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Fiscal Decentralization and Tobacco Control Financing: Evidence from Smoke-Free Policy Implementation in Indonesia

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ABSTRACT: Tobacco consumption remains a major public health concern globally due to its significant contribution to the burden of non-communicable diseases and associated economic costs. In decentralized governance systems, the effectiveness of tobacco control policies is influenced not only by regulatory frameworks but also by fiscal commitment and institutional capacity at subnational levels. This study aims to examine the relationship between tobacco-related fiscal transfers and the implementation of smoke-free policies across regional governments in Indonesia. A quantitative research design employing panel data analysis was used to evaluate fiscal allocation patterns and policy implementation dynamics during the period 2023–2025. Secondary data were obtained from national fiscal reports, regional budget documents, and administrative policy records. The findings indicate that although tobacco excise revenue transfers increased overall, regional commitment to allocating budgets for smoke-free policy implementation remained uneven. Econometric estimation demonstrates that tobacco revenue transfers and regional tobacco tax income significantly influence policy implementation commitment, while institutional capacity moderates the effectiveness of fiscal resource utilization. These results highlight the importance of strengthening fiscal health governance mechanisms, including performance-based intergovernmental transfers and integrated policy coordination, to ensure that tobacco tax revenues effectively support preventive health interventions and contribute to improved population health outcomes.

KEYWORDS: Tobacco taxation, fiscal decentralization, smoke-free policy, public health financing, health governance

1. INTRODUCTION

Tobacco use is widely recognized as one of the leading preventable causes of mortality worldwide, contributing to cardiovascular diseases, respiratory illnesses, and cancers (Reitsma et al., 2021; Jha et al., 2013). The economic burden of smoking is substantial, encompassing increased healthcare expenditure and productivity losses that affect national economic development (Goodchild et al., 2018; Bloom et al., 2011). These impacts are particularly significant in low- and middle-income countries where public health financing capacity is often limited (GBD Tobacco Collaborators, 2020).

Comprehensive tobacco control policies have therefore become central components of global public health strategies. Smoke-free regulations have been shown to reduce second-hand smoke exposure and improve health outcomes (Frazer et al., 2016; Fichtenberg & Glantz, 2002). Fiscal measures such as tobacco taxation play a dual role by discouraging consumption and generating revenue for health promotion programs (Chaloupka et al., 2012; Chaloupka et al., 2019).

Fiscal decentralization reforms aim to improve efficiency in public service delivery by granting autonomy to subnational governments (Oates, 1999). However, variations in institutional capacity and fiscal priorities can lead to uneven policy implementation (Faguet, 2014; Smoke et al., 2013). In Indonesia, despite regulatory frameworks, only a limited proportion of regional governments allocate specific budgets for smoke-free policy implementation .

From a health economics perspective, tobacco taxes internalize negative externalities associated with smoking behavior (Gruber & Kőszegi, 2008). Allocating these revenues to preventive programs can reduce long-term disease burden (World Bank, 2017; WHO, 2021). Effective implementation requires coordination and sustained financial commitment (Hill & Hupe, 2002). This study analyzes how fiscal transfers influence smoke-free policy implementation within Indonesia's decentralized governance system.

2. METHODOLOGY

This study employs a quantitative explanatory research design using a longitudinal panel data approach to analyze the relationship between fiscal capacity and smoke-free policy implementation across regional governments. The panel framework enables the examination of both temporal

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variations and cross-regional differences in fiscal governance and public health policy outcomes. The unit of analysis consists of provincial and district or municipal governments observed during the period 2023–2025, a timeframe selected to capture changes in fiscal transfer regulations and the increasing adoption of budget nomenclature related to smoke-free policy programs.

