

TOBACCO SECTOR ANALYSIS IN NORTH MACEDONIA: SUBSIDIES, PRODUCTION, AND POLICY PERSPECTIVES

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ABSTRACT

This comprehensive empirical research examines the landscape of tobacco production in North Macedonia, placing a specific focus on the historical development and economic significance of the tobacco sector within the national and regional agricultural framework. It provides an in-depth analysis of tobacco leaf production, including a comparison with other regional tobacco producers, to contextualize North Macedonia's position in the broader tobacco industry. The study also investigates the dynamics of agricultural imports and exports, with a particular emphasis on raw tobacco, delving into the complex interplay between domestic production and international trade.

Central to this empirical research is a critical evaluation of the financial support mechanisms in agriculture, particularly the extensive subsidies directed towards tobacco cultivation. These subsidies are analyzed in terms of their economic rationale and effectiveness, questioning whether the prioritization of tobacco over other crops is justified given the current economic climate and market demands. The empirical research further explores the implications of these subsidy policies in light of North Macedonia's aspirations to align with the European Union's Common Agricultural Policy, which presents unique challenges and opportunities for reforming agricultural support systems.

By integrating quantitative data with qualitative policy analysis, the empirical research aims to provide a nuanced understanding of the economic impacts and sustainability of tobacco subsidies. It assesses whether these subsidies are an economically prudent allocation of national resources, especially considering the potential for aligning with EU standards and the necessity to foster a more diversified and sustainable agricultural sector. The findings are intended to inform policymakers and stakeholders, offering strategic insights and recommendations for future agricultural policy development in North Macedonia.

Using a descriptive statistical approach, the study evaluates data on tobacco production, subsidy distribution, and trade dynamics. The findings reveal potential misalignments in subsidy allocations and recommend policy adjustments to foster a diversified agricultural sector in alignment with EU standards.

Keywords: *Tobacco Production, Agricultural Subsidies, Tobacco subsidies, Tobacco policy, North Macedonia, EU Common Agricultural Policy.*

JEL Classification: Q18, Q13, F14, H23.

1. INTRODUCTION

North Macedonia has long been recognized for its tobacco production, a sector deeply ingrained in the nation's agricultural and economic fabric. This empirical research delves into the current state and historical context of tobacco cultivation in North Macedonia, providing a detailed overview of the industry's scale, its economic contributions, and the comparative landscape of regional tobacco production.

Historically, tobacco has been one of the cornerstones of North Macedonian agriculture, with the country being renowned for its high-quality oriental tobacco. This variety is especially sought after for its unique aromatic properties, making it a prized component for blending in cigarette manufacturing. In 2022 North Macedonia produced 25,978 tons of tobacco which accounted for 0.5 percent of world tobacco production and 19.1 percent of the production in Europe marking the country as a significant player on both the regional and global stages (Mijovic Hristovska *et al.*, 2022), (FAOSTAT).

The economic role of tobacco is highlighted by its contribution to the national export economy. Tobacco and tobacco products represent a substantial portion of North Macedonia's agricultural exports, contributing 20.4 percent to the total export value of agricultural and food products. This sector not only influences the nation's GDP directly—accounting for about 1 percent of the total GDP—but also plays a crucial role in the livelihoods of approximately 20,000 agricultural households, which depend heavily on tobacco cultivation (Mijovic Hristovska, 2022), (Jugoinfo.mk, 2022).

This introduction also addresses the broader scope of agricultural trade, focusing on the import and export dynamics. Despite the strong export figures for raw tobacco, North Macedonia faces a significant trade imbalance in other agricultural sectors, often spending more on importing processed agricultural products than it earns from exporting raw agricultural goods. This imbalance prompts a reevaluation of the current subsidy strategies and their alignment with the nation's economic priorities.

Furthermore, the empirical research scrutinizes the financial support framework within North Macedonia's agricultural sector, emphasizing the substantial subsidies directed towards tobacco. Over the period from 2008 to 2022, the government disbursed approximately 318 million euros in direct subsidies to tobacco farmers (DIZ.gov.mk, 2021). These subsidies represent about a quarter of the total agricultural subsidies and 40 percent of the subsidies allocated specifically to crops. Such financial prioritization raises critical questions about the economic prudence of this approach, especially considering the evolving global market trends and the decreasing global demand for cigarettes (24.mk, 2022), (Vlada.mk, 2022). Additionally, the alignment of North Macedonia's agricultural policies with the European Union's Common Agricultural Policy (CAP) is a key focus. As the country moves towards EU integration, it faces the challenge of adjusting its subsidy practices to comply with EU standards. This transition is crucial not only for integration purposes but also for enhancing the sustainability and efficiency of the agricultural sector.

