

Structural Discrepancies In Alcohol Taxation: Navigating The Harmonization Of Excise Duty Groups Across EU Member States

mg.oec. Agris RAIPALIS ¹

dr.oec. Biruta SLOKA ²

¹ University of Latvia, Faculty of Economics and Social Sciences, Department of Management and Business, agris.raipalis@lu.lv, ORCID: 0009-0004-6687-4998

² University of Latvia, Faculty of Economics and Social Sciences, Department of Management and Business, biruta.sloka@lu.lv, ORCID: 0000-0003-2129-053X

Abstract: While the European Union continues to strive for fiscal integration, the taxation of alcoholic beverages remains a fragmented landscape. Despite existing EU-wide general guidelines, the practical implementation of excise duty groups across Member States is characterized by significant structural discrepancies. This paper examines the challenges arising from these diverse national models, which currently hinder the effective reporting to international organizations such as Eurostat and the OECD. The research highlights how the lack of a uniform classification system creates barriers to cross-country data comparability and academic research. These structural misalignments lead to varied interpretations of alcohol categories, obscuring the "big picture" within the European internal market – a relatively small geographical area compared to global economic giants. The study argues that such data silos and methodological inconsistencies can result in flawed state-level decisions regarding business support and distort private investment signals. Furthermore, the paper posits that without a more robust harmonization of excise duty groups, public health initiatives aimed at alcohol reduction policies may be based on imprecise metrics. The findings suggest that a transition from general guidelines to a more rigid, harmonized framework is essential for enhancing transparency, fostering a competitive business environment, and ensuring the accuracy of cross-border socio-economic analysis.

Key Words: Excise Duty, Alcohol Taxation, EU Harmonization, Fiscal Policy, Economic Integration.

1. INTRODUCTION

1.1. Background and Context

The European Union is currently undergoing a significant and complex phase of fiscal integration, with tax harmonization emerging as a pivotal, although already for a long time, process expected to unfold over the next several years. Among of this ongoing transition is also the structure of excise duties, including alcohol taxation, even though it is not among focus areas. Currently the legislative framework provides general guidelines rather than rigid, universally applicable rules. Consequently, while a baseline framework exists, each Member State retains the autonomy to implement and interpret alcohol excise duty groups according to its own national model. This fragmented approach has created a disjointed internal market where the very definition and categorization of alcoholic beverages vary across borders.

1.2. The Problem Statement and Consequences

This structural discrepancy in alcohol taxation presents profound challenges far beyond mere bureaucratic inconvenience. The fragmented national implementation of excise duty groups visibly and acutely complicates international reporting to vital organizations such as Eurostat and the OECD. When Member States categorize and report on alcohol sales using divergent definitions, it creates an ongoing and severe misalignment of data points, hindering cross-border data compatibility and meta-analysis.

The consequences of this data incompatibility are far-reaching. The inability to conduct reliable, standardized cross-border analysis distorts the socio-economic picture of the region as a whole. Without accurate baseline metrics, national-level governments risk making flawed decisions regarding business support, export strategies, and the allocation of state subsidies. Furthermore, private corporate expansion plans and business investments are misdirected due to unpredictable and skewed comparative market signals. Crucially, the formulation of effective public health policies, specifically alcohol reduction strategies, is severely undermined. If baseline consumption metrics are imprecise due to varying tax classifications, national attempts to lower alcohol consumption through fiscal policy will inherently fail to meet their objectives. On a global scale, this lack of

cohesive data renders the relatively small European internal market analytically weaker and less competitive compared to unified global players such as the United States or China.

