

## **Structure, Performance, and Clusters of the Indonesian Kretek Cigarette Industry**

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### **Abstract**

The kretek cigarette industry plays a significant role in Indonesia's economy, particularly through its contribution to export revenue, employment absorption, and the formation of economic clusters in production centers such as Kudus and East Java. Kretek cigarettes hold not only economic value but also strong historical and socio-cultural significance. The industry is dominated by an oligopoly of several large companies alongside thousands of small-scale hand-rolled (SKT) enterprises that preserve local traditions. The market structure is highly concentrated, with substantial entry barriers, while excise policy plays a critical role in shaping industry dynamics. Production levels have fluctuated, largely influenced by fiscal policies and the pandemic, yet the sector continues to sustain a large labor force across the upstream and downstream segments of the value chain. Kretek clusters create comparative advantages through the synergy of skilled labor, local raw materials, and established distribution networks, enhancing efficiency and regional competitiveness. However, the industry faces challenges from health regulations and pressures arising from the illicit market. Cluster development through product downstreaming, MSME empowerment, and geographic indication registration offers potential for increasing added value and sustainability. This study employs a descriptive-analytical method based on literature review, using a Structure-Performance-Cluster framework to describe the market structure, industry performance, and cluster dynamics of the kretek industry from regional economic and Islamic ethical perspectives.

**Keywords:** Kretek Cigarette Industry, Industrial Structure, Industry Performance, Industrial Clusters, Regional Economy.

## **INTRODUCTION**

The kretek cigarette industry is a crucial sector in the national and regional economy, primarily due to its contribution to state revenue through excise taxes, employment, and its role in forming economic clusters in several production centers such as Kudus, Kediri, and Pasuruan. As a unique Indonesian cultural product, kretek cigarettes possess not only economic value but also historical and social significance deeply embedded in society. However, the industry faces several structural issues, such as high market concentration, disparities between large industries and MSMEs, and dynamic excise regulations that impact production stability and competitiveness. Furthermore, the naturally occurring pattern of industrial agglomeration poses unique challenges to regional development, both in terms of economic equity and strengthening regional competitiveness.

In the context of Regional Economics and Sharia Economics, studying the structure, performance, and clusters of the kretek cigarette industry is crucial for understanding how this industry contributes to regional development and how its activities can be evaluated from an Islamic economic ethics perspective. Based on this background, this study was formulated to answer questions regarding the market structure, performance patterns, and cluster formation of the kretek cigarette industry in Indonesia. The research objectives include mapping industry conditions, analyzing market dynamics, and evaluating its contributions and challenges to the regional economy. The research is expected to assist local governments, industry players, and academics in understanding the current state of the kretek cigarette industry and formulating policies or further studies relevant to regional economic development.

## **RESEARCH METHODS**

The type of research used in this study is descriptive-analytical with a literature study approach, namely research that relies on the search, understanding, and analysis of various written sources without conducting field observations or primary data collection. This approach was chosen because the topic of the structure, performance, and clusters

of the kretek cigarette industry can be analyzed comprehensively through secondary data already available in official documents, academic publications, and reports from related institutions. This research focuses on describing the phenomenon and drawing analysis based on credible written evidence, thus being able to provide a comprehensive picture of the condition of the Indonesian kretek cigarette industry.

The primary data sources in this study come from academic literature, official reports from the Ministry of Industry (Kemenperin), data from the Central Statistics Agency (BPS), information from industry associations, as well as relevant scientific publications and research reports. The data obtained were then analyzed using the Structure–Performance–Cluster (SPC) approach to assess market structure, industry performance, and the formation of clove cigarette production clusters in various regions of Indonesia. Descriptive analysis was used to systematically process and explain the secondary data, so that the research results can provide a clear understanding of the dynamics of the clove cigarette industry from a regional economic perspective.

