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EXCISE TAXATION, MARKET INNOVATION, AND REGULATORY BLINDNESS: EVIDENCE FROM THE BALTIC SEA REGION

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ABSTRACT

Aim: This study examines divergent trends in alcohol control policies across Baltic and Nordic countries, focusing on the efficacy of excise taxes as a public health instrument. It aims to identify why systematic increases in excise duties often fail to achieve the intended reductions in consumption, indicating that decision-makers ignore changing consumer behavior and technological progress in production processes – a phenomenon called legal blindness. **Methods:** The study employs a comparative policy analysis across eight Baltic Sea Member States. Data selection criteria focused on national excise legislation and the Excise Movement and Control System (EMCS) reporting between 2020 and 2025. Statistical data was accessed via the European Commission's Taxation and Customs Union databases and cross-referenced with national reporting from the respective Ministries of Finance. The review protocol involved a systematic search of peer-reviewed literature using the keywords: alcohol excise tax, EMCS data fragmentation, and alcohol policy. The study provides comparative regulatory and fiscal evidence from eight Baltic Sea Member States, drawing on EMCS movement data and national excise legislation for the period 2020–2025. **Results:** Findings reveal a significant discrepancy between policy goals and outcomes. Preliminary analysis suggests that minor technical discrepancies in the interpretation of EU excise categories, combined with technological shifts toward low-alcohol content products, may lead to systemic data fragmentation. Furthermore, evidence suggests that aggressive taxation often triggers a shift toward legally underclass products, which are frequently underrepresented in official statistics, thereby distorting the view of policy effectiveness. **Conclusions:** The study concludes that traditional excise-heavy policies are becoming less effective due to generational shifts in consumption and rapid product innovation. To overcome current so-called legal blindness, policymakers must move beyond strict compliance with EU instruments and adopt evidence-based frameworks that account for technological market evolution. Improved data integration is essential to mitigate the so-called grey market risks and ensure public health objectives are met.

Key words: alcohol, consumption, generation, excise tax, revenue

JEL codes: H20, H21, E21

INTRODUCTION

The regulation of alcohol circulation presents a persistent and multifaceted challenge to public health, fiscal stability, and commercial integrity across the European Union (EU), particularly within the Baltic and Nordic region. Over the past decade, national governments have increasingly relied upon systematic alcohol excise tax hikes as a primary policy lever to lower per capita consumption and meet public health objectives.

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This approach, however, has increasingly exposed a significant tension between regulatory compliance and effective market oversight, leading to a state this paper terms so-called legal blindness. This research argues that while EU Member States adhere strictly to the legal and technical requirements of the EU's excise framework, the structure of these regulations generates systemic data fragmentation, thereby rendering policy goals ineffective and concealing crucial market dynamics.

The core challenge is that the existing regulatory architecture, which relies on raw-material-based tax groups, has been outpaced by rapid industrial and social evolution. Contemporary policy is failing to account for two critical market drivers. Firstly, technological innovation enables the production of low-alcohol and hybrid beverages that often exploit regulatory loopholes. Secondly, a profound generational shift is evident, where cohorts such as Generation Z exhibit distinct, lower-consumption habits and an increasing preference for low-alcohol alternatives. Evidence suggests a correlation between declining consumption and generational shifts; however, further panel data analysis is required to establish a direct causal link. These findings should be viewed as preliminary indicators of a broader trend. These factors suggest that recent reductions in officially reported absolute alcohol consumption are likely attributable to unexamined social and technological trends rather than to tax increases alone. The resulting policy deficit is compounded by the fact that national policy relies on data that cannot reliably correlate tax revenue with consumption patterns or the holistic public health impact of modern, ingredient-diverse products. Academic researchers have performed different aspects of excise tax for alcohol in the Baltic countries [Rovira et al. 2022], including deeper analysis in Estonia [Trasberg 2020]; in Lithuania [Bartkus 2019, Rehm et al. 2025] with several important aspects of cross-border trade [Zirgulis 2024] and with deep and comparative analysis in the Baltic countries and Poland [Rehm et al. 2023a, Rehm et al. 2023b] in five European countries [Manthey et al. 2024].