Secondary data were collected from official government sources, including national fiscal reports on tobacco excise revenue, regional budget documents, and administrative records of policy implementation. The main independent variables include tobacco excise revenue sharing transfers and regional tobacco tax revenues, both representing fiscal capacity available for preventive health interventions. The dependent variable reflects policy implementation commitment, operationalized through the presence and magnitude of budget allocations for smoke-free policy programs in regional financial planning documents. Institutional capacity indicators, such as inter-agency coordination and administrative involvement in policy enforcement, are incorporated as control variables to account for governance quality.

To estimate the relationship between fiscal variables and policy implementation outcomes, this study applies a fixed-effects panel regression model. This approach controls for unobserved heterogeneity across regions that may influence budget prioritization and policy effectiveness. Diagnostic procedures, including model specification tests and robustness checks, are conducted to ensure the validity and reliability of empirical results. The analytical strategy is designed to provide evidence on how fiscal decentralization influences public health policy implementation within a multilevel governance context.

3. RESULTS

Fiscal trend analysis indicates that tobacco revenue transfers to regional governments showed overall growth despite short-term fluctuations.

Table 1. Trend of Tobacco Revenue Transfers to Regional Governments

Year	Fiscal Transfer Index	Growth (%)
2023	100	–
2024	94	−6
2025	108	+14

Source: fiscal data synthesis

The number of regional governments allocating budgets for smoke-free policy implementation increased during the study period, although participation remained limited relative to total jurisdictions.

Table 2. Regional Participation in Smoke-Free Policy Budgeting

Year	Number of Regions	National Share (%)
2023	very limited	<5
2024	65	13
2025	107	20

Source: Ministry of Home Affair Sub-national Governance Information System

Budget allocation patterns also show substantial disparities among regions.

Table 3. Examples of Regional Budget Allocation for Smoke-Free Policy

Region	Budget 2024 (Rp)	Budget 2025 (Rp)
Banyumas District	21,250,000	17,835,000
Depok City	401,595,600	454,835,848
Makassar City	281,956,850	80,933,400
Sambas District	–	348,300,000
Pegunungan Arfak District	–	751,793,683

Source: Ministry of Home Affair Sub-national Governance Information System

Further data processing reveals that out of the 65 regions that utilized the Smoke-Free Zone (KTR) management nomenclature in 2024, only 54 regions (83%) continued to allocate budget under this nomenclature in the 2025 Regional Budget (APBD); meanwhile, 11 regions (17%) discontinued their budgeting. Among the 83% that maintained budgeting for KTR Management through the Health Office's APBD, data shows that 61% (33 regions) actually faced a decrease in budget allocation for this nomenclature in 2025 compared to their 2024 allocation.

This indicates that the use of specific nomenclature as a concrete form of KTR policy implementation by local governments remains relatively weak (as it covers only 20% of the total districts/cities) and that the commitment to KTR implementation is not yet strong, given that 83% of the budgets actually declined.

Panel regression estimation indicates that fiscal transfers and regional tobacco tax revenues have statistically significant positive effects on policy implementation commitment.

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Table 4. Panel Regression Results (Fixed Effects Model)

Variable	Coefficient	t-Statistic	p-Value
Tobacco revenue transfer	0.284	3.91	0.000
Regional tobacco tax	0.173	2.87	0.004
Institutional capacity	0.219	2.54	0.012
Health expenditure	0.097	1.98	0.048
Constant	−0.412	−2.11	0.036
R^2	0.61		

These findings indicate that fiscal capacity contributes significantly to strengthening smoke-free policy implementation, while institutional quality moderates the effectiveness of resource utilization.

4. DISCUSSION

The findings of this study show that fiscal decentralization has complex implications for the implementation of tobacco control policies at the regional level. Although fiscal transfers from tobacco excise revenues provide significant financing space for local governments, budgeting commitments for the implementation of the No Smoking Zone policy still vary substantially. These variations reflect differences in fiscal capacity, regional development priorities, and the quality of institutional governance that affect the budget decision-making process. From the perspective of fiscal federalism theory, decentralization can improve the efficiency of public services if followed by strong accountability and coordination mechanisms, but also has the potential to cause inequality in policy implementation if institutional capacity is uneven between regions (Oates, 1999; Faguet, 2014).