1.3. Ongoing Debates and Proposed Tax Models

Within the EU policy corridors, robust discussions are underway regarding the transition to a more unified alcohol excise tax system. One prominent idea draws inspiration from the United Kingdom, which recently transitioned to a unified tax model based strictly on pure Alcohol by Volume (ABV)(Nixon, 2023). The core concept of this approach is to lower absolute alcohol consumption, thereby preventing the artificial support of specific industries and reducing the migration of price-dependent, heavily dependent consumers between categories. While it is acknowledged that for high-value products, such as exceptional premium wines, the excise tax does not constitute the majority of the retail price, these premium products do not represent the bulk of total ethanol consumption. And first positive signals have been received what makes this matter to be actual.(Morris et al., 2024)

Alternatively, a more politically viable option involves preserving the existing alcohol excise groups, but strictly harmonizing their definitions across the EU. This would foster a unified understanding among Member States while allowing national governments to utilize economic policy levers by setting different tariffs for unique categories. Crucially, this compromise could still adhere to the fundamental principle that the excise duty is linked to the alcohol content. Although this might be a less effective tool for public health-driven consumption reduction, since political consensus within the EU inherently requires balancing fiscal sovereignty with market integration. But for governments all across the Europe remains the main goal to reduce total alcohol consumption.(Rehm et al., 2023)

1.4. Research Objective and Methodological Framework

To navigate this complex policy landscape, this scientific paper aims to assist the decision-making process by developing an econometric model that evaluates three distinct tax harmonization proposals:

- Model 1: The existing framework with harmonized alcohol excise groups, preserving distinct calculation models for each group, where each Member State sets its own tax tariff.
- Model 2: The abolition of all excise groups, where the tax is calculated strictly based on pure alcohol content, with tariff determined by individual Member States.
- Model 3: A hybrid approach featuring harmonized alcohol excise groups where the tax is uniformly dependent on alcohol content across all groups, but Member States retain the right to set individual tariffs for each specific group separately.

The geopolitical relevance of resolving these structural flaws extends far beyond the current EU Member States. It is vitally important for EU candidate countries currently adapting their legislation, as well as non-EU nations in the wider European region. These countries rely on a stable, predictable tax system to maintain successful cross-border business relations. Thus, rectifying and harmonizing this tax framework is an economic necessity for the cohesion of the entire European continent.(Scherleitner, 2025)

Methodologically, this research is grounded in a Problem-Centered Research approach (Söilen, 2025) which prioritizes the resolution of practical socio-economic challenges over purely theoretical exercises. By utilizing a quantitative, deductive methodology, this paper moves from the macro-level analysis of EU directives to a micro-level assessment of structural data discrepancies.

1.5. Structure of the Article

Following this introduction, Section 2 provides an overview of the current EU alcohol tax harmonization process, legislative frameworks, and the tension between national fiscal sovereignty and single-market needs. Section 3 details the structural discrepancies and their specific impact on data comparability and reporting. Section 4 elaborates on the methodological framework and introduces the econometric models evaluating the three proposed taxation scenarios. Finally, the subsequent sections present the findings, policy implications, and concluding recommendations for achieving a genuinely unified reporting standard.

2. THE EU ALCOHOL TAX HARMONIZATION PROCESS

Fiscal integration within the European Union is a prolonged and complex endeavor (Arnal, 2026), with the harmonization of alcohol excise duties representing one of its most challenging elements. To comprehend the current structural discrepancies that distort international data compatibility, it is essential to analyze the existing legislative framework, its evolution, and the political hurdles impeding the transition to a unified, Europe-wide system.

2.1. Legislative Framework

The foundation of the EU's excise duty system for alcohol and alcoholic beverages is built upon two historic directives adopted in 1992. In preparation for the establishment of the European Single Market: Directive 92/83/EEC and Directive 92/84/EEC. Directive 92/83/EEC defines the structures of excise duties, establishing five primary categories of alcoholic beverages: beer, wine, other fermented beverages (excluding wine and beer), intermediate products and ethyl alcohol. It also dictates the base upon which the tax is calculated (e.g., the volume of the finished product, Plato degree or pure alcohol content). Meanwhile, Directive 92/84/EEC sets the minimum excise duty rates that Member States must apply to each of these categories.

