

Tobacco Farming and the Effects of Tobacco Subsidies in North Macedonia



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Table of Contents

1. Executive summary	5
2. Methodology	8
3. Background of tobacco production in North Macedonia	10
3.1 Short background on tobacco leaf production	11
3.2 Brief comparison to other regional tobacco leaf producers	13
3.3 Import and export of agriculture products and tobacco (raw tobacco)	14
3.4 Food import versus tobacco subsidies	15
3.5 The issue with the uncultivated agricultural land	16
4. Financial support in agriculture – subsidies as direct payments	17
Is it economically prudent that the highest direct support goes to tobacco?	22
5. Analysis of the tobacco subsidy program and its economic effectiveness	25
5.3 Correlation among different tobacco variables	34
6. Social, economic and natural characteristics and conditions in the tobacco sector in North Macedonia	37
7. North Macedonia and the EU Common Agricultural Policy Requirements	40
7.1 Alternatives of tobacco cultivation – Does North Macedonia have a way out?	41
8. Conclusion and recommendations	43
Annex A	46
Annex B	64
3. Background of tobacco production in North Macedonia	64
3.1 Agricultural sector in North Macedonia	64
3.2 Value and quantity of total purchases of agricultural products in comparison to tobacco	69
3.3 Participation of agriculture in the formation of gross value added (GVA) in the economy	74
3.4 Import and export of agriculture products and tobacco (raw tobacco)	76
3.5 Short background on tobacco leaf production	79
Annex C	83

1. Executive Summary

The purpose of this report is to examine the tobacco subsidy policy in North Macedonia, its alignment with other agricultural and economic policies, and to determine its possible effects. To the authors' knowledge, this research conducted by Analytica think tank is one of the first such studies in North Macedonia.

The report is divided into eight chapters, each one dealing with a separate issue regarding tobacco farming, tobacco subsidies, and tobacco production.

First, the Methodology section presents the authors' overall approach to this report. It is largely a review of tobacco production, mainly using descriptive statistics, but it also utilizes observations from interviews with key informants.

In the next section, the broad parameters of tobacco production in North Macedonia are introduced. The Republic of North Macedonia is known historically for growing oriental tobacco that is used for blending with other types of tobacco in cigarettes due to its rich aroma.

It is important for readers to understand that the Government of North Macedonia considers tobacco to be a strategic crop with an important place in the national economy. Tobacco production has been supported by government subsidies for decades, regardless of the political structure. Most of the produced tobacco (around 90 percent) is exported. Tobacco and tobacco product exports account for one fifth of the total export value of agricultural and food products (20.4 percent), which represents one percent of gross domestic product (GDP).

Based on Food and Agriculture Organization (FAO) data, with 26,234 tons produced in 2019 (0.4 percent of world production and 13.9 percent of European production in 2019), North Macedonia is among the 30 major tobacco-producing countries in the world, among the 20 major exporters of raw tobacco, and the second-largest producer of oriental tobacco, following Turkey.¹

Also, as examined systematically in this report, tobacco is the crop receiving the largest subsidies from the North Macedonian government compared to other crops, comprising on average a quarter of the total agricultural subsidies and 40 percent of total crop subsidies for the period 2008–2019, or a total of 241 million euros. The government justifies this spending because of the large number of families whose main income comes from tobacco production—around 20,000 agricultural households (based on the number of registered tobacco farmers) in primary production, or around four percent of the total population in North Macedonia. In a sense, the government does not want to cause a disturbance because most tobacco producers are directly dependent on government subsidies. However, it is unlikely that this is economically sustainable for the government in the long run and may not be the best long-run economic development plan for the farming households either.

Next, this report focuses on the issues relating to food imports and tobacco exports, as well as how they are interlinked. Specifically, though tobacco exports make a sizable contribution to the economy, North Macedonia spends significantly more money on food imports than it generates from tobacco exports. One of the major ongoing challenges of the trade deficit is that much of it comes from importing processed food products. The country exports fresh fruit and vegetables, but then

¹ http://www.fao.org/faostat/en/#rankings/countries_by_commodity_exports

spends millions to import higher-value processed (frozen or canned) versions of many of the same products. North Macedonia is a net importer of food. Despite agricultural subsidies, the production of most agricultural goods has decreased recently, including tobacco, and rural-to-urban migration has increased. Hence, it is relevant to question whether funds allocated to tobacco production support could be used more efficiently to stimulate food production instead.

On the whole, the evidence suggests that the generous tobacco subsidy is likely affecting the market in a negative way. Specifically, **subsidies often generate market distortions by “blurring” market signals**—farmers often decide to grow crops only because of the subsidies. As a result, more tobacco is produced than can be absorbed by the free market, which costs the government even more money, drives the prices down, and undermines the livelihoods of farmers.

Notably, even with generous subsidies there is a declining trend in the cultivated land in hectares and the number of signed contracts with tobacco buyers. The number of tobacco farmers is decreasing: in 2020, the number of tobacco farmers (19,702) is less than half the number it was in 2010 (42,622). There is widespread migration away from the rural areas (villages) in the two regions where most of the tobacco in the country is cultivated—the Pelagonia and the Southeastern region.² Also, part of the population, despite remaining in the rural areas, has switched industries (mostly to the automotive industry and the food industry, which have received foreign direct investment). Additionally, tobacco producers are relatively older, indicating that younger generations are not very interested in tobacco farming.

Tobacco farming is also associated with poverty. Irrespective of the subsidies, tobacco farmers' average monthly income is below the average net monthly salary and the value of the minimum household consumer basket. This is yet another issue addressed in this report.

This situation suggests strongly that it is time to change the policy of subsidizing tobacco growing. Tobacco buyers depend on the needs of the world market and are bound by certain legal regulations. **The global demand for cigarettes is declining, so this is already leading to decreases in demand for tobacco and prices.** North Macedonia is not an exception to these global trends, so it must adjust soon to avoid adverse economic effects. Other countries in the European Union are already shifting away from tobacco production, but despite this declining trend³ production in North Macedonia remains relatively stable for now.⁴

Next, ways to address these challenges are discussed. First, there are certain statutory requirements the country needs to fulfil. North Macedonia, as a candidate country for EU membership, will need to comply with the EU Common Agricultural Policy (CAP) and therefore must begin to consider potential exit strategies from this heavily subsidized crop. The country is also struggling to comply with its legal commitments to the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC),⁵ which requires it to not subsidize tobacco production and to assist those working in the sector to find viable alternative livelihoods. Since 2010, the country began implementing serious anti-smoking measures, which is a good start. However, at the same time, the government continues its financial support for tobacco farming. The shift from tobacco production will require resources and strong political commitment and support.

2 SSO data: http://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat__Naselenie__VnatesniMigracii/750_VM_Migr_reg_grad_selovnat_mk.px/table/tableViewLayout2/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef; http://makstat.stat.gov.mk/PXWeb/pxweb/mk/MakStat/MakStat__Naselenie__VnatesniMigracii/775_N_Migr_reg_meguselovnat_t2_mk.px/table/tableViewLayout2/?rxid=46ee0f64-2992-4b45-a2d9-cb4e5f7ec5ef

3 The downward trend began with the adoption of the 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 that they must not exceed.

4 Pasovska, 2020

5 Lazarevik et al., 2012

On a positive note, in the new national strategy for tobacco 2021–2027, the government already introduces measures and steps for adapting the tobacco sector in North Macedonia to the CAP, including gradually replacing direct payments to tobacco farmers per kilogram of tobacco produced with indirect or decoupled payments (that is, not dependent on the type of crop) after joining the EU. Likewise, the strategy clearly introduces measures and activities for support and stimulation of the diversification of the tobacco crop with other crops. According to a field survey of 2,205 agricultural holdings (tobacco and mixed),⁶ 30 percent of the interviewed producers are ready to diversify their production based on the requirements that will arise during the EU accession process. This percentage is significant and can be increased if the government works on educating and informing tobacco producers in North Macedonia about the need for preparations in case of such requests.