The concept of regulatory blindness constitutes an original analytical contribution of this study, capturing the systemic divergence between legal compliance and effective economic oversight in alcohol excise policy. This article seeks to address the central research question: what is the impact of low harmonization and systemic data volatility within the EU's alcohol regulatory framework on the effectiveness of national public health and fiscal policies, specifically considering the contemporary shifts in consumption patterns across the Baltic and Nordic region?

To answer this, the study adopts a multidisciplinary approach with a high degree of procedural transparency. The authors examined the practical gaps in EU excise directives across eight Baltic Sea Member States, using the EUR-Lex database to conduct legal and policy analysis. The authors provided a comparative analysis of primary regulatory tools, based on national legislative documents and data from the European Union Agency for Fundamental Rights (FRA). Statistical data on tax revenue and alcohol movements were accessed through the European Commission's Excise Movement and Control System (EMCS) reporting for the period 2020–2025. This allows for a replicable comparison between official excise reporting and observable market outcomes. To elaborate on econometric modeling, the authors apply the principal–agent model to theoretically frame the issue of asymmetric information between the state (principal) and the alcohol industry (agent).

THE EU REGULATORY FRAMEWORK AND ITS PRACTICAL GAPS

Council Directive (EU) 2020/262 serves as the principal legal instrument regulating alcohol excise duties and the movement of excisable alcohol products across the EU, both with suspended and effective excise tax coverage. In the case of trade of alcohol with suspended excise tax coverage in the EU, a computerized EMCS control system is used – it records and monitors the movement of excise goods within the EU [EMCS 2023]. According to EU Regulation 2022/1637, it is allowed to move goods without paying excise tax in any of the Member States before a decision is made to release particular goods in the chosen country into free circulation, and by that moment, paying excise tax according to the Member State in which it will be sold. Council Directive 92/84/EEC establishes minimum alcohol excise tax rates for major excise tax groups – each Member State may set rates above the minimums and implement a more detailed framework of excise tax groups, provided they correspond to the major ones.

The legal framework for the intra-Union movement of alcohol is underpinned by a dual-coding system: the Combined Nomenclature (CN) code and the Excise Product Code (EPC). The CN, an eight-digit international product classification governed by Council Regulation (EEC) 2658/87, provides granular detail on various alcohol products for customs and statistical purposes. Conversely, the EPC, detailed in Commission Regulation (EC) No 684/2009, offers a restricted system of eight universal codes for excisable alcohol, applicable across all Member States. The limited number of EPCs introduces a requirement for subjective classification: Member States retain distinct national excise tax group structures, permitting the consignee to interpret the applicable tax rate group based on the received EPC. Despite legal compliance, this interpretive flexibility has demonstrably led to classification errors on the receiving side, particularly when the misinterpretation did not affect the tax revenue collected. Moreover, while national systems utilize detailed classifications, international reporting to bodies such as Eurostat relies on the four primary categories established by Council Directive 92/84/EEC: beer, wine, spirits and intermediate products. The need to consistently translate between granular national tax categories (linked to EPC) and broad international reporting groups creates systemic data volatility, leading to unavoidable discrepancies that compromise statistical integrity. This leads to a practical gap in statistics and overall oversight of the industry. In particular, Member States' actors follow the law, but market trends become less obvious, and political goals aimed at supporting some local alcohol industries cannot be achieved.