While this legal framework was a significant step toward a functioning internal market at the time, it was forged as a political compromise among Member States with drastically different alcohol production and consumption traditions. Consequently, these directives offer general guidelines rather than strict, unambiguous and universal rules. They allow for broad interpretation and include numerous exemptions, permitting Member States to apply reduced rates for small producers or specific local products. (Bieber, 2020) This flexibility, originally introduced to respect national distinctions, has today become the root cause of a data collection and analysis problems as the classification of the same beverage groups varies significantly across different Member States.

2.2. Current State of Play

Currently, the European Union is in a slow transitional phase, moving from the interpretation of these loose guidelines toward a recognized need for much stricter, rigid harmonization. (Scherleitner, 2025) In the global market, the necessity for a unified, integrated Europe (the "EU Inc." momentum) is becoming increasingly apparent to compete with superpowers like the United States and China, which benefit from unified and transparent tax and data systems. However, within the European internal market, this transition is sluggish. Over recent years, isolated amendments have been made (such as Directive (EU) 2020/1151), aimed at updating rules, improving clarity, and reducing administrative burdens. Yet, these have addressed technical details rather than resolving the fundamental categorical asymmetry.

In practice, this means data incompatibility persists. When Member States submit their data to organizations like Eurostat and the OECD, the reports are generated based on these divergent national definitions. For researchers and policymakers, this creates a situation akin to comparing apples to oranges. The categorical tax structures also create an "affordability paradox." For instance, wine and fermented beverages above 10% ABV remain the cheapest sources of ethanol in many countries because, under EU structures, they are taxed by volume and often subjected to a €0 excise rate. Meanwhile, spirits and beer are taxed based on pure alcohol content or degrees, creating a massive market imbalance. (Raipalis & Sloka, 2025) Without strictly harmonized definitional frameworks, objective socio-economic and public health analysis is impossible.

2.3. Key Challenges

The primary obstacle to successful and comprehensive alcohol tax harmonization is the fundamental clash between national sovereignty in fiscal policy and the requirements of a unified market. Taxation is one of the most significant markers of an independent state, and tax decisions within the European Union still require the unanimous agreement of all Member States.

This problem is accurately captured by the core hypotheses underlying this research. First, despite the dazzling flaws in data comparability and market distortions, the harmonization of alcohol excise taxation is not actually a primary priority on the EU agenda (Hypothesis 1). Although diplomatic attempts to address structural flaws occur regularly, the political will to implement radical and binding changes remains weak.

Second, the interests of Member States vary considerably based on their geographical location, climate and culture. Successful tax harmonization is currently much more likely to occur within specific, geographically adjacent macro-regions (Hypothesis 2). For example, Mediterranean countries, where wine production is a vital economic and cultural component, strongly oppose taxing wine based on alcohol content. Conversely, Nordic countries, facing different consumption patterns and public health challenges, advocate for stricter tax policies to reduce alcohol consumption. (Manthey et al., 2024)

Third, there is the factor of economic realities (Hypothesis 3): the financial significance of alcohol excise taxes collected in state budgets is often vastly outweighed by the broader economic benefits the alcohol industry provides to the EU economy as a whole, including agriculture, logistics, and the hospitality sector. (Pinheiro & Fernandes, 2025) Countries are reluctant to lose the ability to use tax policy to protect their domestic industries; therefore, raising taxes as a tool to reduce consumption is often a sub-optimal approach.

Ultimately, as long as tax groups remain a matter of national policy interpretation rather than unified standards, the single market will continue to suffer from this structural problem. A compromise must be found between national fiscal sovereignty and the imperative for a transparent European economic and data space.

3. STRUCTURAL DISCREPANCIES AND DATA COMPARABILITY ISSUES

The transition from recognizing the flaws in the EU's legislative framework to understanding their practical consequences requires an examination of the precise structural discrepancies that exist today. The lack of a rigid, universally applied categorization mechanism directly translates into fragmented national policies, fundamentally compromising the integrity of international data comparison.