It is necessary for North Macedonia's government to start thinking about structural changes and adjustments in the agricultural sector as well as in the program for financing agricultural development. To move these reform efforts along more quickly and effectively, the ministry and other relevant institutions should work on a thorough analysis of potential high-value crops that could replace tobacco. In order to substitute tobacco with other crops, the government needs to reduce or alter some part of the tobacco subsidies. This will decrease the incentive for farmers to seek tobacco subsidies and free up funds for other crops.

Finally, the conclusion summarizes the main points addressed in this report and provides recommendations for next steps.

The overall need for reform in the agricultural sector is important because North Macedonian agriculture generates about 10 percent of GDP and employs more than 15 percent of the working population. Moreover, agricultural subsidies continue to consume a substantial 2 percent of GDP with no obvious positive returns for the economy beyond perpetuating low-value livelihoods for tobacco farmers and allocating land and labor away from the production of other products, many of which are currently and needlessly imported.

The following conclusions capture the crucial points of this research:

- **The government justifies the amount allocated for tobacco subsidies mainly by the large number of families whose main income is the income from tobacco production.** In a way, the government is “buying” short-term social peace because most tobacco producers are directly dependent on government subsidies, but in the medium and long term it is unlikely this strategy will be economically sustainable for the government. It may also discourage farmers from moving to other more lucrative livelihoods.
- **Subsidies often generate market distortions by “blurring” market signals.** Farmers often decide to grow crops only because of the subsidies and, as a result, more tobacco is produced than can be absorbed by the market, costing the government even more money, and driving down prices, and undermining the livelihoods of farmers.
- Though tobacco production has remained relatively stable due to the subsidies, since 2009 there has been an increase in imports of agricultural products instead of an increase in domestic production of agricultural products, suggesting that **tobacco farming is displacing production of other agricultural goods that are now imported at high cost.**

6 Survey conducted within the project “Building the foundations for tobacco sector reform (EUROPEAID / 138538 / IH / SER / MK)”

- Since 2010, **cultivated land in hectares and the number of signed contracts with tobacco buyers are decreasing, suggesting a natural shift away from tobacco despite the large subsidies.** This dynamic suggests an opening to accelerate this trend.
- **Most tobacco farmers struggle financially**, living with an average monthly income below the average net monthly salary and below the value of the minimum household consumer basket.⁷
- **Global demand for cigarettes is declining, leading to decreases in demand for tobacco and prices.** North Macedonia is not an exception to these global trends, will be affected directly and significantly by them, and must adjust soon to avoid even more economic decline.
- To improve the situation in the agricultural sector and the position of farmers, especially tobacco farmers, this report gives the following recommendations:
 - **To increase the effect of subsidies, it is necessary for them to be conditional and purposeful.** The logical near-future transformation is to reorganize the land from tobacco growing to food growing and to reallocate tobacco subsidies to subsidize this transition and to help develop the closely related food-processing sector. These changes will decrease food imports, create more value added products in the food supply chain, and likely increase exports and improve the trade deficit.
 - **More generally, agriculture subsidies must emphasize long-term investment in the sector** that contributes to increased productivity and efficiency.
 - **The government needs to implement a thorough mapping of tobacco farmers to distinguish professional agriculture from farmers who only have short-term goals of taking advantage of subsidies for that crop.** It is easier to begin the transition with casual or new tobacco growers who are more likely open to shifting than those who grow larger quantities or have done so for many years.
 - **Focus initial tobacco alternatives efforts according to the level of urbanization of regions.** In regions with better infrastructure, it may be possible to consider reducing tobacco production more quickly because there are more choices about where to sell other crops and/or to work. This is especially important because in regions where there is good infrastructure parents will not have to worry about where they will leave their children and they will have more flexibility to work in different jobs because the children will be in state-funded kindergarten.
 - **North Macedonia, as a candidate country for EU membership, will need to comply with the EU Common Agricultural Policy (CAP),** which includes a gradual transition to direct support based on farmed hectares, not crop quantity. Proponents of reform need to remind the government and other stakeholders of this broader commitment to help accelerate change.
 - The new national strategy for tobacco 2021–2027 outlines several approaches for possible exit strategies and replacement of tobacco with another crop (such as red peppers or hazelnuts).

7 State Statistical Office announcement: <https://www.stat.gov.mk/PrikaziSooopstenie.aspx?rbtxt=40>

2. Methodology

This report utilizes a mixed qualitative and quantitative methodology with the goal of providing evidence for policy makers and other key stakeholders (such as farmers) in relation to the use of subsidies in tobacco production. It also provides valuable insights into the alignment of tobacco control policy with economic, agricultural, and health policies.

To capture the broader situation, a preliminary analysis outlines the existing data, gathered mostly through desk research. The secondary data collection includes data on tobacco leaf production, hectares planted with tobacco, agricultural holdings, tobacco imports, tobacco exports, subsidies, the structure of the subsidies, and purchase prices of tobacco leaves, among others. These data were acquired from the Ministry of Agriculture, the Agency for Financial Support of Agriculture, the Ministry of Finance, the State Statistical Office, the Chamber of Commerce, the Food and Agriculture Organization, and other relevant agencies. They are also the basis for specifying the scope and areas of further analyses, including the need for access to different additional data.

There are analyses of public documents, strategies, and data related to tobacco subsidies and agricultural development policy in the country. All of these result in a national study which describes the subsidy mechanics, a short narrative of the development and implementation of the subsidy over time, and recommendations regarding a potential reform of the subsidy to best serve tobacco farmers and the broader economy. There is also a comprehensive mapping of the key actors and their positions, the current situation in this field, as well as allies and foes to identify the subjects for the next phase of the research plan.

One of the principal data analytical approaches for collected public economic data is descriptive statistics. To the authors' knowledge, there is currently no comprehensive description of these complexities, so this is the first summary of this nature.

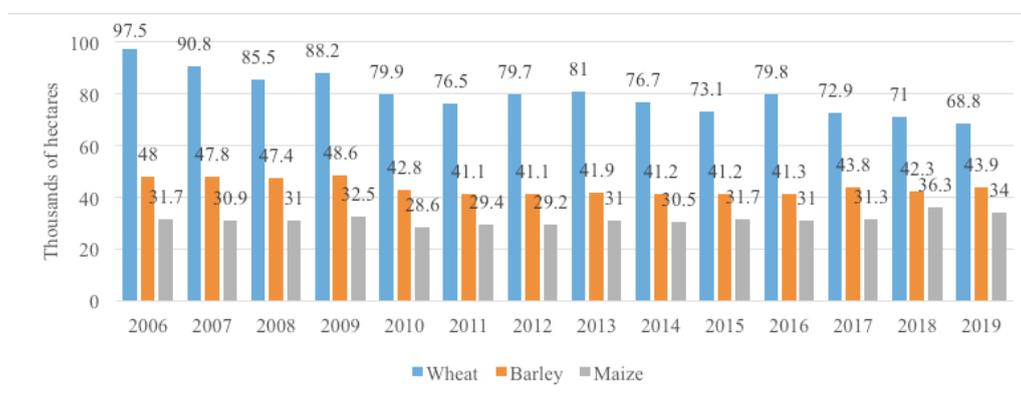
The second analytical approach employs qualitative research techniques to analyze the content of the primary data—mainly key informant interviews—including rigorous thematic analysis of the issues and challenges raised by the subjects as identified by both the research team and the stakeholders themselves in the interviews. The main interview subjects were public officials involved in the subsidy program and other relevant experts in the field. Those who qualified for an interview had a meaningful role in the subsidy system. After an initial round of interviews with key informants identified by the research team and consulted experts, a “snowball” technique was applied: the initial interviewees were asked to name contacts they thought would have something useful to provide and then attempts were made to interview them. To maintain some anonymity in the research results, typically only the respondents' institutions and their position level were identified (if they requested otherwise, they are identified as anonymous). The general questions used during the interviews are in Annex A of this document, but each interview was tailored to the individual and the role they play in the subsidies. The researchers attempted to reach saturation—the point at which all interviewees are saying similar things and/or the interview team is no longer gaining new insights. The narratives of the interviewees largely converge but the research team is aware that some potential key informants were not open to interviews, so it is possible that some narrative or sub-narrative was missed in this research. That is a small limitation of the study. However, because the interviews that were completed contributed to some consistent narratives, the authors are confident that these refusals were probably not systematic, and it is not clear that there were large gaps in the qualitative inquiry.