In conclusion, this introduction sets the stage for a comprehensive analysis throughout the subsequent sections of the report, which will explore the implications of current tobacco subsidy policies, assess their economic effectiveness, and discuss potential pathways for policy reform. The ultimate goal is to provide a well-rounded perspective that aids policymakers in making informed decisions that could lead to more sustainable economic development and agricultural diversification in North Macedonia.

2. LITERATURE REVIEW

The literature on tobacco production and subsidies presents a complex picture, emphasizing the intersections of economic, health, and agricultural policy. To provide a comprehensive understanding, this review is organized across three levels: global, European, and regional, with a particular focus on the role of subsidies in agricultural sustainability and policy implications for North Macedonia's tobacco sector.

2.1. Global context

Global studies frequently address the paradox of agricultural subsidies supporting tobacco production despite substantial public health concerns. The *WHO Report on Tobacco Subsidies and Health* (2018) critiques the continued support for tobacco farming and advocates for subsidy realignment to promote public health. Similarly, *Overcoming an Understated Impediment to Comprehensive Tobacco Control* by Lencucha et al., (2018) uses descriptive statistics to analyze farm-level data on tobacco production and subsidy allocation. This study highlights the economic challenges of transitioning away from tobacco and underscores the importance of subsidy reforms aligned with public health goals. The *FAO Annual Tobacco Production Reports* (2022) also apply descriptive statistical methods to compare production and subsidy impacts globally, showing the influence of subsidies on production trends across various countries.

2.2. European context

In Europe, subsidy policies have shifted towards supporting sustainable agricultural practices and reducing dependence on specific crops like tobacco. The *European Union's Common Agricultural Policy (CAP)*, as analyzed by Swinnen (2018), emphasizes the need for agricultural diversification and environmental sustainability. The *European Commission Report on Agricultural Subsidies and Tobacco* (2021) outlines the progressive elimination of direct subsidies for tobacco production in EU countries, marking a broader move toward rural development. In addition, *Agricultural Policy Adjustments in EU Candidate Countries* by Lazarevik et al. (2012) discusses the challenges for North Macedonia and other EU candidates in realigning subsidy allocations with CAP standards, as these countries transition from traditional crop-specific subsidies to broader support mechanisms.

2.3. Regional (Balkan) Context

In the Balkans, tobacco subsidies remain crucial to the economic stability of rural areas. North Macedonia's *National Focus Note on Agriculture* by the World Bank (2020) uses descriptive statistics to assess subsidy distribution, identifying inefficiencies and recommending diversification to enhance productivity. In *Tobacco Farming and the Effects of Tobacco Subsidies in North Macedonia* (Hristovska Mijovic and Spasova, 2022), descriptive statistics are used to analyze the economic effects of tobacco subsidies, with findings that highlight North Macedonia's disproportionate allocation to tobacco relative to other crops. The study aligns with Sahadewo et al.'s *Economics of Tobacco Farming in Indonesia* (2021), which uses a similar methodology to analyze the costs, income distribution, and sustainability of tobacco subsidies, demonstrating the applicability of descriptive statistics for evaluating agricultural policies. Comparative research within the region, particularly with Serbia and Greece, further highlights North Macedonia's unique emphasis on tobacco. While Greece, for example, has reduced tobacco subsidies in accordance with EU guidelines, North Macedonia continues to prioritize this crop, revealing a policy approach that may face challenges under EU accession criteria.

This literature review provides a standardized citation format and organizes studies by global, European, and regional relevance, offering a systematic perspective on the economics and policy challenges associated with tobacco subsidies. The reviewed studies support the descriptive statistical approach used in this paper to assess the impact of subsidies on tobacco production, presenting valuable insights for potential policy reform in North Macedonia.

3. METHODOLOGY

This study uses a descriptive statistical approach to analyze the economic impacts of tobacco subsidy policies in North Macedonia. Data from national and international sources, such as the Ministry of Agriculture and the FAO, were collected on various aspects of the tobacco industry, including production volumes, subsidy allocations, and export destinations.

The primary analytical technique, descriptive statistics, allows for summarizing large datasets through mean, median, and mode calculations, among other indicators. This approach directly supports the study's goal by illustrating the effectiveness of tobacco subsidies relative to economic outcomes, guiding policy recommendations for agricultural reform. By focusing on both economic outcomes and subsidy effectiveness, the findings link directly to the study's stated goals, providing actionable insights for policymakers.