3.1. Evidence of Fragmentation

The most glaring evidence of this structural fragmentation is observed in how different Member States categorize specific alcoholic beverages, particularly those falling outside the standard definitions of traditional beer or high-proof distilled spirits. Under the current interpretation of EU directives, the treatment of "intermediate products" and "other fermented beverages" varies drastically across national borders. (Franklin et al., 2024; He et al., 2026)

For instance, products such as fortified wines, cider, or heavily sweetened fruit wines are categorized by some Member States as fermented beverages, which are typically taxed by the overall volume of the finished product. In other Member States, these exact same products might be classified based on their production method or higher alcohol yield, pushing them into intermediate product categories or even subjecting them to tax rates based on pure alcohol content (Alcohol by Volume - ABV). The aforementioned "affordability paradox" is a direct symptom of this: in many jurisdictions, wine and fermented beverages above 10% ABV enjoy a €0 excise rate because the categorical structure permits taxation by volume without a minimum mandatory tariff based on alcohol strength. Consequently, a single, identical product can be classified and taxed under entirely different methodological principles depending merely on which side of an EU border it is sold. (Katunar et al., 2022) It gives an impact both on sales estimates and business research as well as on interpretations of state reports.

3.2. Reporting Obstacles: The "Valley of Woe"

This fragmented categorization transcends national tax collection – it directly contaminates international data reporting. When Member States submit their annual consumption, sales and tax revenue metrics to vital international organizations such as Eurostat and the Organisation for Economic Co-operation and Development (OECD), they do so based on their proprietary national definitions.

For researchers, economists, and public health officials, this creates an analytical "valley of woe" – a severe misalignment of data points where cross-border meta-analysis becomes fundamentally flawed. Attempting to track the consumption trends of intermediate products across Europe is akin to comparing apples to oranges, as the baseline definition of the product shifts from country to country. This inconsistent data reporting prevents the formulation of accurate, empirical baselines. If public health initiatives aimed at alcohol reduction are built upon these distorted metrics, the resulting national strategies will inherently fail to meet their objectives, as policymakers are essentially navigating blindfolded by incompatible statistics.

3.3. Geopolitical Context

The geopolitical implications of this structural "valley of woe" become starkly apparent when the European Union is compared with other major global economic players, such as the United States and China.

In the United States, while individual states possess the sovereignty to levy their own local excise taxes on alcohol and other related rules, the overarching categorization and baseline data collection are strictly unified at the federal level by the Alcohol and Tobacco Tax and Trade Bureau (TTB). The TTB enforces a universal structural framework defining exactly what constitutes beer, wine or distilled spirits across all 50 states. (Rossheim et al., 2018) Similarly, China utilizes a centralized Consumption Tax system administered by the State Taxation Administration (STA), enforcing universally applied national categories (e.g., white spirits, beer, wine) across all its provinces. (Shiwei & Jing, 2025)

In both of these global superpowers, regardless of localized tariff variations, the underlying definitional structure remains absolute. This structural uniformity provides these nations with a significant competitive advantage in data-driven decision-making. Their centralized authorities can execute highly accurate socio-economic analyses, track precise consumer trends, and implement unified public health strategies. In contrast, the European Single Market, despite its ambitions of profound fiscal integration, remains analytically weaker, hampered by a disjointed data landscape that prevents it from leveraging its full macroeconomic potential on the global stage.

4. METHODOLOGY

To systematically evaluate the structural flaws within the EU's alcohol excise duty framework and to test the proposed solutions, this study employs a rigorous methodological design. The research is structured to transition from high-level policy analysis to the precise, quantitative evaluation of specific taxation models.