3. Background of Tobacco Production in North Macedonia

This section touches on each one of the important dynamics about the agricultural sector in North Macedonia, but please refer to Annex B to see a more complete discussion/description.

The agricultural sector is an important part of the North Macedonian economy. There are about 520,000 hectares of arable agricultural land, which is the basis for agricultural production. In 2019, about 80 percent of arable land was farmlands and gardens, while the rest of the land was represented by perennial plantations: orchards (16,784 hectares), vineyards (24,468 hectares), and meadows (59,773 hectares) (Table A1 in Annex A).

Figure 1. Cereal crops occupying the largest agricultural areas



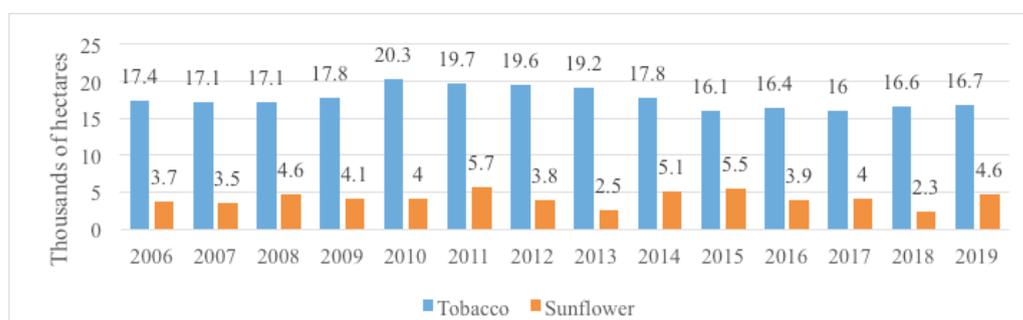
Source: State Statistical Office (SSO), presented by authors

Crops represent a major part, about 38 percent, of arable land, and in recent years the area for cereal production was reduced (in 2019 production was reduced by 15.8 percent compared to 2006). While other categories of land do not have significant changes in their size, there is an increase in area for fodder crops (from 34,000 hectares in 2006 to 42,000 hectares in 2019, or 25.3 percent). A significant part of the arable area is fallow land, which seems to have increased in recent years.

As presented in Figure 1, wheat is the crop that was sown and harvested on the largest part of the area for cereal crops. The area for wheat cultivation is decreasing (from 2006 to 2019 by 29.4 percent), while the area for maize is increasing (by 7.1 percent from 2006 to 2019). According to 2019 data about the use of agricultural area, the most significant crops are:

- wheat (68.9 hectares (ha) or 5.5 percent of the total arable area (TAA)), produces 3,485 kg/ha at 11 MKD/kg
- barley (43.9 hectares or 3.5 percent of TAA), produces 3,151 kg/ha at 9.9 MKD/kg
- maize (34 hectares or 2.7 percent of TAA), produces 4,277 kg/ha at 8.8 MKD/kg

Figure 2. Industrial crops occupying largest agricultural areas



Source: SSO, presented by authors

Regarding the industrial crops, tobacco crop occupied the largest area from 2010 to 2013. After this period there is a slight decrease. Sunflower crop takes values from 5700 hectares in 2011 to 2300 hectares in 2018. And here's the production of industrial crops in 2019:

- tobacco (16.7 hectares or 1.3 percent of TAA), produces 1573 kg/ha and 228 MKD/kg
- sunflower (4.6 hectares or 0.36 percent of TAA), produces 1420 kg/ha and 17.5 MKD/kg

3.1 Short background on tobacco leaf production

The Republic of North Macedonia is a well-known tobacco-growing area for oriental tobacco varieties, mainly of the Prilep, Jaka, and Basmak varieties. It has a long history and tradition of cultivating and exporting raw tobacco.⁸ North Macedonia is an important raw tobacco leaf and finished cigarette producer in the region. Based on Food and Agriculture Organization (FAO) data, with 26,234 tons (Figure 3), representing a share of 0.4 percent of world production in 2019 (China is the leader with 39 percent of total world production) and 13.9 percent of European production, North Macedonia is among the 30 major tobacco-producing countries in the world and among the 20 major exporters of raw tobacco.⁹ In Europe, only Turkey, Italy, Poland, and Spain produced larger amounts of unmanufactured tobacco in 2019. North Macedonia is the leading producer in the Southeastern European region, followed by Greece with 0.3 percent of world production. In terms of oriental tobacco, North Macedonia is the second largest producer, following Turkey. The four major producers of oriental type tobacco are Turkey, North Macedonia, Greece, and Bulgaria, where natural and climate conditions are suitable for this crop. Despite the downward trend of raw tobacco production in the European Union (for example, the production of raw tobacco in the EU has declined from 400,003 tons in 2005 to 170,000 tons in 2016—a drop of 75 percent,)¹⁰ the production in North Macedonia remains stable.¹¹

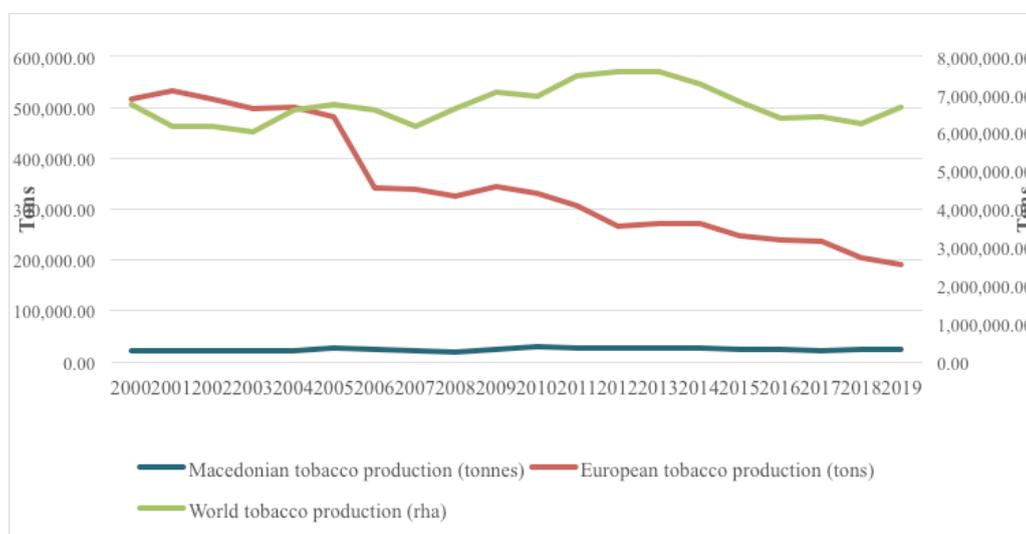
⁸ Tobacco was introduced to North Macedonia from Turkey in 1638 and has been cultivated here since 1574, but more extensively since the XVII century. The first tobacco purchase storage was established in Prilep in 1873, marking the beginning of the tobacco industry in the country.

⁹ http://www.fao.org/faostat/en/#rankings/countries_by_commodity_exports

¹⁰ 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.