This report adopts a quantitative approach to evaluate the impact and alignment of tobacco subsidy policies in North Macedonia, focusing on their integration with broader economic, agricultural, and health policies. The methodology is designed to provide a robust data-driven foundation for policymakers and other stakeholders such as farmers, enabling informed decisions regarding the ongoing use and potential reform of tobacco subsidies. The quantitative analysis conducted in this study is primarily based on secondary data sources. Comprehensive desk research was undertaken to gather existing data related to various aspects of the tobacco industry. This includes data on tobacco leaf production, area hectares planted with tobacco, numbers of agricultural holdings engaged in tobacco cultivation, and the volume of tobacco imports and exports.

Data were sourced from several authoritative national and international bodies, including the Ministry of Agriculture, the Agency for Financial Support of Agriculture, the Ministry of Finance, the State Statistical Office, the Chamber of Commerce, and the Food and Agriculture Organization. These sources provided a foundational dataset that covers the broad spectrum of tobacco production and subsidy dynamics within the country.

The primary analytical technique employed in this study is descriptive statistics, which serves as a powerful tool to outline and interpret the complex relationships and trends within the collected data. Descriptive analyses help summarize large datasets to make them understandable, focusing on key statistics such as means, medians, modes, and standard deviations, as well as distribution and range that relate to tobacco production and economic parameters. This approach allows for a clear presentation of the current state of tobacco subsidies and their economic implications. It also facilitates an examination of the effectiveness of these subsidies in terms of economic return, sectoral impact, and alignment with national economic goals.

The data and subsequent analysis aim to capture a comprehensive picture of the tobacco subsidy landscape in North Macedonia. This includes an evaluation of the subsidies' economic justification, their role in the agricultural sector, and their broader implications for national economic health. The study also considers the potential need for reforming these subsidies to better align with contemporary economic and agricultural policies, including prospective adjustments that may be necessitated by North Macedonia's efforts to align with EU standards. By employing rigorous descriptive statistical methods to analyze secondary data, this study provides a foundational understanding of the mechanics of tobacco subsidies in North

Macedonia. The findings derived from this analysis are intended to contribute to the ongoing dialogue about the sustainability and strategic direction of agricultural subsidies in the country, offering evidence-based insights that can guide policy reform and decision-making. This methodological approach ensures that the conclusions are well-supported by data, providing a reliable basis for any proposed changes to subsidy policies.

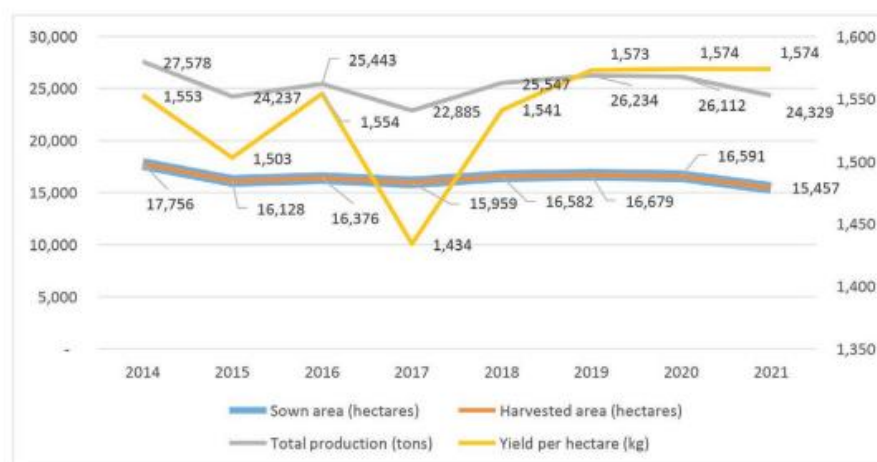
4. INTRODUCTION TO TOBACCO LEAF PRODUCTION IN NORTH MACEDONIA

Tobacco leaf cultivation has historically occupied a significant position within North Macedonia's agricultural framework, contributing not only to the economy but also to the livelihoods of rural communities. In 2006, North Macedonia ratified the Framework Convention on Tobacco Control (FCTC), which mandates a reduction in tobacco production and consumption and supports the transition of those employed in the tobacco sector to alternative livelihoods. This commitment reflects a broader trend towards sustainable agricultural practices and public health considerations.