## **RESULTS AND DISCUSSION**

### **A Brief History of Indonesian Kretek Cigarettes**

Kretek cigarettes emerged in Central Java (specifically Kudus) in the late 19th to early 20th centuries as a result of a combination of local tobacco smoking practices with the use of cloves and spices as flavorings, initially popularized for their supposed relief from respiratory problems and sore throats. Local historians and cultural studies indicate that kretek evolved from traditional medicinal inventions into a distinctive consumer product due to the characteristic "kretek" sound of clove buds and its strong flavor. This narrative of its birth and early use is supported by historical studies and articles examining local Kudus sources as well as popular literature on the origins of kretek (Farris & Siregar, 2023).

The industrialization of kretek cigarettes occurred in stages: initially, production was carried out on a household scale (hand-rolling artisans), followed by the emergence of family factories and

large corporations that modernized the process (rolling machines, centralized tobacco processing, and national distribution). This shift was driven by strong domestic demand, local labor organization (hand-rolling), and economic incentives such as excise tax revenues and export markets. Industrial studies and community service research also documented product diversification and innovation efforts (e.g., utilizing waste for by-products), demonstrating the sector's transformation from an informal to an industrial structure integrated with the national supply chain. Impacts of this shift in scale include changes in the structure of rural employment, urbanization of the workforce, and increased fiscal contributions from cigarette excise (Nanang et al., 2024).

A number of entrepreneurs, family factory pioneers, and local figures from Kudus and its surrounding areas played a central role, not just as entrepreneurs but also as social actors organizing labor, building brands, and lobbying for policy. Economic history literature and case studies of kretek factories (e.g., family factories in Kudus) illustrate how local figures capitalized on production facilities, transformed tobacco drying techniques, and popularized kretek brands nationally. Furthermore, institutional actors (industry associations) influenced fiscal policy, advertising regulations, and advocacy against import/export restrictions in international forums, as evident in studies of trade disputes and industry discourse.

Kretek occupies a dual position: culturally, it is considered a local heritage (an icon of Java/the homeland) linked to social practices, a symbol of identity, and a narrative of pride in local production; economically, it is an important commodity that contributes to state revenue (excise), employs millions of workers (directly and indirectly), and is part of the agricultural-industrial value chain (from tobacco and clove farmers to factories). However, contemporary studies published in national journals over the past five years also emphasize this contradiction: economic and cultural values often clash with public health issues (tar, nicotine, disease burden) as well as regulatory pressures and tobacco control campaigns. Quantitative studies of chemicals in kretek products and analyses of industry communication strategies demonstrate how

kretek remains culturally positioned through branding while facing health and regulatory criticism.

### **Cigarette Production in Indonesia**

Indonesian cigarette production volume has fluctuated in recent years: after peaking pre-pandemic production, the number of cigarettes produced declined during the pandemic and briefly hovered around hundreds of billions of cigarettes per year (e.g., reports indicate production of 334.8 billion cigarettes in 2021 compared to 356.6 billion in 2019). In 2023–2024, a marginal recovery occurred, with fiscal data and national research indicating only very small volume growth (around 0.1% annualized in 2024 according to excise revenue analysis), resulting in a stable-to-marginal upward trend following the pandemic contraction. Factors determining volume changes include excise tax policy, changes in consumer purchasing power, and shifts in product preferences (Supriyanto, 2023).

The Indonesian cigarette market has traditionally been segmented into Hand-Rolled Clove Cigarettes (SKT), Machine-Rolled Clove Cigarettes (SKM), and Machine-Rolled White Cigarettes (SPM). SKT is a product that is generally hand-rolled (by artisans/MSMEs) and tends to be in the lower price segment with local cultural values; SKM is a machine-produced clove cigarette and usually uses a tobacco + clove blend; while SPM (machine-rolled white cigarettes) are machine-rolled cigarettes without cloves (white cigarettes) that have different consumer profiles and regulations. The proportion of each segment has changed over time: modernization and mechanization have driven the share of SKM/SPM, while SKT remains significant in traditional centers due to the hand-rolling workforce and local markets. Differences in excise rates and pricing policies also influence the dynamics of market share in each segment.