¹¹ Pasovska, 2020

Figure 3. Dynamics of tobacco production in North Macedonia, Europe, and the world (in tons)



Source: FAOSTAT

The Government of North Macedonia considers tobacco to be a strategic crop with an important place in the economy of North Macedonia. The area for tobacco cultivation occupies 3.2 percent of total arable land in the country. Tobacco is one of the most important industrial crops for the country, comprising approximately 76 percent of the area planted with industrial crops and an average share for the period 2000–2019 of around 94 percent in industrial crop output by value (97 percent in 2019). Most of the produced tobacco is exported (this is used to blend with other types of tobacco in cigarettes due to its rich aroma), with the domestic tobacco industry absorbing only around ten percent of the domestic production. Tobacco is also considered as one of the most important agricultural export products, accounting for one fifth of the total export value of agricultural and food products (20.4 percent) or about one percent of GDP. The most important trade partners for tobacco leaf are EU countries (49 percent) and Central European Free Trade Agreement (CEFTA) countries (34.4 percent of exports and 28.1 percent of imports). The USA is the largest non-European export destination of the North Macedonian agri-food sector (3.9 percent), largely due to the large export of tobacco¹² In 2019, the top export destinations for raw tobacco were Greece, Bulgaria, Belgium, the USA, and Portugal (SSO database). On the other hand, North Macedonia imports tobacco of other varieties for production of cigarettes. Around two thirds of the imports come from the EU

The government often points to the labor-intensive character of the production process. Tobacco farming provides livelihoods for a significant number of families—around 20,000 agricultural households (based on the number of registered tobacco farmers) in primary production, or more than 80,000 members (individuals) of family agricultural holdings. This represents around four percent of the total population in North Macedonia. The unfavorable side of this is the tradition that ties tobacco farmers to this type of production, because of a lack of alternative skills, even in times of unfavorable market conditions and active campaigns to reduce tobacco production.¹³

Tobacco cultivation is appealing to farmers, particularly in the Pelagonia and Southeastern Region, due to the favorable natural conditions. Tobacco, particularly the oriental type, can be grown in poorer soils that are presumably less suitable for other agricultural production. These two regions account for most of the tobacco production in the country, with Pelagonia representing 52 percent of the production and 55 percent of the area, and the Southeastern Region 34 percent of the production and 32 percent of the area on average in the period 2009–2019.¹⁴

12 National Strategy on Agriculture and Rural Development 2021–2027, p. 23

13 National Study on Economic of Tobacco and Tobacco Taxation - North Macedonia (2018)

14 STP 2021–202711 Pasovska, 2020

Recently around 90 percent of the produced tobacco was purchased by private companies and the rest by Tutunski Kombinat Prilep, which is mostly owned by the government. The private companies purchase and process tobacco according to previously made plans and contracts with multinational companies to which they sell the processed tobacco. The North Macedonian tobacco sector has a strong public support system through subsidies.¹⁵

The economic role and significance of tobacco was pointed out several times in the qualitative research by individuals from different relevant government agencies:

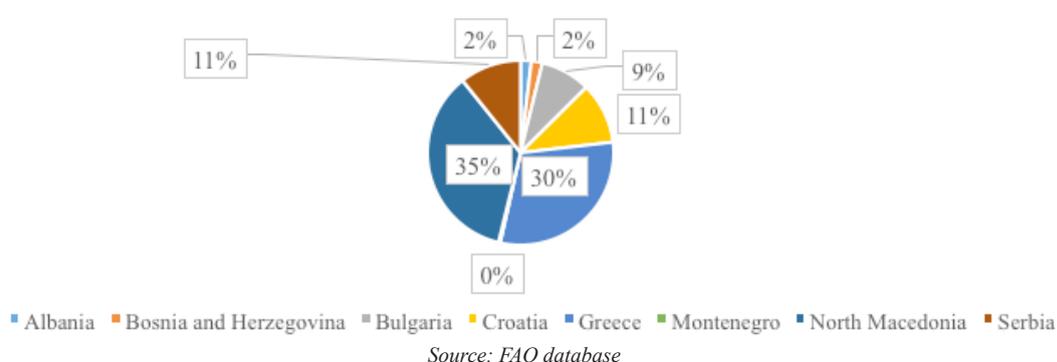
“The net foreign exchange inflow of tobacco is the largest of all crops and it is crucial for our economy. Export of tobacco and cigarettes is on the first place in the agricultural sector. So far behind them is the wine industry. It is a strategic culture and it must be subsidized.” – Independent advisor at the Chamber of Commerce

“Tobacco is a strategic crop. Every year more and more funds flow into the budget from tobacco exports, high prices, reliable placement ... All this suits the state.” – Director of the Agency for Financial Support of Agriculture and Rural Development

3.2 Brief comparison to other regional tobacco leaf producers

The production of tobacco in North Macedonia in 2019 was 26,234 tons and, together with Greece (22,530 tons), generates a large percentage of the tobacco production in the SEE countries. In almost the entire analyzed period, the tobacco production of Greece occupies the highest value, reaching its maximum in 2014 (40,940 tons). However, in 2018 and 2019 the production of tobacco in Greece was 22,730 tons and 22,530 tons, respectively (Table A10 in Annex A). Hence, of the total tobacco production in the SEE countries in 2019, 65 percent was realized in North Macedonia and Greece (Figure 4). This shift might be due to the North Macedonian government increasing the amount of subsidies per kilogram in 2018 leading to increases in tobacco production. (See Annex B for detailed description.)

Figure 4. Total tobacco production in SEE countries in 2019



15 Ibid.

3.3 Import and export of agriculture products and tobacco (raw tobacco)

The export of unmanufactured tobacco from North Macedonia in 2019 was 24,898 tons, while import of unmanufactured tobacco was 3,664 tons. The highest amount of exported tobacco in the analyzed period was recorded in 2016 (27,692 tons) and the highest amount of tobacco was imported in the same year (5,946 tons). The lowest amount of exported tobacco was recorded in 2009 (16,112 tons) and the lowest amount of imported tobacco (2,893 tons) was recorded in the same year. In the entire analyzed period, the quantity of exported tobacco exceeds the quantity of imported tobacco by several multiples (Figure 5) (Table A5 in Annex A).

Figure 5. Tobacco, unmanufactured import-export 2008–2019 (tons)



Source: SSO

Key informants consistently cited the importance of exports:

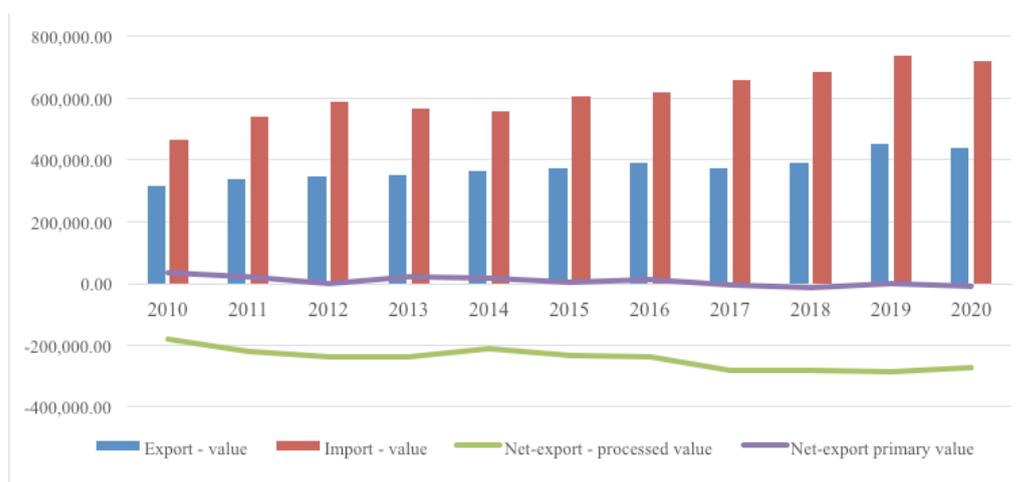
“Tobacco is the most important export crop.... We have only a few export crops: wine, apple, lamb.” – Professor at the Faculty of Agriculture

“Tobacco is a strategic crop. Every year more funds flow into the budget from tobacco exports. High prices, reliable placement, this suits the state.” – Director of the Agency for Financial Support of Agriculture and Rural Development

When it comes to the import and export of agricultural food, Figure 6 presents the value of export and import of food and beverages for the period 2010–2020. The figure shows that there is an increasing trend of foreign trade, with imports exceeding exports during the entire 2010–2020 period. It should also be noted that the net-export position is better for primary products compared to processed products. The country registered mainly positive net-export values of primary products until 2017 (except for 2012). However, the last few years are marked by a negative trade imbalance. Processed products on the other hand exhibit a negative and worsening balance during the presented period.