North Macedonia has a heritage in cultivating and exporting raw tobacco, establishing itself as a pivotal player in the tobacco industry both regionally and globally. North Macedonia stands out as a significant producer of raw tobacco leaves and finished cigarettes within the region. According to the Food and Agriculture Organization (FAO), the country produced 25,978 tons of tobacco in 2022, which represented 0.5 percent of the world's production and 13.9 percent of Europe's production (FAOSTAT), (Mijovic Hristovska et al., 2022), (FAOSTAT).

This production level positions North Macedonia among the top 30 tobacco-producing countries worldwide and ranks it among the 20 major exporters of raw tobacco. In the European context, it follows only Turkey, Italy, Poland, and Spain in the production of unmanufactured tobacco.¹

Figure 1: Tobacco cultivation in North Macedonia, 2014-2021



(Source: State Statistical Office)

In the Southeastern European region, North Macedonia is the leading producer, with its closest regional competitor being Greece, which contributes 0.5 percent to the world's production. Specifically, in the production of oriental tobacco, North Macedonia is the second-largest

¹ Tobacco was introduced to North Macedonia from Turkey in 1638 and has been cultivated here since 1574, but more extensively since the XVII century. The first tobacco purchase storage was established in Prilep in 1873, marking the beginning of the tobacco industry in the country.

producer after Turkey.² The top four producers of this type of tobacco—Turkey, North Macedonia, Greece, and Bulgaria—benefit from favorable natural and climatic conditions conducive to cultivating this crop.

Despite the significant decline in raw tobacco production across the European Union, where production dropped from 400,003 tons to 170,000 tons over a decade, the production levels in North Macedonia have remained stable. This stability underscores the country's resilience and strategic importance in the tobacco sector, maintaining its legacy as a key tobacco producer under evolving economic and regulatory landscapes.

The introduction of the Common Agricultural Policy (CAP) by the European Union, which North Macedonia aspires to join, imposes further restrictions on tobacco production. These include the phasing out of subsidies for tobacco farming, aligning agricultural practices with health and environmental goals. In response, the Macedonian government adopted the Strategy for Tobacco Production (2021–2027) in 2020, outlining a phased approach to support tobacco farmers during this transition. This strategy aims to maintain income support in the short term (2021–2024) while preparing farmers for significant changes through education and counseling. From 2025 to 2027, the strategy anticipates a diversification of tobacco holdings to comply with EU CAP regulations, including adapting the direct payments system into more indirect or decoupled payments.

In 2021, tobacco leaf cultivation accounted for approximately 3.2 percent of the total arable land in North Macedonia, with a production output of 24,329 tons from 15,457 hectares. The average yield was about 1574 kilograms per hectare. The predominant variety of tobacco produced is Prilep, which constitutes 84 percent of production, followed by Yaka and Basma varieties. Geographically, the majority of tobacco production is concentrated in the Pelagonian and Southeast regions, which together produced 87.9 percent of the total yield in 2021 (Mijovic Hristovska et al., 2022).

The export market plays a crucial role in the tobacco industry, with more than 90 percent of tobacco exported globally, primarily to Greece, Bulgaria, Belgium, the United States, and Portugal. The sector's significance extends to employment, representing about 0.42 percent of total employment in North Macedonia in 2019. However, the number of tobacco farmers has seen a significant decline, from 42,622 in 2010 to 19,702 in 2020, reflecting a broader shift in agricultural priorities and the economic landscape (Mijovic Hristovska et al., 2022).

Tobacco production in North Macedonia, along with Greece, constitutes a significant portion of the tobacco output in the Southeast European (SEE) countries. Over recent years, these two countries have consistently been the largest producers in the region. Historically, Greece has often reported the highest production volumes. The combined production from North Macedonia and Greece accounted for 65 percent of the total tobacco production in the SEE region. This prominence in production figures is partly attributed to an increase in subsidies per kilogram by the North Macedonian government, which has likely stimulated growth in tobacco production. Detailed descriptions of these changes can be found in the annexes of the report (Mijovic Hristovska et al., 2022).

As North Macedonia continues its journey towards EU integration, the tobacco sector faces inevitable transformations. These changes are part of a larger effort to align the country's agricultural practices with sustainable and health-oriented policies at the European and global levels. The transition from tobacco farming to alternative crops is not merely a requirement of EU candidacy but also a response to the decreasing global demand for tobacco. This shift will

² The downward trend began with the adoption of EU's Common Agricultural Policy (CAP), when the European Community reduced the number of tobacco varieties for which subsidies were to be paid from 34 to 5 (Virginia, Burley and three types of oriental tobacco). Since then the EC has gradually reduced tobacco subsidies (Pasovska, 2020). In addition, there are production quotas assigned to producing countries which they must not exceed.

require substantial resources and a strong commitment from political leaders and the community to support farmers through this significant economic and cultural change.