4.1. Philosophical Grounding

This study is rooted in a Problem-Centered Research approach, as outlined by Söilen (2025) in *The Researcher's Journey*. Rather than engaging in a purely theoretical exercise, a problem-centered approach prioritizes the identification and resolution of practical, real-world socio-economic challenges. The "valley of woe" in international data reporting and the resulting market distortions represent tangible, measurable problems that affect both public policy and private enterprise. By anchoring the research in this pragmatic philosophy, the primary objective remains focused on delivering actionable, empirically supported solutions that can directly inform the ongoing EU tax harmonization discourse. (Kallestrup, 2002)

4.2. Research Design

The study utilizes a quantitative, deductive research design aimed at testing the impact of structural misalignments on market stability and data coherence. Following a deductive logic, the research begins with the overarching theories of fiscal integration and the hypotheses established earlier (concerning political will, regional proximity and economic realities). To test these hypotheses and provide concrete policy alternatives, the core of the research design involves the development of an econometric model capable of evaluating three distinct taxation scenarios:

- **Model 1 (The Harmonized Status Quo):** This model evaluates a scenario where alcohol excise groups are strictly harmonized across the EU, but the distinct calculation methods for each group are preserved. In this model, each Member State retains the sovereignty to set its own specific tax tariff for each category.
- **Model 2 (The Pure ABV Approach):** Inspired by the recent reforms in the United Kingdom, this model assumes the complete abolition of all alcohol excise groups. The tax is calculated solely based on pure alcohol content (Alcohol by Volume - ABV), effectively eliminating the affordability paradox. Member States still determine their own national tariffs, but the structural base is entirely uniform.
- **Model 3 (The Hybrid Framework):** This compromise model evaluates a system where alcohol excise groups are harmonized and preserved, but the taxation across all groups is strictly dependent on alcohol content. Member States can set different tariffs for different groups (maintaining economic policy levers), but the fundamental principle of taxing ethanol content remains absolute across the board.

4.3. Operationalization

To operationalize the variables within the econometric models, it is necessary to establish clear metrics for both the independent and dependent variables:

- **Taxation Discrepancy (Independent Variable):** This is measured by quantifying the structural variance between national tax codes. It includes the number of distinct sub-categories utilized by a Member State, the variance in the tax base (e.g., taxation by volume versus taxation by ABV), and the magnitude of exemptions applied to specific product groups (such as zero-rates for fermented beverages).
- **Data Comparability (Dependent Variable):** This is measured by the degree of variance and overlap in reporting metrics submitted to international databases. It is operationalized by calculating the discrepancy margins when cross-referencing national sales data with the aggregated categorical data published by Eurostat and the OECD. A higher discrepancy margin indicates a deeper "valley of woe," where products are fundamentally misaligned in cross-border meta-analysis.

4.4. Validity and Reliability

Ensuring the validity and reliability of the findings is paramount, particularly when dealing with complex macroeconomic datasets. The empirical evidence for this study is derived directly from highly reputable international statistical databases, specifically Eurostat and the OECD, supplemented by national tax revenue reports from selected EU Member States.

The reliability of the study is strong, as it relies on secondary data from institutional authorities; the data collection methods used by these organizations are standardized and repeatable. However, the construct validity presents a unique, inherent challenge that this paper seeks to address. Because the national data feeding into Eurostat is structurally fragmented, the baseline data itself contains categorical errors. To mitigate this and ensure internal validity, the econometric models are designed to isolate these structural discrepancies, essentially "cleaning" the data by standardizing the variables before running the comparative scenarios. By applying methodological principles (Söilen, 2025) for quantitative validity in the social sciences, the models ensure that the outputs (the projected impact of Models 1, 2 and 3) are a direct result of the structural tax mechanics being tested, rather than statistical noise generated by the flawed reporting systems currently in place.