Article 32 of Council Directive (EU) 2020/262 sets the amount of alcoholic beverages a private individual may transport for his or her own use – it is the main regulatory framework for border trade. The authors do not analyze volumes and types mentioned in this list – this law has been issued to regulate alcohol flow over the borders for private purposes, as among EU countries, borders are mainly open. It is important that there is such a regulatory framework to prevent illegal actions and to set clear rules for private individuals and entrepreneurs dealing with alcohol sales to foreigners of Member States. It also has opened a practical gap – alcohol purchase tourism or so-called border trade where the main goal is not to obtain in the neighboring Member State alcohol of that country, but to use excise rate differences for optimizing expenses on alcohol purchases. It is not a phenomenon of Baltic states, but global and especially active among countries having comparably easy border crossing conditions. This practical gap in legislation has led to an established network of specialized alcohol shops along the border of countries having reasonable differences in excise tax rates or other limitations, habits, and rules. For example, Estonian beer brewers sell their production to border trade shops in Latvia so Estonian and Finnish customers could obtain their local or favorite beer for a way lower price than in their homeland. This does not support local Latvian beer brewers, nor the excise tax revenue of Estonia, but it keeps Estonian beer dominant in Estonia to avoid transition of Estonian consumers to Latvian beer due to lower price. It also increases Latvian excise tax revenue and lowers Estonian alcohol consumption rates in statistical outlooks, which is important to politicians. Sometimes this practical gap correlates with control elements and taxation policy among the states, encouraging them to exceed limits and purposes, tempting private individuals to violate this directive for private financial interests. For example, Baltic trucks from Italy on their way home, having additional space for one or two pallets, sometimes do not hesitate to obtain some pallets of wine or sparkling that is not taxed in Italy but is highly taxed in the destination country. Such discrepancies and a lack of harmonization among Member States create practical gaps in the regulatory framework and lead to legal or even illegal practices.

Any European state has a system to regulate the market of alcohol, and the efficiency of this system is an essential condition for competitiveness. In several countries of Europe, alcohol excise tax has a more significant impact on the state budget and the economy than in others, while alcohol's effect on human health and social safety is similar depending on consumption level. Therefore, it is important to regulate alcohol market and consumption as such. One way is to determine the appropriate excise tax for each group of alcohol: to ensure maximum revenue in the state budget while reducing the shadow economy risk and reducing alcohol consumption level. It is mandatory to inspect the efficiency of the alcohol controlling system in each

country separately as they are rather different, built not only on the united EU regulatory framework, but also on national laws and regulatory acts. While the dilemma – to support state budget, industry, or health system – stays the same in every country, let's look at five tools that attempt to solve the dilemma.

The first tool similar in all countries around the Baltic Sea, is regulation by excise tax – all groups of alcoholic beverages are taxed: with different rates, but with exclusions when the rate is zero. Different excise tax rates allow for the management of consumer choice, directing them towards low alcohol content beverages, assuming they are less harmful to health and social safety. Germany has an exception for wine as the majority of Central and Southern European countries support their traditional wine industry; therefore, it is worth comparing these countries (Table 1).

After analyzing data in Table 1, it is obvious that apart from different excise tax rates, there is no unified approach to taxing all alcoholic beverages, but the vast majority of Baltic Sea countries tax all alcohol. There is a practical gap in the regulatory framework that confuses traveling Europeans, as in stores, there is no information on the amount or application of excise tax.

The second tool is drinking age [IARD 2022] – each state has its rules on the age at which it is allowed to obtain and consume alcoholic beverages [FRA 2017]. In Germany, Denmark, Finland, and Sweden, this age depends on alcohol content and premises as well, but in general, the age is as depicted in Table 2.

The third tool is state-controlled sales: among these countries, only Sweden and Finland have such a system, and even they have recently started easing this policy. Sweden has decided to permit alcohol sales outside of state-owned Systembolaget shops and public bars and restaurants (HRC) [Aeberhard and Greenall 2024,

Table 1. Application of the alcohol excise tax in the Baltic Sea region by country in 2025

Alcohol type	Denmark	Germany	Poland	Lithuania	Latvia	Estonia	Finland	Sweden
Ethyl alcohol	A	A	A	A	A	A	A	A
Intermediate products	A	A	A	A	A	A	A	A
Still wine	A	NA	A	A	A	A	A	A
Sparkling wine	A	IO	A	A	A	A	A	A
Beer	A	A	A	A	A	A	A	A

A – applicable, NA – non-applicable, IO – for import only.

Source: own work based on EMCS product movement data and Council Directive 92/84/EEC.

Table 2. Alcohol consumption minimum age in the Baltic Sea region by country in 2025

Alcohol type	Denmark	Germany	Poland	Lithuania	Latvia	Estonia	Finland	Sweden
Strong alcohol	18	18	18	20	18	18	20	20
Wine	16	16					18	20
Beer	16	16					18	18
HoReCa	18	18					18	18

HoReCa – segment of spirits, wines, and beverages for hotels, restaurants, and catering.