6. TOBACCO AS A STRATEGIC CROP: ASSESSING THE GOVERNMENT'S PERSPECTIVE

The government of North Macedonia regards tobacco as a strategic agricultural product, essential to the nation's economy. Tobacco cultivation accounts for 3.2 percent of the total arable land, making it a pivotal industrial crop. It constitutes approximately 76 percent of the area dedicated to industrial crops, with its value representing about 94 percent of the total industrial crop output from 2000 to 2019, peaking at 97 percent in 2019 alone. The majority of the tobacco produced is exported, primarily used for blending in cigarettes due to its rich aroma, while the local industry consumes about ten percent of the output. Tobacco ranks as one of North Macedonia's most significant agricultural export commodities, accounting for one-fifth of the total export value of agricultural and food products, which equates to roughly one percent of the GDP.

The main trading partners for tobacco leaf include EU countries, which account for 49 percent of exports, and Central European Free Trade Agreement (CEFTA) countries, which make up 34.4 percent of exports and 28.1 percent of imports. The USA stands out as the largest non-European export destination, particularly for tobacco, representing 3.9 percent of the exports from the North Macedonian agri-food sector in 2019. Notably, the top export destinations for raw tobacco are Greece, Bulgaria, Belgium, the USA, and Portugal, while imports primarily consist of other tobacco varieties used for cigarette production, with around two-thirds originating from the EU.

Tobacco farming is recognized for its labor-intensive nature, providing a livelihood for approximately 20,000 agricultural households, or more than 80,000 family members. This accounts for about four percent of North Macedonia's total population. However, the dependency on tobacco farming is seen as a downside, especially given the limited alternative skills among farmers, which becomes problematic during unfavorable market conditions and amid active campaigns aimed at reducing tobacco production.

The regions of Pelagonia and Southeastern North Macedonia are particularly favorable for tobacco cultivation, especially the oriental varieties, which thrive even in poorer soils that are less suitable for other types of agriculture. These regions are the major producers, with Pelagonia accounting for 52 percent of the production and 55 percent of the cultivated area, and the Southeastern Region contributing 34 percent of the production and 32 percent of the area on average over the period from 2009 to 2019.

In recent years, about 90 percent of the tobacco produced was bought by private companies, and the remainder by Tutunski Kombinat Prilep, which is primarily government-owned. These private entities process tobacco in accordance with pre-established contracts with multinational corporations to whom they sell the processed product. The sector is robustly supported by the North Macedonian government through a system of public subsidies.

The qualitative research conducted with representatives from relevant government agencies, as outlined in the report from Analytica think tank Skopje, underscored the economic significance of tobacco. Officials from institutions closely linked to tobacco production and regulation emphasized its strategic importance for the economy. According to these officials, tobacco is recognized as a vital crop that significantly contributes to foreign exchange inflow and agricultural exports. These sentiments were echoed by representatives from agencies responsible for financial support and rural development, who highlighted the substantial financial benefits derived from tobacco exports and their role in bolstering national revenues (Spasova Mijovic et al., 2022).

Contrary to the government's claims that tobacco is a strategic crop delivering high profits to tobacco farmers, the results of the national survey with farmers show that tobacco cultivation is not as profitable as suggested (Spasova Mijovic et al., 2022). The empirical research analyzes data from a comprehensive national survey covering current, former, and non-tobacco farmers to estimate the economic returns per hectare of land dedicated to tobacco cultivation and per kilogram of tobacco produced. The findings indicate that cultivating other crops yields higher earnings than tobacco farming. Additionally, tobacco cultivation is characterized as a labor-intensive activity demanding considerable effort and numerous work hours, leading to significant unpaid household labor costs. As a result, this suggests that diversifying into other crop production could provide tobacco farmers with more economically advantageous opportunities, enabling more efficient use of labor and enhancing overall profitability.