The Indonesian cigarette industry is dominated by several large companies (e.g., HM Sampoerna, PT Gudang Garam Tbk, Djarum, Wismilak, and a number of other players, including regional/family-owned factories) that operate large-capacity modern factories and have national distribution networks. In addition, there are thousands of small and medium enterprises (SMEs) producing

hand-rolled cigarettes (SKT) spread across the traditional center of Kudus (Central Java), the birthplace of kretek and its production center, as well as other centers in East Java (Jember, Besuki area), Sidoarjo, and tobacco/clove-producing regions. Case studies of the industry and financial research of national cigarette companies highlight the role of large companies in absorbing large-scale tobacco production and the role of local centers in maintaining the tradition of hand-rolled cigarette production and providing informal employment (Ibnu Rasadi et al., 2025).

Some production trends seen in national journals and reports for 2020–2025 are: (1) modernization and automation (shift from hand-rolled to machine production in many lines), (2) fiscal pressure from rising excise rates driving product & price adjustments so that some manufacturers adjust product lines to different segments, (3) market consolidation where large brands maintain share through efficiency & distribution, (4) growth of MSME centers in several regions in response to local demand and downstreaming efforts (waste utilization, value-added products), and (5) the problem of illegal/smuggling cigarettes which remains a variable affecting official production figures. The implications of this combination of trends: official volumes are relatively stable but product composition (SKT vs SKM vs SPM), market structure, and value-added distribution continue to change (Agustinningtyas Diska, 2025).

### **Data**

Indonesian cigarette production volume has fluctuated over the past decade; the greatest pressure occurred during the 2020 pandemic, which caused a significant decline in production, followed by a limited recovery phase in 2021–2023. Several national studies report annual production figures: for example, production was recorded at around 356.6 billion cigarettes (2019), then dropped to 334.8 billion cigarettes (2021), before stabilizing or fluctuating again in the hundreds of billions of cigarettes range in subsequent years. These changes are attributed to decreased demand during the pandemic, fiscal policy (increased excise rates), and domestic market dynamics. This production data and analysis are based on national

fiscal data sets and academic studies, using Ministry of Finance/BPS data as primary sources (Supriyanto, 2023).

The tobacco industry (including kretek) employs a large and mixed workforce, comprising formal (large factories) and informal/home-based (SKT units). Academic studies and policy papers indicate that the workforce in the tobacco value chain, from tobacco and clove farmers to hand-rolling (SKT) artisans and factory workers, reaches significant numbers (some national studies cite figures as high as millions of workers when calculated directly/indirectly), although estimates vary depending on the calculation method (direct vs. indirect workers). Furthermore, the trend of substituting hand-rolling labor for machines has reduced the proportion of SKT workers in the total share over the past decade, but traditional centers continue to employ a significant number of local workers. Field research sources and regional evaluative studies support this picture.

The Indonesian cigarette market is highly concentrated: a few large companies—PT HM Sampoerna (an affiliate of Philip Morris), PT Gudang Garam Tbk, Djarum, Wismilak, and several others—control substantial market shares, while thousands of small and medium-sized enterprises (SMEs)/hand-rolled cigarette manufacturers operate locally. National business research and management journals report market share figures for the major players; for example, HM Sampoerna reportedly led with a market share approaching 28% during the period analyzed by financial and industry studies. This consolidation influences national pricing structures, distribution, and marketing strategies (Murti & Hermuningsih, 2023).

International trade in tobacco products (cigarettes, processed tobacco) shows relatively small export values compared to the domestic market but remains important for certain subsectors (e.g., cigars/certain tobaccos). National studies examining the period 2019–2022–2024 found fluctuations in export value/volume due to changes in global demand and trade barriers (e.g., destination country regulations), with examples of reports recording cigarette/tobacco export values in the tens of millions of USD for certain years and shifts in export destinations (e.g., increased

shipments to several Asian countries). On the import side, Indonesia imports certain raw materials or processed products depending on manufacturer needs. National empirical studies and trade data analysis serve as the primary sources for these figures.