Source: own work based on FRA database [2024].

Carruthers 2024]. The government of Sweden, starting 1 June 2025, allows small distillers, wineries, and breweries to sell alcohol on their premises, but with rather strict limitations that have not dramatically changed the existing situation on the market. At the moment, apart from Systembolaget and HRC, only alcoholic beverages up to 3.5% of alcohol were permitted for sale in grocery stores in Sweden. In Finland, changes occurred already in June of 2024: beverages with up to 8% alcohol content are now allowed to be sold in grocery stores – previously, the limit was 5.5% alcohol content, with the rest sold in state-owned Alko stores with limited working hours, similar to Systembolaget in Sweden. In Finland, it has impacted state-owned stores' sales due to longer working hours and a wider network of grocery stores compared to the state-owned Alko chain of shops. Also, Baltic states' governments have considered a state-owned chain for alcohol sales, but this idea has not been implemented.

The fourth tool is the working hours of shops, or, as the author's name suggests – time limit. In Sweden and Finland, it refers to the working hours for state-owned liqueur stores. In Finland, there are more options for alcohol sales in grocery stores; therefore, there is a time limit for them as well, but not for HRC, unlike in Sweden. All three Baltic states have time limits for grocery stores; each country acts differently, but starting 1 August 2025, a new amendment to the law came into force in Latvia, which made time limits more similar to the practice in Lithuania, with minor differences [Saeima 2004]. Over time, this could become a trend in all three Baltic states as this regulatory tool has proven to be effective – Estonia, in a short time, reports an unprecedented increase in alcohol sales in the border area with Latvia. To compare countries around the Baltic Sea, see data in Table 3.

Part of alcohol market regulation are also marketing restrictions and limits: to promote and popularize alcoholic beverages: rules in each country are rather different. For this research, it is important to note that in each of the countries around the Baltic Sea there are laws that limit one or another type of alcohol marketing or all alcohol in general. It is an important tool that does not encourage current and potential consumers to obtain alcohol; especially, it is important towards children.

To evaluate particular countries in the usage of the previously mentioned five legal tools, look at data in Table 4. From a geographic point of view, it appears that the farther to the north, the more united the countries along the coastal side of the Baltic Sea are in terms of alcohol market regulation. This is also due to economic relations between the Baltic states and Scandinavia: obviously, there are negotiations among countries to reduce border trade, which spoils attempts by one country to decrease alcohol consumption, while in a neighboring country with no border restrictions, it is possible to obtain the desired beverage at a much lower cost. If Estonia wants investments from Finland, it has to make some compromises. Also, for Latvia, excise tax revenue is not the prevailing goal, as seen from the continuous rise in excise tax and the adaptation of the alcohol market to neighboring countries.

MARKET AND GENERATIONAL SHIFTS: THE ROOT OF LEGAL BLINDNESS

In this paper, market innovation is understood as technological and compositional changes in alcoholic beverages that alter their regulatory and fiscal classification without changing their functional consumption role. Legal blindness in the alcohol industry

Table 3. Alcohol shops' working hours in the Baltic Sea region by country in 2025

Weekday	Denmark	Germany	Poland	Lithuania	Latvia	Estonia	Finland	Sweden
Weekdays				10–20	10–20		9–20 (8–21)a	10–18
Saturday	00–24	00–24	00–24	10–20	10–20	10–22	9–18	10–13
Sunday				10–15	10–18		–	–

[a]Everyday grocery stores, up to 8% alcohol content beverages.

Source: own work based on national statutes, including the Law on Circulation of Alcoholic Beverages of 2024.