7. FINANCIAL SUPPORT IN AGRICULTURE: SUBSIDIES as DIRECT PAYMENTS

The financing of tobacco production in North Macedonia is governed by the Law on Tobacco and Tobacco Products, alongside the more comprehensive Law on Agriculture and Rural Development. These legal frameworks are supported by seven-year strategies and annual programs for agricultural financial support. Each annual program includes specific regulations detailing criteria for direct payments, the benefits of funds, maximum amounts, and payment methods. Regarding the tobacco subsidies, there are only three types in the observed period: Subsidies for manufactured and sold raw tobacco harvested the previous year, Subsidies for hiring creditors during the purchase of raw tobacco, and Subsidies for domestic production and refinement of certified tobacco seeds. The process for tobacco production, purchase, and direct payments (subsidies) follows this sequence:

Eligibility: Tobacco farmers must be registered in the Single Registry of Agricultural Holdings to receive subsidies.

Contracts: Farmers must have a contract with a registered tobacco buyer to legally cultivate tobacco. Contracts must be concluded by March 31 and must include purchase prices and quantities. The highest association of tobacco farmers must approve these contracts before they are signed.

Data Entry: Once contracts are signed, buyers must enter the contract data into an electronic system and provide a list to the regional unit of the Ministry of Agriculture within ten working days after the contract deadline. This data is crucial for processing direct subsidy payments.

Advance Payments: Early in the growing season, buyers make an advance payment to farmers, at least 15% of the value of the agreed tobacco, calculated based on the average purchase price of the last three years. This payment can be in raw materials, agricultural machines, or financial means and is later deducted from the total payment upon delivery.

Purchase Site Inspection: Before purchasing tobacco, the State Inspectorate for Agriculture inspects purchase sites to ensure all conditions are met.

Sample Validation: A commission, including representatives from the Ministry, tobacco buyers, the highest association of tobacco producers, and the state agricultural inspectorate, validates samples of tobacco leaves, which are then displayed at purchase sites.

Purchase Period: The purchase period runs from November 15 to the end of February. During this period, authorized appraisers determine the class and type of tobacco delivered.

Payment: Upon delivery, buyers pay farmers according to the contract price, deducting any advance payments.

Data Registration: Buyers must register all purchased tobacco quantities in the electronic system by March 31 of the following year.

Direct Payments: The Agency for Financial Support of Agriculture and Rural Development makes direct payments to farmers' transaction accounts starting in April (Official Gazette,

98/19, 27/20), (Official Gazette, 49/2010, 53/2011, 126/2012, 15/2013, 69/2013, 106/2013, 177/2014, 25/2015, 73/2015, 83/2015, 154/2015, 11/2016, 53/2016, 120/2016, 163/2016, 27/2019, 152/2019, 244/2019, 275/2019).³

Agricultural subsidies, or direct payments, are vital for achieving the goals of the National Strategy for Agriculture and Rural Development. These subsidies supplement farmers' incomes, help maintain their activities, and promote development and investment among larger producers. Financial support is linked to specific agricultural products, granted per unit of product delivered, livestock head, or area, and includes support for production inputs like seeds, seedlings, and fuel. The majority of direct payments are dedicated to crop production, accounting for 61% of the total in the period from 2014 to 2020 (Mijovic Hristovska et al., 2022).

Tobacco subsidies consistently represent the largest share of these expenditures compared to other crops. Initially, tobacco subsidies comprised a smaller percentage but reached their peak during the middle years, followed by a temporary decrease. Subsequently, there was a resurgence in the allocation, culminating in a significant proportion of the central budget by the latest data point. The trend for other crops, including vineyards and field crops, shows a similar pattern, with their highest allocations also occurring around the middle period, followed by a recent upward trend in subsidies. These trends in subsidy allocations are largely in sync with the overall dynamics between nominal GDP and central government expenditure, which are strongly correlated (Mijovic Hristovska et al., 2022).

7.1. Aligning North Macedonia's Tobacco Policy with EU Standards and WHO Guidelines

Since its EU accession process began in 2009, North Macedonia has been working to reconcile EU agricultural policy requirements and WHO anti-smoking mandates with its traditional support for tobacco farming. While the WHO Framework Convention on Tobacco Control discourages subsidies for tobacco, North Macedonia continues to prioritize it as an essential export. The EU's shift away from specific tobacco subsidies, introduced in 2010, reflects a broader trend of decreasing tobacco production across the Union. In response, North Macedonia's National Strategy for Tobacco 2021–2027 aims to transition from direct tobacco subsidies to indirect payments, aligning with EU standards. This strategy is designed to support the diversification of agriculture and encourage farmers to shift to alternative crops. It outlines financial plans to assist farmers during this transition, highlighting the necessity for structural adjustments in the agricultural sector and reallocation of subsidies to promote the cultivation of alternative, high-value crops.