The results of this study are consistent with the international literature that emphasizes that the availability of fiscal resources does not automatically guarantee the successful implementation of public health policies. Comparative studies show that budget allocations for preventive health programs are often influenced by local political dynamics and other sectoral development needs (Prud'homme, 1995; Smoke et al., 2013). In the context of tobacco control, the effectiveness of smoke-free policies is highly dependent on fiscal investment in law enforcement activities, public education, and compliance monitoring (Frazer et al., 2016; Nazar et al., 2014). Therefore, the gap between fiscal potential and budgeting realization found in this study can hinder the achievement of public health targets nationally.

In addition to fiscal factors, regional institutional capacity has also proven to play an important role in determining the effectiveness of policy implementation. Local governments with better cross-sector coordination tend to be able to optimize the use of fiscal resources for tobacco control programs. This is in line with previous research showing that the quality of governance and administrative capacity are the main determinants of successful implementation of public policies (Bossert & Mitchell, 2011; Hill & Hupe, 2002). Without effective coordination between agencies, the allocation of available budgets risks not producing optimal policy impacts.

From a public health perspective, the implementation of the No Smoking Zone policy has broad implications for reducing exposure to secondhand smoke and reducing the burden of non-communicable diseases. Global empirical evidence shows that smoke-free policies supported by adequate financing can gradually reduce the prevalence of smoking and improve people's quality of life (Tan & Glantz, 2012; Levy et al., 2018). Therefore, the disparity in fiscal commitment between regions found in this study has the potential to widen the health gap between regions.

The findings of this study also have significant macroeconomic implications. The economic burden of tobacco consumption not only impacts the health sector, but also on labor productivity and long-term economic growth (Goodchild et al., 2018; Bloom et al., 2011). Thus, strengthening tobacco control policy financing can be seen as a strategic investment in human resource development. The integration of fiscal policy and health policy within the framework of regional development becomes very relevant in this context.

In addition, this study emphasizes the need for performance-based fiscal policy reform in the system of transfers to the regions. Fiscal incentive mechanisms that link fund allocation to the achievement of public health indicators can encourage local governments to increase the budgeting priorities of preventive programs (Dieleman et al., 2016; Fan et al., 2019). This approach is in line with global trends in public health governance that emphasize the importance of evidence-based budgeting and results-based monitoring.

Overall, this study shows that the effectiveness of tobacco control policies in decentralized systems is highly dependent on the interaction between fiscal capacity, the quality of institutional governance, and political commitment at the regional level. Strengthening the integration of fiscal and public health policies is key to ensuring that available resources can be optimally utilized in an effort to reduce the prevalence of smoking and the burden of related diseases (Chaloupka et al., 2019; Blecher, 2015).

5. CONCLUSION

This study concludes that the increase in fiscal revenue from the tobacco sector has not been fully followed by an increase in budgeting commitment for the implementation of the No Smoking Zone policy at the local government level. Although the transfer of tobacco excise revenue sharing funds provides significant financing opportunities, variations in development priorities and institutional capacity cause the implementation of tobacco control policies to remain uneven. This condition confirms that the success of public health policies in the decentralized system is not only determined by the availability of fiscal resources, but also by the quality of policy governance and the effectiveness of interagency coordination (Rodden, 2004; Treisman, 2007).

In addition, the integration of fiscal and public health policies is an important factor in reducing the burden of non-communicable diseases related to tobacco consumption. Without consistent budgeting commitments and strong accountability mechanisms, potential fiscal revenues from the

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tobacco sector will not be able to have an optimal impact on improving public health. Therefore, policy reforms that encourage performance-based fund allocation and strengthen the national monitoring system are strategic steps to increase the effectiveness of tobacco control policy implementation in Indonesia (World Bank, 2017; WHO, 2021).

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