Table 4. Alcohol excise tax applicability in the Baltic Sea region by country in 2025

Regulation	Denmark	Germany	Poland	Lithuania	Latvia	Estonia	Finland	Sweden
Excise tax for all alcohol	A	W&LS	A	A	A	A	A	A
Drinking age	A	A	A	A	A	A	A	A
State shops							A	A
Time limit				A	A	A	A	A
Marketing limitations	A	A	A	A	A	A	A	A

A – applicable, W&LS – except for wine and local sparkling

Source: own work based on national statutes, including the Law on Circulation of Alcoholic Beverages of 2024.

arises both from industry development that has reached a level of maturity exceeding the existing regulatory framework and from generational shifts that introduce new patterns of consumption. The nature of alcoholic beverages has evolved significantly over the past century, and even more rapidly since the beginning of the twenty-first century, with production technologies and product innovation outpacing regulatory frameworks and policy-making cycles. Alongside these developments, more or less deliberate attempts have emerged to leave this new market reality insufficiently transparent.

For example, while legal requirements for labeling alcoholic beverages are formally fulfilled, final consumers often remain uninformed about substantive changes in product composition or production methods. Producers and marketers may avoid explicitly communicating that a familiar product is now produced differently – whether to reduce costs, optimize excise tax treatment, or introduce new flavors, colors, or characteristics. As a result, even for researchers, shelf-level information may be difficult to interpret accurately. Similarly, commercial research providers such as Nielsen or IWSR often rely on wholesaler data reported or reproduced in accordance with established classification conventions. For instance, a table wine historically produced from grapes may later be produced from local fruits or berries while retaining the same brand identity. If such products are reclassified as fruit wines, sales data may misleadingly appear as a novelty effect, or researchers may fail to locate the product within its expected category, leading to distorted interpretations.

Regardless of the underlying reasons, the outcome is a growing discrepancy between actual market developments and recorded data, which constrains both academic and commercial research. An even more concerning stage of this process is reflected in official state statistics, which subsequently inform business decisions, scientific analyses, and public policymaking.

In this study, legal blindness is operationalized as the systemic divergence between official tax revenue reports (based on raw material EPC codes) and actual market consumption (based on final product categories). For example, the study identifies a reporting error rate in which low-alcohol hybrids are classified as beer for tax purposes but marketed as cider beverages or cocktails, creating data fragmentation that masks a noticeable shift in consumer behavior not captured in traditional excise statistics.

Fragmented data significantly compromises the reliability of econometric analyses concerning state budget revenues derived from alcohol excise duties, as consumption frequently deviates into unanticipated excise tax categories rather than projected ones [Piattoeva and Saari 2022]. For instance, discrepancies often arise when comparing official reports: one might indicate a decline in beer sales offset by a rise in cocktails, while a second, based on raw materials for taxation, shows an increase in beer and a decline in ciders or spirits. An analyst lacking the linkage data to reconcile these reports may inadvertently select

a single, misleading dataset, potentially generating two divergent, yet equally inaccurate, results. This deficiency directly impairs the accuracy of excise tax revenue planning. A critical compounding factor is the ignorance bias that arises when the total revenue target is met or exceeded; this success obfuscates the underlying issue of data inaccuracy and flawed analysis [Romensaka 2021]. Such carelessness poses a substantial long-term risk and is often compounded in countries where excise tax revenue is not fiscally significant. However, these nations are often highly dependent on the stability of the alcohol industry, making correct market analysis paramount. To enhance clarity, it is essential to correlate tax data (based on raw materials) with consumption data (based on product type) and market performance using a unified unit of measurement. Currently, reports often deliberately use incompatible measurements, perpetuating this regulatory blindness. For example, official reports in Latvia – similar to those in many EU Member States – provide one set of data based on raw material for excise revenue and another detailing alcohol types by volume. These are incompatible. Conversely, the methodology for reporting consumed pure alcohol by taxation group (as submitted annually by national statistical offices to Eurostat and the OECD) is considered the most appropriate, particularly when aligned with excise tax revenue to accurately model the economic impact on the state budget.