Fiscally, the tobacco sector (including cigarette production & trade) provides a significant contribution to state revenue through excise and tax revenues; national economic journals in the last five years have highlighted the large amount of tobacco excise (CHT) revenue and its impact on state revenues as well as policy implications (e.g., simulation of excise rate increases on production, prices, and state revenues). Academic analysis shows that although the sector's contribution to GDP is relatively small compared to the primary sector/large industry, its material fiscal contribution (excise & VAT/PPH from the value chain) is the main reason the government formulates excise policies that weigh public health aspects vs. fiscal dependency. Research publications using data from the Ministry of Finance and related ministries form the basis for this claim (Agustinningtyas Diska, 2025).

### **Structural Analysis of the Clove Cigarette Industry**

The Indonesian cigarette industry, and specifically the kretek segment, has consistently been portrayed in domestic economic literature as an oligopolistic market dominated by a few large players (e.g., HM Sampoerna, Gudang Garam, Djarum, Wismilak), while also accommodating thousands of small producers (SKT) locally. This structure stems from the economies of scale of large manufacturers, control of national distribution networks, and brand power, which allow them to employ pricing, promotion, and product differentiation strategies (flavors, cigarette sizes, packaging) to maintain market share. However, product differentiation is also evident: SKT maintains a low-price niche and cultural nuances, while SKM/SPM and major brands focus on differentiation through branding, premium segments, and production efficiency. Economic studies examining the implications of excise policy and industry performance confirm this pattern of oligopoly and differentiation as a hallmark of the modern cigarette industry in Indonesia (Agustinningtyas Diska, 2025).

Many national academic studies measure cigarette industry concentration using the CR4 (ratio of the four largest firms) and the HHI (Herfindahl-Hirschman Index) indicators. Published literature in the last 5 years references historical findings and reports that concentration in the manufacturing cigarette industry tends to be high, with CR4 often at levels indicating dominance by a few large players (an oligopoly). However, specific CR4/HHI figures vary across studies due to differences in market definition (e.g., all cigarettes vs. only the machine/kretek segment) and the timeframe of analysis; some tobacco commodity studies also indicate lower concentration in the raw material component (Virginia tobacco) compared to finished cigarettes. In summary, the national academic consensus (2020–2025) characterizes the cigarette market structure as an oligopoly with a high level of concentration at the finished product manufacturing level, although quantitative CR4/HHI values vary across publications (Rochaeni et al., 2024).

Barriers to entry in the kretek industry are relatively high for players seeking to compete with large manufacturers on a national scale. Key barriers include the significant capital requirements for rolling machines and standardized production facilities (economies of scale), distribution and merchandising networks already controlled by major brands, access to quality raw materials (tobacco and cloves with stable supplies), and administrative requirements related to permits and excise duties. On the other hand, barriers to entry are lower in the SKT/MSME segment: hand-rolling and local production still allow small players to enter regional markets with minimal capital and technology. Policy research and field studies demonstrate this duality: a structured market with high entry barriers in the integrated industry segment but open to traditional, household-labor-based centers.

The government plays a significant role in determining the structure of the industry through excise policies (Minister of Finance Regulation on tobacco excise rates and tariff layer simplification from 2020–2024) and other regulations related to production standards, labeling, and consumption control programs. Excise rate increases and layer simplification aim to reduce consumption while increasing

state revenue, but these policies have distributional impacts: encouraging consolidation and margin pressure on medium/small industries, and sometimes triggering an increase in the illegal cigarette market if enforcement is weak. In addition to excise, quality standards and production regulations (e.g., material requirements, labeling) also increase compliance costs that are more easily borne by large companies, so that fiscal policy and technical regulations function as a dual public health tool and a factor that strengthens entry barriers/oligopoly structures (Chusna Alfina Auliyaul, 2025).