5. ECONOMETRIC MODEL: ASSESSING THE IMPACT OF INCONSISTENCY

To move beyond a theoretical critique of the EU's fragmented excise duty framework, this section outlines an accessible and easily replicable econometric model. The primary objective is to quantitatively assess how the structural complexity of national alcohol tax codes impacts the accuracy of international data reporting – the empirical evidence of the "valley of woe."

5.1. Model Specification

To evaluate the correlation between tax group fragmentation and reporting accuracy, a Multivariate Ordinary Least Squares (OLS) regression analysis is specified. To evaluate the correlation between tax group fragmentation and reporting accuracy, a Multivariate Ordinary Least Squares (OLS) regression analysis is specified. The OLS method is selected due to its robust capacity to isolate the marginal effect of an independent variable across cross-sectional data, making it the standard approach for evaluating macroeconomic policy impacts. (Gujarati & Porter, 2009) The OLS method is selected due to its straightforward interpretability and its suitability for cross-sectional data analysis across the current EU Member States.

The baseline regression equation is specified as follows:

$$DIM_i = \beta_0 + \beta_1(TSCI_i) + \beta_2(MarketSize_i) + \beta_3(GDP_{pc_i}) + \varepsilon_i$$

Where:

- i represents the individual EU Member State.
- β_0 is the intercept.

- $\beta_1, \beta_2, \beta_3$ are the coefficients to be estimated.
- ε_i is the stochastic error term.

By running this model, we can isolate the specific impact that fragmented tax rules have on international data reliability, thereby providing empirical support for the necessity of transitioning to one of the three harmonized taxation models proposed in Section 1.4.

In the specified Ordinary Least Squares (OLS) regression equation each component plays a specific role in isolating the impact of tax fragmentation on international data reporting. The variables are defined as follows:

- DIM (Data Inconsistency Margin): This is the dependent variable of the model, quantitatively representing the "valley of woe" (the severity of the reporting errors). It is calculated as the absolute percentage difference between the national domestic sales volume for specific categories (as recorded by national revenue services) and the standardized consumption figures published in Eurostat and OECD meta-databases for that same year. A higher DIM indicates a severe misalignment in cross-border reporting.
- TSCI (Tax Structural Complexity Index): This is the primary independent variable. It serves as a quantifiable metric of how fragmented and complex a Member State's tax code is. The index is constructed by aggregating several factors: the total number of distinct alcohol excise sub-categories applied by the state, the presence of volume-based exemptions (such as a €0 excise rate on fermented beverages), and the use of reduced rates. A higher TSCI score signifies a highly customized, structurally complex national tax regime.
- MarketSize: This serves as the first control variable, measured by the total annual pure alcohol consumption per capita in liters. It is included in the equation to control for the sheer scale and cultural significance of the domestic beverage industry. Countries with massive domestic alcohol markets and high consumption rates might inherently face different administrative burdens and reporting dynamics compared to smaller markets.
- GDPpc (Gross Domestic Product per capita): This is the second control variable. It is integrated into the model to control for the overall economic and institutional development level of the Member State. Wealthier nations typically possess more robust, better-funded national statistical agencies. Consequently, a higher GDP might naturally reduce statistical reporting errors independently of how complex the country's tax structures are.

Finally, within the equation, β_0 represents the intercept, the β coefficients measure the magnitude and direction of the effect each specific variable has on the data inconsistency (DIM), and ε_i represents the stochastic error term, which accounts for any unobserved factors that might affect data reporting accuracy.

5.2. Operationalization of Variables

The model is designed to utilize easily accessible, open-source data from Eurostat, the OECD and the European Commission's excise duty tables (Taxes in Europe Database - TEDB).