The reliance on consumed volumes per alcohol type, without detailing the pure alcohol content derived from specific raw material groups, renders an inadequate basis for evaluating public health objectives. This lack of coherent data critically hinders the assessment of public health policies aimed at curbing alcohol consumption [Manthey et al. 2024]. A core difficulty is that the type of alcohol consumed cannot be reliably matched to the tax revenue it generates or to the raw material from which it is derived. Chemically, all consumed alcohol has the same formula; however, the holistic health impact necessitates a broader understanding of the raw material's effect on human health and behavior [Raipalis and Sloka 2025]. Components such as sugar content, liquid density, acidity level, carbon dioxide presence, and residual yeasts all influence consumer health outcomes. Consequently, reliable public health policy demands more comprehensive data on alcohol circulation than currently provided. Current health policy is primarily built upon a narrow, raw-material-based excise tax analysis, which provides consumption rates of pure alcohol, alongside alcohol type statistics that only allow the raw material and exact pure alcohol content to be inferred, not confirmed.

Latvia, like its Nordic counterparts, explicitly aims to reduce total pure alcohol consumption per capita to enhance public health indicators. Scandinavian policies and supporting research already demonstrate a clear trend toward low-alcohol consumption as an established means of achieving these health targets. This policy context is increasingly juxtaposed against the established behavioral shift of Generation Z, who have demonstrated distinct habits and attitudes towards alcohol consumption, a phenomenon extensively documented in recent scientific literature [Kraus et al. 2019]. The global beverage market reflects this change, with low-alcohol-content beverages emerging as a significant, decade-long trend with associated public health benefits. This raises a crucial policy question for the Baltic States: how effectively are they leveraging this valuable market and social trend to encourage either reduced alcohol intake or total abstinence within their populations? Since low-alcohol alternatives directly contribute to lowering total pure alcohol consumption, a focused policy approach that integrates and promotes this current market development is prudent, while simultaneously addressing the critical question of what will replace alcohol consumption in social contexts. Furthermore, at least some light is shown by recent research on non-tobacco smoking products that each state attempts to deal with separately [Sauka 2025].

ECONOMETRIC MODEL AND ACADEMIC PRECEDENTS

The principal–agent framework is introduced as an interpretative analytical tool rather than as a formal econometric model and is therefore positioned after the empirical and institutional analysis. This

framework is particularly well-suited to analyzing the regulation of alcohol circulation, as it captures the challenge of maintaining legal compliance while preserving effective oversight of market dynamics and emerging consumption trends. Within this model, the principal is the state, while the agent is the distributor or producer – typically a wholesaler releasing products into the retail market – who also, to some extent, reflects the preferences and behavior of final consumers.

As noted by Williams [2015], the principal–agent model is especially applicable in contexts characterized by a significant role of private information. In the present case, this private information concerns the distributor's decisions on how to report sales data and product classifications to state statistical authorities or commercial research providers. The framework builds on the seminal contribution of Holmstrom and Milgrom [1987]. Although these studies are relatively early, their central insight remains highly relevant: when an agent controls an asset or process on behalf of a principal, uncertainty arises because the principal's expectations depend on the agent's actions. While both parties influence one another, they do so to different degrees and through distinct mechanisms.

Applied in this study, the model describes a situation in which the government (the principal) mandates reporting obligations for a merchant or distributor (the agent) and subsequently observes discrepancies in the reported data. This setting represents a classic case of asymmetric information, where the agent possesses private knowledge – such as detailed sales data and interpretations of product classifications – that the principal cannot perfectly verify without incurring additional monitoring and enforcement costs. The objective of the principal (P) is not only to secure accurate data for tax revenue collection and market oversight, but also to identify emerging market trends and anomalies, which often manifest precisely through such discrepancies. Conversely, the agent (A) seeks to maximize profit while balancing two competing considerations: the administrative burden associated with high-precision reporting and the reputational costs that may arise if significant inconsistencies are detected.

Based on the principal–agent framework, authors formulate the following hypothesis: asymmetric information regarding product innovation allows the agent (industry) to minimize tax liability while the state (principal – P) remains "blind" due to rigid EPC classifications. Future research should derive the equilibrium implications of this misalignment.