Bargaining power in the kretek supply chain is dispersed, with tobacco farmers and clove suppliers having relatively low bargaining power when dealing directly with large manufacturing buyers due to upstream fragmentation and reliance on organized buyers; however, in producing areas (clove/tobacco centers), wholesalers or cooperatives can increase local bargaining power through supply aggregation and price information. Large manufacturers tend to have higher bargaining power with suppliers and distributors (price negotiations & terms of supply), while hand-rolling workers have limited negotiation power due to the large number of workers dispersed and technological substitution (automation) reducing their long-term bargaining power. A recent national clove/tobacco value chain study illustrates this imbalance in bargaining power and suggests institutional interventions (cooperatives, purchasing contracts) to improve the position of small farmers/suppliers (Hasan et al., 2023).

### **Performance Analysis of the Kretek Cigarette Industry**

The productivity of the kretek sector is influenced by a combination of production technology, factory scale, and workforce composition (hand-rolled vs. machine-rolled). Recent national studies report that large manufacturers exhibit relatively higher total factor productivity due to economies of scale and machinery investment, while hand-rolled cigarette centers maintain competitive labor productivity locally but are less efficient per unit of output due to manual methods and business fragmentation. Numerous academic studies and company case studies have found that efficiency gains through automation, improved supply chain

management, and process optimization are responding to rising costs (including excise taxes), making technical efficiency key to the resilience of large manufacturers amidst cost pressures (Habibie & Kalam, 2025).

The profitability of listed cigarette companies on the Indonesia Stock Exchange shows heterogeneity: some large issuers (e.g., those with stock codes HMSP and WIIM in a recent study) were able to maintain positive profits and economic value added (EVA/MVA) despite fiscal pressures, while some mid-sized companies or segments experienced a decline in margins when the excise tax adjustments were sharp. An analysis of 2020–2024 financial statements published in the *National Financial Management Journal* shows that large companies compensated for cost increases with production efficiencies, fixed cost management, and pricing strategies that enabled them to maintain relatively better profitability than smaller players. However, profit volatility and capital market reactions to excise policy announcements indicate that industry profitability is sensitive to fiscal policy. (Aviliani Imelda Valencia, 2025)

Regionally, the kretek industry has a real economic multiplier effect in production centers (Kudus, Jember, tobacco/clove producing regencies), by absorbing employment upstream (tobacco and clove farmers), the processing industry, and related MSME clusters. At the national level, the tobacco products sector contributes significantly to state revenue through excise and taxes—although the sector's contribution to overall GDP is relatively small compared to other sectors, the fiscal (excise revenue) and local socio-economic (livelihoods) impacts make it a strategic and controversial subsector. Field research and national fiscal reports confirm this important role while highlighting the trade-off between local economic benefits and public health burdens. (Fitrianti Aulia Lintang, 2025)

The policy of increasing tobacco excise tariffs from 2020 to 2024 had a multifaceted impact: fiscally increasing state revenues in some periods, but also squeezing producer margins and triggering strategic adjustments (automation, product changes, and the consolidation of tariff layers). Numerous national empirical studies

have shown that excise tax increases tend to reduce short-term official production volumes and can encourage the growth of illegal markets if enforcement is weak, while large companies are better able to absorb this impact than medium/small companies. Furthermore, event studies on tariff announcements have shown a negative reaction in share prices of certain manufacturers, indicating market perceptions of profit pressures due to the excise burden (Agustinningtyas Diska, 2025).

