability. We recommend that future research examine this relationship longitudinally—within and across countries—rather than relying on cross-sectional comparison of just two indicators, which cannot capture the full picture linking price, industry behaviour, tax level and design, and differing definitions of affordability.

For example, a 20-year longitudinal analysis of Lithuania, Poland, and other Baltic states found that taxation increases consistently drove down both alcohol consumption and all-cause mortality.^{4,15} These findings relied on standardized affordability measures using real average beverage prices and average disposable income from national statistical offices. The consistency of these results stems not only from the rigorous control of the longitudinal methodology, but also from comparing four neighboring European Union countries with highly similar taxation policy contexts.

Conclusion

Industry pricing strategies, the choice of assessment method, and national contextual factors can systematically decouple the cross-sectional association between T/P and P/I. Consequently, a comprehensive understanding of pricing and affordability across diverse tax scenarios requires a broader, more dynamic set of indicators than these two ratios alone. Nevertheless, there is a distinct value in attempting to establish accessible indicators for complex processes, even if they have limitations. In this regard, we would like to thank Casswell and colleagues for initiating this important groundwork.

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Disclosure of artificial intelligence (AI) use

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Ethical issues

Not applicable.

Conflicts of interest

Authors declare that they have no conflicts of interest.

Authors' contributions

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Supplementary files

Supplementary file 1 contains Table S1.

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