8. DISCUSSION OF RESULTS

In 2021, tobacco production in North Macedonia covered approximately 3.2 percent of the country's arable land, yielding 24,329 tons across 15,457 hectares. This equates to an average yield of 1,574 kilograms per hectare. North Macedonia's tobacco industry is largely focused on the Prilep variety, which constitutes 84 percent of production. Most cultivation is concentrated in the Pelagonian and Southeast regions, accounting for 87.9 percent of the total yield (Mijovic Hristovska et al., 2022).

³ According to the Law on Tobacco, the authorized representative for exercising the rights of tobacco producers is the Highest Association of Tobacco Producers which brings together all tobacco producer associations of tobacco producers. The role of the Association is to actively participate in the process of tobacco purchase, through its representatives from the smaller tobacco producer associations, for which the Highest Association is entitled to a fee for organizing and representing the representatives of the tobacco producers' associations in the purchase of tobacco. The fee is 0.35% of the purchase price. Field coordinators sent by the Association have an important role to play in achieving a good grade rating for tobacco.

From 2006 to 2019, the descriptive statistics for North Macedonia's tobacco production are as follows:

- Mean (Average) Production: 25,159.57 tons
- Median Production: 25,495 tons
- Minimum Production: 17,087 tons
- Maximum Production: 30,280 tons

These indicators suggest relatively stable tobacco production levels in North Macedonia over the years. However, fluctuations in output could be influenced by external factors such as climate, subsidies, and market demand.

Comparing North Macedonia with neighboring countries and major global producers provides further insight into the country's production scale and subsidy system. For instance:

- **Regional Comparison:** Greece and Bulgaria produce considerably more tobacco than North Macedonia, with mean production figures around 37,000 tons and 36,000 tons, respectively, from 2006 to 2019.
- **Global Comparison:** Major producers like China and India dwarf regional output, with mean annual production figures exceeding 2 million tons and 700,000 tons, respectively. (Mijovic Hristovska et al., 2022).

Tobacco production in North Macedonia has remained relatively stable, with minor fluctuations over the years. This stability in output reflects the country's consistent focus on tobacco cultivation, supported by local subsidies and a reliance on tobacco as a key agricultural product. While production levels are much smaller compared to global figures, they form an essential part of North Macedonia's agricultural economy (Mijovic Hristovska et al., 2022).

European tobacco production has experienced a noticeable decline, particularly after 2004. This reduction could be attributed to shifts in agricultural policy, decreased demand, and an increase in regulatory measures around tobacco production and consumption in European countries. The decline suggests that European countries are progressively moving away from tobacco production, likely due to stricter health policies and economic shifts.

At the global level, tobacco production shows a more stable trend with minor decreases in certain periods. Major tobacco-producing countries like China, India, and Brazil contribute substantially to this stability. The global figures highlight North Macedonia's relatively small scale in the worldwide context but emphasize the country's regional importance.

In North Macedonia, tobacco subsidies represent a significant part of the agricultural budget, heavily supporting a single crop. Unlike countries with diversified or indirect support systems, North Macedonia's subsidies directly prioritize tobacco, potentially limiting support for alternative crops and diversification. The stability of North Macedonia's tobacco production in contrast to Europe's declining trend highlights the country's reliance on tobacco subsidies and the economic role of tobacco in supporting rural livelihoods. This comparative context underscores the need for North Macedonia to evaluate its subsidy policies carefully to maintain competitiveness and production sustainability (World Health Organization, 2023).

- **Direct Financial Subsidies:** Countries like the *United States* and *EU* offer substantial funding but distribute it across multiple crops or provide general agricultural support rather than focusing on tobacco alone, unlike North Macedonia's single-crop focus.
- **Input-Based and Loan Programs:** Countries like *Brazil* and *Zimbabwe* support tobacco but also provide resources to diversify or improve other crops. North Macedonia lacks this diversification support, maintaining a high dependency on tobacco.
- **Integrated Support Systems:** *ASEAN countries* and *Argentina* use tobacco excise funds or tax revenues to support broader agricultural infrastructure, income support, and alternative farming systems, whereas North Macedonia's focus remains primarily

on maintaining tobacco production without broader agricultural investment (World Health Organization, 2023).

In the Balkan region, North Macedonia's approach to tobacco subsidies stands out for its heavy emphasis on supporting tobacco as a primary crop, whereas other Balkan countries have more diversified or smaller-scale support systems (Mijovic Hristovska et al., 2022).