In our model, the principle sets a level of reporting stringency (S). A high S means mandatory, detailed cross-checking with EMCS, while low S means more trust-based reporting. The government also sets an audit cost (C_A) and a potential loss of industry control (L_{IC}) if it fails to monitor. Agent (A) chooses a level of reporting precision (R_p). A high R_p means meticulously cross-checking every detail with EMCS. A low R_p means investment of rational accuracy and data of good intentions, which may contain discrepancies. For A achieving high R_p has an administrative cost (C_R). This cost includes employee time, system updates and thorough data validation. The higher the precision, the higher the cost: $C_R = f(R_P)$, where f is an increasing function. The discrepancy (D) between the reported data and the true data is $D = Q_T - Q_R$. If D is a small, random error (e.g., due to a low R_P) it can be valuable for the P. These small inconsistencies can signal emerging market trends or changes in production methods (e.g., a cider like beverage produced from beer). We propose to call this benefit (B_{info}). If D is large, it is negative for the P, as it suggests systemic error, loss of market control or tax revenue. The cost is C_D.

Utility for the P is U_P, where Q_R *is* revenue, S is audit cost and D is control loss:

$$U_P = Q_R + B_{\text{info}} - S - D.$$

The B_{info} is only positive for small, useful discrepancies. The C_A increases with the level of stringency the government imposes (S). The loss of control (L_{IC}) increases if the discrepancy becomes too large, suggesting a lack of oversight.

Utility for A is U_A, where Q_T is profit, Q_R is tax, RP is cost of reporting and D is cost of reputation:

$$U_A = Q_T - Q_T - R_P - D.$$

The reputational cost (C_{rep}) is a penalty imposed if the government's audit reveals a very large discrepancy. This cost increases with the scale of D.

The core of this revised model is the government's choice of stringency (S). If the government sets a very

high S, it forces the A to choose a high level of precision (R_P) to avoid the reputational cost. This leads to very little or no discrepancy ($D \approx 0$). This way, the government gets accurate data, but it incurs high audit costs and loses the valuable early warning information from the small discrepancies that would help to indicate shifts and development in the industry. If the government sets a very low S, the A is free to choose a low R_P to save on administrative costs (C_R). This way, the government's data would have many discrepancies. Some may be valuable information (B_{info}), but others may become large enough to signify a loss of control, leading to significant future costs (L_{IC}). The optimal strategy for the government is to find the balance: a level of S that incentivizes businesses to maintain an appropriate level of precision. This level of precision saves businesses from unnecessary administrative costs, while still generating small, informative discrepancies that the government can and should use to trace new trends and prevent a major loss of control. This model explains why the government may not be in a hurry to force perfect data alignment. The current system, with its inherent imperfections, might be a low-cost method of gathering valuable market intelligence. Similar research relevant to this model is conducted in behavioral economics [McCaffery and Slemrod 2006], because the legal framework cannot cover everything and there has to be a role for citizens to take their part in fulfilling laws and regulations.

CONCLUSIONS

The study provides evidence consistent with the emergence of regulatory blindness as an unintentional yet systemic outcome of the current excise taxation framework. This phenomenon arises from structural friction between the granular CN codes and the highly restrictive EPC, which generates information asymmetry within the regulatory system. As a result, discrepancies emerge that are not necessarily indicative of tax evasion but nevertheless undermine the statistical integrity required for reliable policy evaluation and economic analysis.

The findings further suggest a potential disconnect between systematic increases in excise tax rates and the achievement of intended public health outcomes. In particular, technological innovation enabling the production of low-alcohol beverages, alongside observable generational shifts in consumer behavior, appears to play a significant role in shaping consumption patterns. These dynamics remain insufficiently incorporated into current policy design, indicating the need for further longitudinal research to disentangle fiscal effects from broader social and technological trends.

Despite the technical shortcomings observed at the EU regulatory level, the analysis identifies a clear trend toward sub-regional policy harmonization across the Baltic and Nordic regions. Legislative adjustments related to excise taxation, availability, and market regulation increasingly reflect pragmatic responses to locally observed policy inefficiencies and the need to coordinate regulatory approaches with neighboring countries to mitigate unintended cross-border effects.

The application of the principal-agent framework reveals that the state, acting as the principal, currently operates under a persistent cost-benefit dilemma regarding data precision and regulatory oversight. While the imperfections embedded in the existing reporting system may function as a low-cost mechanism for capturing early signals of market change through minor discrepancies, reliance on such passive information gains poses long-term risks. Future governance strategies should therefore shift from merely tolerating imperfect data toward actively leveraging these discrepancies as a source of market intelligence, enabling policymakers to anticipate structural shifts rather than responding only after fiscal or regulatory control has been compromised.