1. Dependent Variable (Y) – Data Inconsistency Margin (DIM): This variable measures the severity of the reporting errors (the depth of the "valley of woe"). It is calculated as the absolute percentage difference between the total national domestic sales volume of "intermediate products" and "other fermented beverages" (as recorded by national revenue services) and the standardized consumption figures reported in Eurostat/OECD meta-databases for the corresponding year. A higher DIM indicates a severe misalignment in cross-border reporting.
2. Independent Variable (X1) – Tax Structural Complexity Index (TSCI): This is the core predictor variable, quantifying the level of fragmentation in a Member State's tax code. It is an additive index constructed from three easily verifiable metrics:
 - 2.1. The total number of distinct alcohol excise sub-categories applied by the state.
 - 2.2. A binary indicator (1 or 0) of whether the state applies a €0 excise rate to fermented beverages (the "affordability paradox" metric).
 - 2.3. The number of specific national exemptions or reduced rates utilized under the permissive guidelines of Directive 92/83/EEC.
 - 2.4. A higher TSCI score indicates a highly fragmented, locally customized tax structure.

3. Control Variables (X2, X3): To ensure the model accurately isolates the impact of tax complexity, two control variables are included: Market Size (measured by total annual pure alcohol consumption per capita in liters) to control for the volume of the domestic industry, and GDP per capita to control for the state's overall economic and administrative development level, which may independently influence statistical reporting quality.

5.3. Hypothesis Testing

The primary hypothesis tested by this econometric model addresses the direct consequence of the structural discrepancies outlined earlier in the paper.

- Null Hypothesis (H0): There is no statistically significant relationship between the structural complexity of a Member State's alcohol excise tax groups (TSCI) and the level of inconsistency in international data reporting (DIM) ($\beta_1 = 0$).
- Alternative Hypothesis (H1): A higher degree of structural tax complexity (TSCI) leads to a statistically significant increase in data reporting errors and market misalignment (DIM) ($\beta_1 > 0$).

If the regression results yield a statistically significant, positive coefficient for β_1 (at a standard 95% confidence interval, $p < 0.05$), the null hypothesis is rejected. Proving this alternative hypothesis provides the crucial empirical justification for structural reform. It demonstrates mathematically that as long as Member States are permitted to maintain highly complex, customized sub-categories and volume-based exemptions, the resulting data submitted to international organizations will remain fundamentally corrupted, effectively crippling evidence-based public health and economic policy on a pan-European scale.

6. DISCUSSION: IMPLICATIONS FOR POLICY AND BUSINESS

The anticipated results of the econometric model highlight a critical reality: the fragmented implementation of alcohol excise duty groups is not merely an abstract administrative hurdle, but a systemic flaw that generates profound negative externalities. (Boumans, 2011; Van Damme, 2004) The structural "valley of woe" directly distorts both private market dynamics and public administrative capabilities across the European Union.

6.1. Business Decisions: The Disruption of Investment Signals

For the private sector, regulatory certainty is the bedrock of strategic planning and Foreign Direct Investment (FDI). (Ait-Aoudia, 2025) Currently, the European Single Market for alcoholic beverages operates less like a cohesive economic zone and more like a patchwork of 27 distinct regulatory regimes. This tax uncertainty severely affects private investment signals.

When structural definitions vary by jurisdiction, multinational beverage producers and distributors cannot rely on standardized market data to forecast demand or assess regional competition accurately. Instead of optimizing supply chains and achieving true economies of scale, businesses are forced into "tax-driven product engineering" – artificially altering product recipes, ABV levels, or production methods strictly to fit within a favorable, lower-taxed category in a specific Member State. This diverts capital away from genuine innovation and creates a fragmented, inefficient business environment. (Danes et al., 2023) Consequently, the unpredictable landscape misdirects corporate expansion plans and deters cross-border investments, making the EU market less competitive compared to structurally unified markets like the United States. (Ross et al., 2014)

6.2. Public Policy: The Risk of Flawed Baselines

The implications for public policy are equally severe, particularly concerning public health initiatives and state resource allocation. Effective policymaking relies entirely on accurate, empirical baselines. If the data submitted to Eurostat and the OECD is structurally inconsistent due to varying national tax definitions, cross-border socio-economic research loses its validity. (Babor et al., 2022)