16 The net-exported quantity of primary products is positive during the entire period, although the surplus has noticeably decreased. However, due to exports of lower value products and imports of higher-value products, the net-export in terms of value presents a less optimistic picture. The processed record negative trade balance both in quantity and in value during the entire period.

Figure 6. Foreign trade with food and beverages, primary and processed



Source: SSO, authors' calculations

3.4 Food import versus tobacco subsidies

The average coverage of imports by exports in the agricultural production and food industry for the period (2010–2020) is 73 percent, resulting in an average annual negative trade balance of 235 million euros. The trade deficit is largely driven by the import of processed food products in the amount of 498 million euros on average, which is almost twice as high as the average value of exported processed food products (255 million euros).

The foreign exchange inflow from tobacco in 2019 of 143 million euros is dwarfed by the import of food and beverages of euros 738 million euros. Analyzing the structure of exports and imports of food, more than 50 percent of exports are from fresh fruits and vegetables, while the largest import items are meat, grain, processed fruits and vegetables, and dairy products.

In 2020 fruit exports reached 58.8 million euros, an increase of 15.8 percent or 7.7 million euros more compared to exports in 2019. It is noteworthy that fruit exports account for one percent of the country's total exports (while tobacco accounts for two percent) and fruits receive only 6.9 percent of total crop subsidies, whereas tobacco receives 40 percent of total crop subsidies. This demonstrates a disproportionate relationship between production and government financial support through direct subsidies to different crops. Hence, there is a potential problem in that subsidies are not directed to crops with high export potential. So, although the export of fruit demonstrates promise through its contribution to total exports, it still does not receive much government investment to increase its production.

One of the problems is the processing industry. North Macedonia exports fresh vegetables and fruits and then spends millions to import many of the same products processed (frozen or canned). This raises the question as to why no funds are invested in the processing industry, because such changes would make North Macedonia less import-dependent for these products and generally.

In addition, in the same period the subsidies for tobacco grew each year and represent the highest proportion in crop production subsidies (40.99 percent in 2019). While it is true that tobacco exports make a sizable contribution to the economy, it is important to note the neglect of the food sector.

Hence, it is relevant to question why a trade deficit in food continues when funds could be diverted to food production to meet the needs of the country and to enhance exports in another valuable sector. Subsidies in the agricultural sector grow every year, but North Macedonia continues to be a significant net importer of food.

Overall, these dynamics call for significant rethinking of the structure of the agriculture sector, particularly in the direct financial assistance program. Part of the logical solution is to reorganize the land for tobacco growing to food growing and to reallocate the subsidies for tobacco to temporary subsidies to encourage profitable food growing. In time, these changes will decrease the quantity of food that is imported and decrease the trade deficit. In time, too, farmers will become increasingly profitable and subsidies can be reduced and eventually eliminated.

3.5 The issue with uncultivated agricultural land

Of the total area of the country, 1,267,000 hectares are agricultural. According to the State Statistical Office (SSO), about 48 percent of the total land in North Macedonia belongs to agricultural land, out of which 41 percent is arable. Almost half of the agricultural land is owned by agricultural enterprises and cooperatives, and just over half by individual producers. The data from SSO show that almost half of the arable land and gardens remain unsown—out of 4,170 km², just under 2,800 km² were sown.

The point here is that instead of importing wheat and corn and spending money on imports, the government could invest in the land that remains unsown, particularly through irrigation, so that it could then be sown with food crops. North Macedonia has excellent climate conditions for growing corn and wheat and a history of successful production of these crops. With investments in the soil quality and irrigation, the country could be competitive in a marketplace in which food prices are steadily increasing. This is the opposite dynamic of tobacco prices, which continue to fall due to decreasing global demand and increasing production in low-cost producing countries in other parts of the world.

4. Financial Support in Agriculture: Subsidies as direct payments

Tobacco production and its financing in the Republic of North Macedonia are regulated by the Law on Tobacco and Tobacco Products¹⁷ in addition to the more general Law on Agriculture and Rural Development.¹⁸ These laws are complemented with seven-year strategies and annual programs for financial support of agriculture. Each annual program is accompanied by a regulation on the closer direct criteria for direct payments, benefits of the funds, maximum amounts, and the method of direct payments. Please refer to Annex C to see a more complete discussion.

The process for tobacco production, purchase and direct payments (subsidies) goes in the following order:

- In order to be eligible for receiving subsidies, tobacco farmers must be registered in the Single Registry of Agricultural Holdings.
- According to the Law, in order to legally cultivate tobacco, farmers must have a contract with a registered tobacco buyer. The contents of the contract need to be presented on the bulletin board of the buyer (and on their website if they have one). All contracts are also sent to the highest association of tobacco farmers¹⁹ in order to be published on their bulletin board and on their website (if there is one). Before signing the contract, the tobacco buyer must also request a written opinion from the highest association of tobacco farmers for the contract contents and to receive its positive opinion. The contracts must be concluded by 31 March of the current year. The contract states the purchase price by tobacco class and the agreed quantity.
- After signing the contract, the buyer is obligated to enter the data on the contract in the electronic system, thus declaring the final production. Within ten working days after the deadline for concluding contracts, the buyer must provide a list of each contract to the regional unit of the Ministry of Agriculture, Forestry and Water Industry. These data form the basis for carrying out direct subsidy payments to tobacco farmers. This is a novelty introduced with the new Law on Tobacco, Tobacco Products and Related Products in 2019 aimed at simplifying the subsidy procedure for tobacco farmers, implemented in 2020. Before that, according to the previous law, tobacco farmers needed to register for production in the regional unit of the Ministry of Agriculture, Forestry and Water Economy by 31 March and receive a registration sheet, with information on the reported production—cadastral plots where tobacco is to be cultivated, by type and quantity and price—and it was needed for their application for subsidies.

17 Official Gazette 98/19, 27/20

18 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

19 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.

- Early in the growing season, the leaf buyer makes an advance payment to the farmer for the current harvest, in an amount no less than 15 percent of the value of the planted tobacco agreed for purchase. The amount is calculated at the average purchase price in the country for the agreed type of tobacco for the last three years. The advanced payment can be in raw material, agricultural machines, and other means and equipment, or a financial payment, though most typically it is raw materials. This advanced payment is later deducted from the payment of the purchased tobacco upon delivery to the purchaser.
- Before the purchase of tobacco, the State Inspectorate for Agriculture controls the purchase sites to check if all conditions are met.
- A commission assigned by the Minister of Agriculture (2 representatives of the ministry and one representative from tobacco buyers, the highest association of tobacco producers and the state agricultural inspectorate) prepares and validates samples of tobacco leaves. A higher education institution authorized to verify the samples performs a professional control of the tobacco leaves by types and classes, after which the commission validates each sample, no later than 15 November. All tobacco buyers take validated samples upon announcement by the Commission and need to display them at the purchase site.
- The purchase period begins between 15 November and 15 December and lasts until the end of February next year.
- At the purchase site, the delivered tobacco is appraised by an authorized appraiser holding a license issued by the Ministry. The tobacco class and type are determined according to adopted measures and methods for qualitative and quantitative assessment of tobacco.
- Upon delivery, the buyer pays for the purchased tobacco according to the purchase price named in the contract. The advanced payment is deducted from the total value of the purchased tobacco and the difference is the amount left for payment.
- The buyer registers all purchased quantities of tobacco in the electronic system, by 31 March the following year.
- Based on the registered purchases in the electronic system, the Agency for Financial Support of Agriculture and Rural Development makes the direct payments to the transaction accounts of the tobacco farmers starting the month following the end of the purchase period—that is, April.