In the latest national Islamic economics and muamalah jurisprudence studies, cigarettes have sparked normative debate: some studies consider cigarette production and consumption activities problematic due to their health impacts and potential harm, leading some authors to review halal/haram from the perspective of benefit/harm and the use of excise funds for welfare, while other studies focus on muamalah aspects (contracts, sponsorship, corporate social responsibility) and provide recommendations on how industry practices can be aligned with sharia principles (e.g., information transparency, prohibition of misleading promotions, redistribution of excise taxes for health programs). In summary, the 2020–2025 national literature positions the tobacco industry as an object of sharia ethical-economic discussion that demands social mitigation policies and corporate responsibility mechanisms (Ulkhaira et al., 2025).

### **Cluster Analysis of the Kretek Cigarette Industry**

Kretek clusters in Indonesia are concentrated in several historical tobacco and clove processing areas: Kudus (Central Java) remains the traditional center and symbol of kretek culture with a concentration of factories, hand-rolling artisans, and tobacco/clove supplier networks; areas of East Java (e.g., Kediri, Pasuruan, Jember) are also important centers for both stem and upstream production (tobacco and clove farming), thus forming complementary clusters between upstream and downstream. Qualitative studies and regional reports show the concentration of industrial activity in these cities, Kudus for example, is documented not only in terms of history but also its local socio-economic impact (employment absorption, supplier ecosystem) (Akhmad Mubarok Naufal, 2022).

Cluster formation is driven by a combination of local factors: the availability of skilled human resources (hand-rolling workers and experienced factory workers), the availability of raw materials (tobacco and clove farmers in producing areas), and distribution networks and market access that have developed from colonial times to the modern era. The role of local institutions (cooperatives, collectors, traditional retailers) and long experience in processing techniques create a comparative advantage that is difficult for non-cluster areas to replicate. Furthermore, transportation infrastructure and the presence of large manufacturers near the cluster strengthen the vertical-horizontal linkages between farmers, collectors, factories, and distributors that form the cluster ecosystem (Gymnastiar Alwin et al., 2025).

At the core of the cluster lies a dualism: MSMEs/hand-rolled cigarette units (SKT) serve as cultural pillars of kretek production, absorbing local labor, and preserving traditional product diversity; while large industries (e.g., listed manufacturers like Sampoerna, Gudang Garam, Djarum) control the scale of machine production, national distribution, and substantial value-added output. MSMEs often rely on small capital, local knowledge, and regional markets, thus remaining relevant in the cluster despite lower profit margins. Field literature emphasizes that the presence of large industries provides market and technology access, but also creates competitive pressures on MSMEs; synergies (e.g., contractual partnerships, purchasing raw materials by manufacturers) can strengthen MSMEs' position if well-managed (Haryanto et al., 2025).

The kretek cluster enhances regional competitiveness through agglomeration effects: efficiency of labor market transactions (availability of skilled labor), reduced logistics costs between actors, and diffusion of technical knowledge between small and large businesses. The impact is seen in job creation, multiplier effects on the local economy (services, trade, packaging services), and the institutionalization of supplier networks that make the cluster region more resilient to domestic demand shocks. However, the study also warns of the risks associated with a region's economic dependence on a single subsector (tobacco/kretek), which is vulnerable to fiscal

policy, health regulations, and commodity price fluctuations, so long-term competitiveness depends on economic diversification and supportive policies (Maulidina Rista, 2024).

Cluster development opportunities include product downstreaming (tobacco/clove processing diversification, value-added products), increasing the added value of MSMEs through technical guidance and access to financing, institutional strengthening (marketing cooperatives, quality standards), and the possibility of registering geographical indications (GI) for certain kretek brands/types that can increase premium pricing. Supportive policy interventions (human resource training, infrastructure, export market access) and waste downstreaming programs can also encourage inclusive growth. However, development must consider public health issues and excise regulations so that cluster development strategies ideally combine economic, social, and environmental aspects for sustainable benefits for local communities (Gymnastiar Alwin et al., 2025).