This creates a dangerous disconnect in public health policy. National governments frequently utilize excise taxation as a primary tool for alcohol reduction strategies. However, if baseline consumption metrics are

imprecise, grouping highly disparate products under a vague "other fermented beverages" umbrella, these strategies are effectively blindfolded. The persistent "affordability paradox," where high-ABV fermented drinks remain the cheapest source of ethanol due to volume-based, zero-rate taxation, becomes an unquantifiable blind spot for health officials. Ultimately, governments cannot effectively regulate or reduce what they cannot accurately measure, leading to the failure of public health objectives and the potential misallocation of state subsidies. (Cairney, 2017; Smith et al., 2009)

6.3. Recommendations: Steps Toward a Unified Standard

To resolve these structural discrepancies, a fundamental shift in the EU's approach to fiscal integration is required. Based on the analysis, this paper proposes the following actionable recommendations:

- **A Unified Reporting Matrix:** As an immediate first step, independently of local tax rates, the EU must establish a single, rigid, and universally applied definitional matrix for all data submitted to Eurostat and the OECD. This will decouple statistical reporting from localized tax loopholes, immediately closing the existing problem and providing researchers with objective, comparable data points.
- **Transition to Rigid Frameworks:** The European Commission should advocate for an upgrade from the loose interpretations of Directive 92/83/EEC to strictly harmonized categorical definitions. The current guidelines must be replaced with a binding framework that eliminates national interpretative flexibility regarding product categorization.
- **Adoption of a Hybrid Taxation Model:** Recognizing the political hurdles (Hypothesis 1) and regional differences (Hypothesis 2), a complete shift to a pure ABV tax (Model 2) may face insurmountable resistance. Therefore, transitioning to the Hybrid Framework (Model 3), where alcohol excise groups are strictly harmonized and uniformly dependent on alcohol content, yet Member States retain the right to set individual tariffs, represents the most politically viable compromise. This approach respects national fiscal sovereignty while enforcing the structural uniformity necessary for a functioning single market.

7. CONCLUSION

7.1. Summary of Findings

The fundamental conclusion of this research is unmistakable: a genuinely unified internal market cannot function effectively on a foundation of fragmented, incompatible data. The persistent "valley of woe" in cross-border socio-economic research is not the result of poor data collection by organizations like Eurostat or the OECD, but rather a direct symptom of the structural discrepancies within the EU's alcohol excise duty framework.

As long as the interpretation of excise duty groups, such as intermediate products and fermented beverages, remains subject to national flexibility, international data transparency will remain compromised. The proposed econometric model illustrates that the structural complexity of a Member State's tax code correlates directly with the magnitude of reporting errors. This fragmentation preserves the "affordability paradox," misdirects private investment and effectively blindfolds national health authorities attempting to measure and mitigate alcohol consumption. Moving from loose national guidelines to a rigid, harmonized EU framework is the only viable way to ensure that cross-border socio-economic research reflects empirical reality.

7.2. Final Outlook

Aligning alcohol excise duty structures is no longer merely a bureaucratic administrative exercise; it is a fundamental prerequisite for broader European economic stability and integration. As the European Union advances towards monumental, data-driven initiatives, the necessity for a robust, harmonized tax framework becomes even more acute. Sustainable agriculture, efficient logistics and transparent corporate ESG (Environmental, Social and Governance) reporting within the beverage sector all require absolute data transparency.

To maintain the "EU Inc." momentum and ensure global competitiveness, the European Commission and Member States must overcome the inertia of national fiscal protectionism (Hypothesis 1) and embrace a standardized reporting matrix. Whether through the complete abolition of tax groups in favor of a pure ABV model or the adoption of a strictly harmonized hybrid approach. The objective remains clear: unified policies demand unified data. Only by establishing structural uniformity can the European Union ensure fair competition, predictable business environments, and the accurate execution of evidence-based public health and economic policies.

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