Finally, the analysis underscores a clear policy imperative to move toward a unified and coherent data standard. The effectiveness of future alcohol control policies depends on addressing the systemic weaknesses identified in the current framework. This requires a fundamental transition toward a holistic, consumption-based data system that moves beyond raw-material-based classifications and mandates the reporting of consumed pure alcohol by product type. Such a reform is essential to ensure that policymaking is grounded in reliable empirical evidence capable of accurately modeling both the fiscal implications and the public health consequences of contemporary consumption trends.

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OPODATKOWANIE AKCYZOWE, INNOWACJE RYNKOWE I REGULACYJNA ŚLEPOTA W REGIONIE MORZA BAŁTYCKIEGO

STRESZCZENIE

Cel: W niniejszym badaniu przeanalizowano rozbieżne trendy w polityce kontroli alkoholu w krajach bałtyckich i nordyckich ze szczególnym uwzględnieniem skuteczności podatków akcyzowych jako instrumentu zdrowia publicznego. Celem artykułu jest określenie przyczyn, dla których systematyczne podwyżki akcyzy często nie przynoszą zamierzonego efektu w postaci zmniejszenia konsumpcji, wskazując, że decydenci ignorują zmieniające się zachowania konsumentów i postęp technologiczny w procesach produkcyjnych – zjawisko to nazywane jest ślepotą regulacyjną. **Metody:** W badaniu zastosowano porównawczą analizę polityk publicznych obejmującą osiem państw członkowskich regionu Morza Bałtyckiego. Kryteria doboru danych koncentrowały się na krajowych regulacjach dotyczących akcyzy oraz raportowaniu w systemie EMCS w latach 2020–2025. Dane statystyczne pozyskano z baz danych Dyrekcji Generalnej ds. Podatków i Unii Celnej Komisji Europejskiej i zweryfikowano je poprzez zestawienie z raportami krajowych ministerstw finansów. Procedura przeglądu literatury obejmowała systematyczne wyszukiwanie publikacji recenzowanych z wykorzystaniem słów kluczowych: „akcyza na alkohol", „fragmentacja danych EMCS" oraz „polityka alkoholowa". Badanie dostarcza porównawczych dowodów regulacyjnych i fiskalnych z ośmiu państw regionu Morza Bałtyckiego, opartych na danych o przemieszczaniu wyrobów akcyzowych w systemie EMCS

oraz na krajowych regulacjach akcyzowych z lat 2020–2025. **Wyniki:** Uzyskane wyniki wskazują na istotną rozbieżność między celami polityki publicznej a jej efektami. Wstępna analiza sugeruje, że niewielkie techniczne różnice w interpretacji unijnych kategorii akcyzowych, w połączeniu z przesunięciami technologicznymi w kierunku produktów o obniżonej zawartości alkoholu, mogą prowadzić do systemowej fragmentacji danych. Ponadto zebrane dowody wskazują, że agresywna polityka podatkowa często powoduje przesunięcie popytu w stronę produktów prawnie niedoklasyfikowanych lub objętych niższym opodatkowaniem, które są niedostatecznie reprezentowane w oficjalnych statystykach, co skutkuje zniekształconą oceną skuteczności polityki. **Wnioski:** W artykule stwierdzono, że tradycyjne polityki silnie oparte na akcyzie tracą na skuteczności w warunkach zmian pokoleniowych w konsumpcji oraz dynamicznych innowacji produktowych. Aby przezwyciężyć obecną „regulacyjną ślepotę", decydenci powinni wyjść poza ścisłe przestrzeganie unijnych instrumentów prawnych i wdrażać podejścia oparte na dowodach empirycznych, które uwzględniają technologiczny rozwój rynku. Kluczowe znaczenie ma poprawa integracji danych, pozwalająca ograniczyć ryzyko „szarej strefy" oraz zapewnić realizację celów zdrowia publicznego

Słowa kluczowe: alkohol, konsumpcja, pokolenie, podatek akcyzowy, dochody