Figure 7. Legally prescribed timeline of the process of tobacco subsidies



Due to the COVID-19 crisis, the due dates in 2020 and 2021 were postponed by one month. All necessary amendments and additions to the laws and to the accompanying regulations were done in order to provide legal background for the longer duration of the different phases of the process. In addition, the Government included a measure for financial support of tobacco farmers within its fifth package of economic measures against the COVID-19 pandemic. Thus, 5 million euros were allocated to Measure 21 of the package, transferred to Tutunski Kombinat Prilep for the purpose of purchas-

ing 700 tons of excess tobacco production above the contracted quantities. The prime minister stated that the aim of this measure was to prevent adverse consequences from the restrictions of transport and trade and from the decline in the global consumption of tobacco products.²⁰

Agricultural subsidies/direct payments are one of the key measures for achieving the goals of the National Strategy for Agriculture and Rural Development. According to the strategy, the subsidies supplement farmers' incomes and thus help to maintain the activity of many tobacco farmers while also increasing development and investment for larger producers.²¹

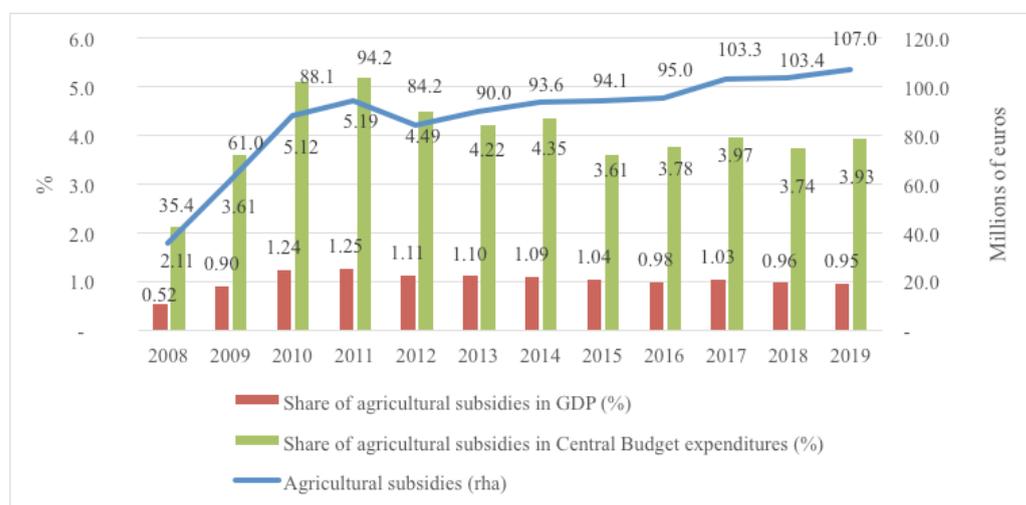
Financial support is related to specific agricultural products and is granted per unit of product delivered to a manufacturing facility, livestock head, or area, and support for production inputs (seeds, seedlings, fuel). There are 40 measures in place and the largest share of direct payments is dedicated to crop production (61 percent in the period 2014–2020).

4.1. Agricultural subsidies

Each year the government allocates a significant amount of funds from the central budget for subsidizing agricultural production through direct payments.

Figure 8 captures the dynamics of agricultural subsidies, in absolute terms and as a share of GDP and in total central budget expenditures.

Figure 8. Dynamics of agricultural subsidies in the period 2008–2019



Source: AFSARD, Ministry of Finance and authors' calculations

Agricultural subsidies rose more than threefold during the analyzed period, from 35.4 million euros in 2008 to 107 million euros in 2019. The subsidy amount rose strongly in the first few years, experienced a drop in 2012 (-10.6 percent), and then kept rising, reaching a record value in 2019. The largest increases of direct payments compared to the previous year were registered in 2009 (25.6 million euros or 72.3 percent) and in 2010 (27.1 million euros or 44.5 percent).

20 <https://vlada.mk/node/24245>

21 National strategy on agriculture and rural development 2021–2027

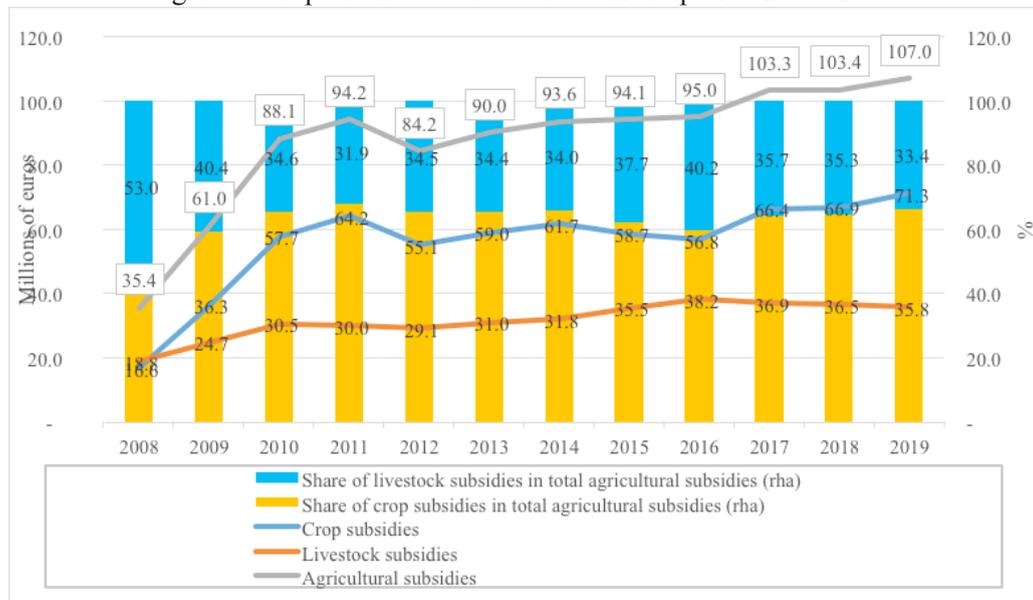
This coincides with the period when the consequences of the global financial and economic crisis were first felt in North Macedonia, via the export sector. This could be related to the low demand during this period and the government supplementing the income of agricultural holdings. However, despite the growth in absolute terms, the share of agricultural subsidies in GDP has had a slight downward trend since 2011 (when it reached its peak at 1.3 percent of GDP), due to the more dynamic growth of nominal GDP. Agricultural subsidies represented 0.95 percent of GDP in 2019. In terms of the share of agricultural subsidies in total central budget expenditures, the situation is similar. Agricultural subsidies accounted for the largest share of central budget expenditures in 2011 (5.2 percent) and have been oscillating since, with a slightly declining trend, now accounting for around four percent of expenditures.

Overall, agricultural subsidies can be divided into two general groups:

- Direct payments for crop production
- Direct payments for livestock production.

Figure 9 below presents the size of crop and livestock subsidies and their share in total agricultural subsidies in the period 2008–2019. During the entire period, except for 2008 (53 percent for livestock production and 47 percent for crop production), crop subsidies exceeded livestock subsidies and they accounted for around two-thirds of agricultural subsidies in the country. Crop subsidies experienced a far larger increase during the period compared to livestock subsidies, and in 2019 they stood at 71.3 million euros and accounted for 66.6 percent of agricultural subsidies, whereas livestock subsidies stood at 35.8 million euros and accounted for 33.4 percent of agricultural subsidies. The widening or narrowing of the gap between the two categories of subsidies is mainly due to fluctuations in the amount of subsidies for crop production.