### **Summary**

The Indonesian kretek cigarette industry is dominated by an oligopoly controlled by a few large companies such as HM Sampoerna, Gudang Garam, and Djarum. However, thousands of small-scale (SKT) cigarette manufacturers remain locally. Large companies capitalize on economies of scale, national distribution, and strong product differentiation, while SKT cigarettes thrive on their low-priced niche and local cultural nuances. Market concentration indicators (CR4 and HHI) indicate a high level of dominance in the finished product manufacturing segment, with high barriers to entry for new entrants nationally but relatively low in the SKT/MSME segment. Government policies, through excise taxes and production regulations, play a significant role in shaping this structure, simultaneously strengthening market barriers and encouraging industry consolidation. Farmers and raw material suppliers have weaker bargaining power than large manufacturers, although local cooperatives are working to strengthen their bargaining position.

Large manufacturers' productivity is higher due to economies of scale and automation, while hand-rolled cigarettes are more competitive locally but less efficient. Large companies are able to maintain profitability despite facing cost pressures, particularly from excise policies that increase state revenue but squeeze margins, particularly for medium and small-scale cigarette manufacturers. The kretek industry has a significant economic impact in production centers through job creation and farmer incomes, as well as fiscal contributions from excise. However, fiscal and regulatory pressures have the potential to fuel an illegal market and create socio-economic and ethical dilemmas related to health and Sharia principles.

Kretek clusters are concentrated in areas such as Kudus and East Java, historically centers of tobacco and clove production. Local factors such as skilled labor, raw materials, and distribution networks create a comparative advantage that is difficult to replicate. Within the clusters, a dualism exists between hand-rolled MSMEs that maintain tradition and large industries that dominate mass production and national distribution. Clusters enhance regional competitiveness through efficiency, job creation, and technology diffusion, but are vulnerable to fiscal policy, health regulations, and commodity price fluctuations. Opportunities for cluster development include product downstreaming, increasing MSME value-added, strengthening institutions, and registering geographical indications, which can support inclusive and sustainable growth while addressing economic, social, and public health aspects.

### **Conclusion**

The Indonesian kretek cigarette industry has a long history, originating from traditional practices in Kudus and evolving into a structured industrial sector dominated by several large companies, including HM Sampoerna, Gudang Garam, and Djarum. The shift from hand-rolled home production to modern machine-made production represents a significant transformation driven by market demand, technological modernization, and fiscal policy.

Nevertheless, the hand-rolled MSME segment remains a pillar of local culture and a provider of employment in production centers.

In terms of industry structure, the clove cigarette market is an oligopolistic one with a high level of concentration, making it difficult for new players to participate nationally, while barriers to entry are lower in the hand-rolled cigarette (SKT) segment. Excise policy and production regulations are key drivers of market structure, simultaneously supporting the consolidation of large companies and putting pressure on small and medium-sized players. Despite the higher productivity and profitability of large companies, the clove cigarette industry remains a strategic sector, employing a large workforce and contributing significantly to state revenue through excise taxes.

Kretek clusters in regions such as Kudus and East Java have become production centers with comparative advantages stemming from the availability of raw materials, skilled labor, and supporting infrastructure. These clusters generate synergies that increase efficiency, technology dissemination, and regional competitiveness, but are also vulnerable to fiscal policy, health regulations, and the risk of market fluctuations. Cluster development through a product downstreaming approach, increasing MSME value-added, strengthening institutions, and registering geographical indications can improve economic sustainability while addressing social and public health impacts.

### **Suggestion**

The central and regional governments play a crucial role in harmonizing excise policies and balanced health regulations to maintain industry sustainability without neglecting public health. The government is recommended to strengthen oversight and law enforcement against illegal markets and support product downstreaming programs and cluster development based on economic inclusivity and sustainability. Industry players are expected to optimize production efficiency and innovation while strengthening partnerships with MSMEs to maintain product diversity and local human resources. Academics and researchers are advised to continue conducting multidisciplinary studies that integrate economic, social,

and health aspects to provide holistic policy input and encourage responsible industry practices.

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