- Bosnia and Herzegovina provides tobacco subsidies at different rates, including direct payments of 767 EUR per hectare or 15% of output value. However, support is relatively limited and does not focus heavily on tobacco, allowing for more balanced agricultural support across crops.
- Serbia supports tobacco farmers primarily through input subsidies such as seeds and fertilizers, often at subsidized rates, but these programs do not receive the same intensity of focus as in North Macedonia, where tobacco remains a central agricultural priority.
- Tobacco production in Albania is small-scale and generally lacks the robust subsidy programs seen in North Macedonia. Government support is minimal, and there is a stronger focus on developing other agricultural sectors.
- Tobacco subsidies in Kosovo are minimal, with limited direct or input-based support for tobacco. Like Albania, Kosovo prioritizes other agricultural areas over tobacco, reflecting a shift away from tobacco dependency.

In summary, North Macedonia's approach is narrowly focused on tobacco, unlike other countries that balance support for tobacco with incentives for crop diversification, broader agricultural infrastructure, or sustainable farming practices. This heavy focus in North Macedonia could limit diversification opportunities compared to its regional neighbors, which are gradually reducing dependence on tobacco as a major agricultural product.

9. CONCLUSION

The extensive examination of tobacco production and subsidy policies in North Macedonia has underscored the intricate balance between economic benefits and the broader implications of continued tobacco cultivation. While tobacco remains a significant economic player in North Macedonia, contributing notably to exports and supporting thousands of rural households, the evolving global and regional dynamics prompt a critical reassessment of the sustainability of this approach.

The findings of this empirical research reveal that the substantial subsidies directed toward tobacco cultivation may not represent the most economically prudent use of national resources, especially in light of shifting market demands and health considerations. Moreover, as North Macedonia aspires to align with the European Union's Common Agricultural Policy, it faces the dual challenge of reforming its subsidy structure and fostering a more diversified agricultural sector.

Moving forward, policymakers must consider a gradual shift from tobacco to alternative crops that could provide better economic returns and environmental benefits. Such a transition will require robust support systems, including retraining programs for farmers, investment in agricultural innovation, and an effective communication strategy to manage the change.

In conclusion, while tobacco has historically played a pivotal role in North Macedonia's agricultural landscape, the time has come to strategically rethink its place in the economy. This empirical research provides a foundation for informed decision-making that could lead to a more sustainable and economically diversified agricultural sector, ultimately contributing to the country's long-term development and public health objectives.

10. RECOMMENDATIONS

Based on the analysis presented in this empirical research, the following recommendations are proposed to guide the strategic reorientation of tobacco subsidy policies and agricultural practices in North Macedonia:

1. **Gradual Reduction of Tobacco Subsidies:** Begin reducing the direct subsidies for tobacco gradually, reallocating these funds to support the cultivation of alternative, more sustainable crops. This phased approach will help mitigate the impact on farmers dependent on tobacco for their livelihood.
2. **Investment in Alternative Crops:** Invest in research and development for alternative crops that can thrive in North Macedonia's climate and soil conditions. Prioritize crops that have the potential for high market demand both locally and internationally, such as medicinal herbs, essential oils, and organic fruits and vegetables.
3. **Support for Farmers' Transition:** Provide comprehensive support for tobacco farmers transitioning to alternative crops, including financial incentives, technical training, and access to new markets. Establish partnerships with academic institutions and private sector stakeholders to facilitate knowledge transfer and innovation.
4. **Enhanced Rural Development Programs:** Develop and enhance rural development programs that focus on improving infrastructure, technology access, and market connectivity for farmers. This will help diversify the rural economy and reduce dependence on any single crop.
5. **Policy Alignment with EU Standards:** Continue aligning national agricultural policies with the European Union's Common Agricultural Policy, focusing on sustainability and reduced reliance on crop-specific subsidies. This alignment is essential for facilitating North Macedonia's EU integration process.
6. **Public Health Campaigns:** Implement public health campaigns to reduce smoking rates. These campaigns should be supported by part of the funds currently allocated to tobacco subsidies, promoting a healthier population and reducing the long-term healthcare costs associated with tobacco use.
7. **Monitoring and Evaluation Framework:** Establish a robust monitoring and evaluation framework to assess the effectiveness of the new agricultural policies and the economic impact of transitioning from tobacco. This framework should include clear benchmarks and timelines to ensure accountability and continuous improvement.

By adopting these recommendations, North Macedonia can create a more resilient agricultural sector that is better equipped to meet the challenges of the 21st century, while also enhancing public health and environmental sustainability.

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