Figure 9. Crop and livestock subsidies in the period 2008–2019

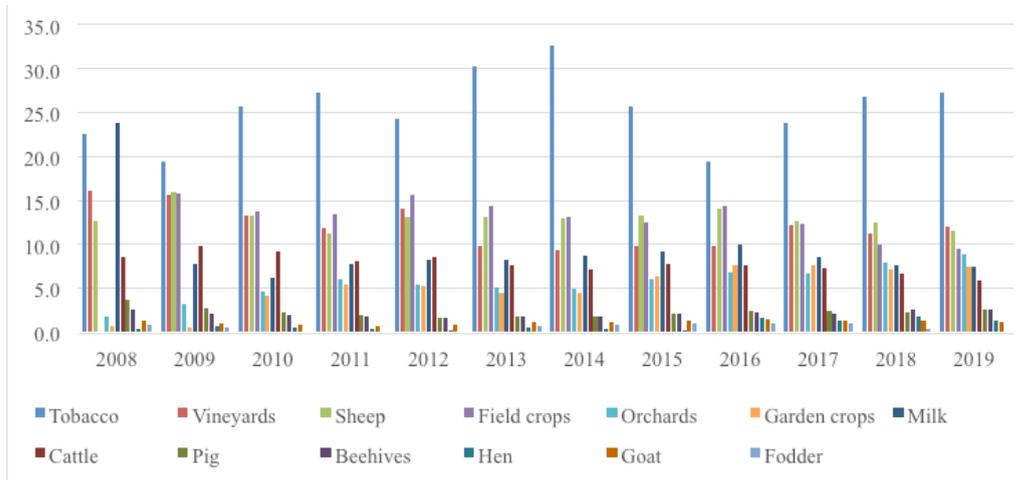


Source: AFSARD, authors' calculations

During the analyzed period (2008–2019) the amount of total agricultural subsidies granted was 1.049 billion euros, or 87 million euros on average each year. Out of this amount, the largest share was granted to tobacco production (with the exception of 2008, when milk subsidies accounted for slightly more than tobacco subsidies).

Figure 10 illustrates the share of different crop and livestock subsidies in total agricultural subsidies in the period 2008–2019. The domination of the tobacco subsidy is evident and is particularly large in 2013 and 2014.

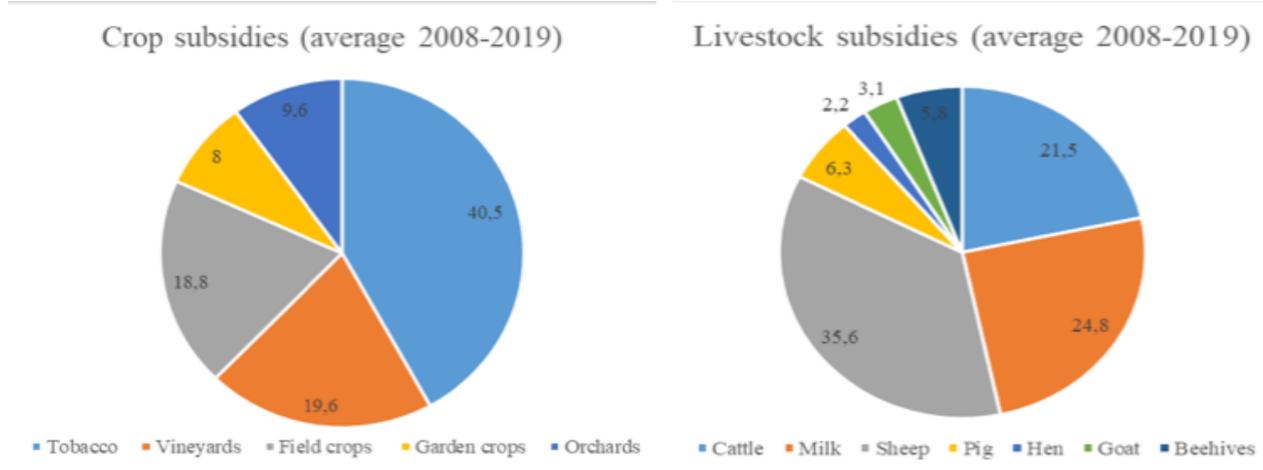
Figure 10. Share of different types of subsidies in total agricultural subsidies (%)



Source: AFSARD, authors' calculations

Within crop subsidies, tobacco subsidies are by far the largest type of subsidy, and they account for around 40 percent of total crop subsidies for the period 2008–2019, or a total of 241 million euros, followed by vineyards and grapes (19.6 percent), field crops (18.8 percent), orchards and fruits (8.8 percent), and garden crops (8 percent). This is depicted in Figure 11 (see also tables A12, A13, A14, A15, A16 in Annex A), which shows the structure of crop and livestock subsidies for the period 2008–2019. In the livestock subsidies, the largest share is allocated to sheep (35.6 percent), milk (24.8 percent), and cattle (21.5 percent).

Figure 11. Structure of crop and livestock subsidies in the period 2008–2019 (%)



Source: AFSARD, authors' calculations

Is it economically prudent that the highest direct support goes to tobacco?

Because of the large amount of money involved, it is important to ask if the subsidies are justified—that is, do they encourage the development of the agriculture sector broadly or only serve to maintain the agricultural sector without an opportunity for growth and development? The ratio between the funds spent to support agriculture and the financial effects of production—crop production (which includes more than 20 crops that are financially supported), is grouped into two branches, agriculture and gardening—and viticulture and fruit growing, whereas the livestock branch is shown by livestock species.

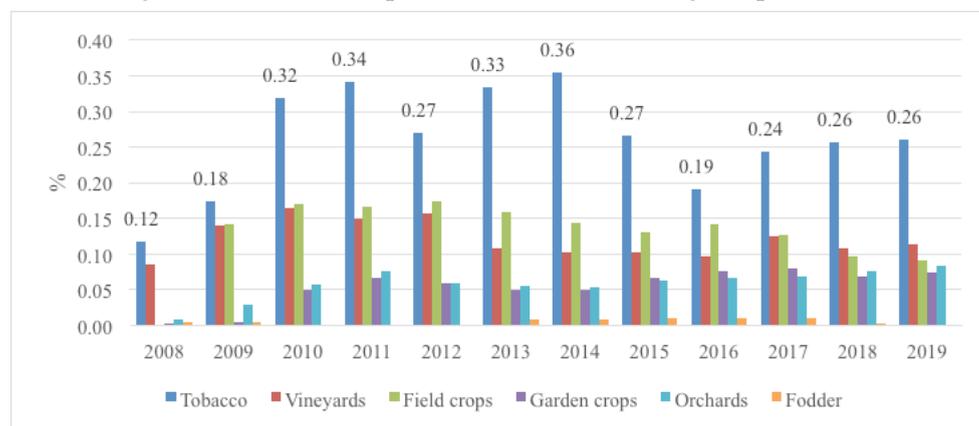
The share of the subsidies for production of tomatoes, peppers and cucumbers in the total agriculture subsidies is the lowest in 2009 (0.9 percent) while in 2011 it is the highest (1.25 percent). Subsidies for vineyards had the lowest share (6.54 percent) in the total agriculture subsidies in 2008, while in 2017 their share was the highest (19.98 percent). Livestock subsidies had a relatively large share in 2007 (71.5 percent), but their share in the total agriculture subsidies is only 38.2 percent in 2016 and 35.8 percent in 2019.²²

It is useful to compare the sums allocated for tobacco and the funds for all other agricultural crops. For example, how much a producer of wheat receives per hectare (ha) and how much a producer of tobacco receives. For one hectare of wheat a farmer cannot get more than 244 euros (maximizing all the extra conditions available such as seed, insurance, good agricultural practices, age and gender of the farmer), whereas a tobacco producer receives 2,276 euros per hectare.

Figure 12 shows what share of central budget expenditures is dedicated to supporting selected crops. The trends are similar to the trend of crop subsidies as a share of GDP, which is due to the similarity in the dynamics of nominal GDP and central government expenditure (Figure A2 in Annex A). Namely, they are highly correlated, with a correlation coefficient of 0.97. Again, tobacco subsidies represent the largest share of central budget expenditures, compared to other crops. Beginning with 0.48 percent in 2008, the highest percentage was registered in the period 2010–2014. After a two-year decline, the share of tobacco subsidies was on the rise again and accounts for 1.07 percent of central budget expenditures in 2019. The trend is similar for other crops as well. Vineyard and field crop subsidies had their highest shares in the period 2010–2012 (0.68 and 0.71 in 2020, respectively), but they also (as did the other subsidies) exhibit a rising trend recently. (The trend of the share of tobacco subsidies in GDP and the central budget expenditures are provided in Figure A1 in Annex A).

22 Agency for Financial Support of Agriculture and Rural Development (AFSARD)

Figure 12. Share of crop subsidies in central budget expenditures



Source: AFSARD and Ministry of Finance, authors' calculations

4.2. Tobacco average purchase price(s)

Tobacco subsidies are granted to tobacco farmers per kilogram of delivered dry tobacco leaf. Table 1 presents the share of subsidies in the total value of kilogram tobacco leaf. The average purchase price was the highest in 2019 (3.58 euros/kg), and the lowest in 2014 (1.91 euros/kg). The purchase price is influenced by the quality of the tobacco and the global demand for tobacco products that contain oriental tobacco. The low quality (objective) or low appraised quality (subjective) of tobacco can cause lower average purchase prices, and high quality or high appraised quality of tobacco can cause higher average purchase prices. The international demand for cigarettes is particularly important for the demand for North Macedonian oriental tobacco, which is used to blend with other types of tobacco for many cigarettes. The gross value per kilogram for the farmer is the sum of the average purchase price and the subsidy. The subsidy accounts for approximately one quarter of the value per kilogram of tobacco leaf (more precisely, 26.3 percent on average for the period 2009–2019). The variability of the share of subsidy in total value per kilogram arises from the average purchase price.²³ This is presented in Figure 13, where the inverse relationship between the average purchase price and the share of subsidy in the total value per kilogram of tobacco is evident. They have a correlation coefficient of -0.91.

Table 1. Share of direct payments in total value per kilogram

Year	Average purchase price (euros/kg)	Subsidy per kg *	Total value (euros/kg)	Share of subsidy in total value (%)
2009	3.12	0.98	4.10	23.81
2010	2.22	0.98	3.20	30.50
2011	2.68	0.98	3.66	26.69
2012	2.93	0.98	3.91	24.98
2013	2.47	0.98	3.45	28.28
2014	1.91	0.98	2.88	33.86
2015	3.00	0.98	3.98	24.54
2016	3.20	0.98	4.18	23.36
2017	3.54	1.14	4.68	24.34
2018	3.48	1.14	4.62	24.63
2019	3.58	1.14	4.71	24.15

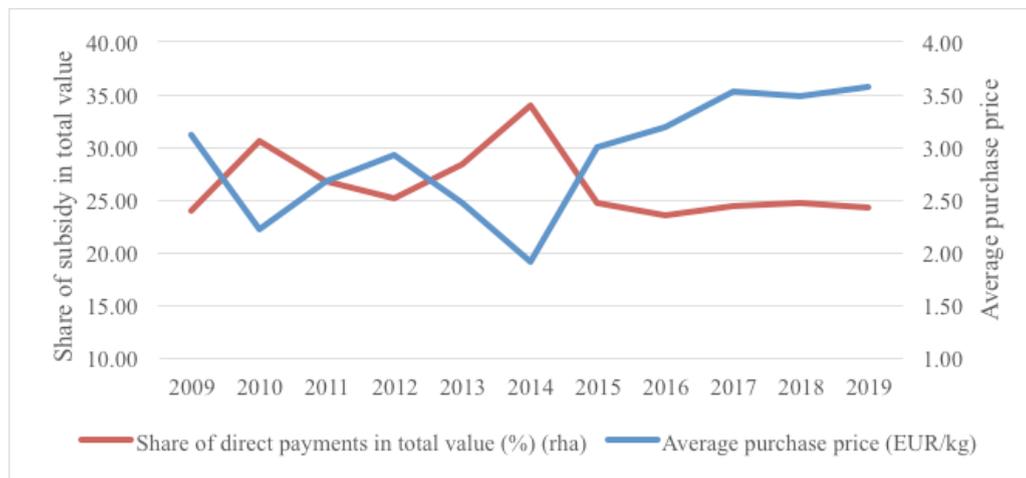
* I class – 1.3 euros/kg; II class – 1.14 euros/kg; III class – 0.98 euros/kg

In February 2018, the government increased the amount of subsidies for tobacco farmers. For the 2017 crop, instead of 60 Macedonian denari (0.97 euros) for one kilogram, the producers would receive up to 80 denari (1.3 euros) depending on the quality of the tobacco. With the new changes the previously required contract will be ended, and the tobacco producers will directly enter into an agreement with the purchasing enterprises.

Regarding the situation of subsidies increasing in 2018, the Minister of Agriculture, Forestry and Water Economy explained that by introducing three different rates of tobacco subsidies, depending on the quality of tobacco, the farmers are motivated to produce high quality tobacco:

Over time, tobacco subsidies have sustained the production of this labor-intensive product. With a note that we have introduced changes in the part of subsidizing by classes and for I it is 80 MKD, II 70 MKD and III, IV and other classes 60 MKD per kilogram. These changes are expected to increase the quality of tobacco, which would increase its average price. – Deputy Minister for Agriculture

Figure 13. Average purchase price per kilogram of tobacco and share of subsidy in total value per kilogram



Source: Strategy on Tobacco Production 2021–2027

5. Analysis of the Tobacco Subsidy Program and Its Economic Effectiveness

As a major producer of tobacco leaf, North Macedonia's tobacco farming activities have a significant impact on the tobacco market not only domestically but also regionally. North Macedonia utilizes subsidies far more proportionally to the national agricultural sector and the broader economy than most other countries in the region. From 2007 to 2017, the cultivation subsidy for tobacco ranged from €0.5 to €1.0 per kilo. Using a new model of increased subsidies for tobacco introduced in 2018, the tobacco subsidy per kilo was: €1.30 per kilo for first class tobacco leaves, €1.14 for second class and €0.98 for third class. In 2020, the government spent €30 million on tobacco farming subsidies. This measure is seen as major support of and maintaining competitiveness for farmers in the regional and global market. Key informants confirmed the crucial role of the subsidies in encouraging farmers to grow tobacco:

“Currently tobacco is profitable to grow, especially because of the subsidies that provide a clean income.” – President of the Tobacco Association “Golden List,” Municipality of Dolneni

“Subsidies cover a large part of the income of tobacco growers and we look forward to them every year.” – President of the Association of Farmers and Tobacco Producers

“Tobacco and tobacco production is one of the strategic products in our country. This production includes more than 20,000 agricultural economic units that produce 24–26 million kilograms of tobacco annually.... Tobacco production is labor-intensive and laborious, from the beginning of the seedling to the last harvest the engagement of workers is very large and intense. Hence, the subsidies for this product are much higher than the subsidies for other products.” – Deputy Minister for Agriculture

“It is clear that large funds are given, but still, they have another component in them, large funds for subsidies motivate agricultural production, stop large rural-urban migration, and revive rural areas. Tobacco is the best example of how contract production should work, how quality is paid for and valued, the production of first class tobacco is favored. We are aware that the system of direct payments should be completely changed and be conditioned by specific criteria, but the government does this to compensate for the low purchase prices of many crops. Social peace is achieved.” – Director of the Agency for Financial Support of Agriculture and Rural Development (AFSAR)

The Agency for Financial Support of Agriculture and Rural Development (AFSAR) is a national institution that promotes agriculture and rural development. To achieve this goal the Agency implements programs for financial support of agriculture and rural development. It is also responsible for planning and realization of the agricultural subsidies. According to AFSAR, there are about 52 different crop subsidies in North Macedonia. In Table 2 they are presented by the granted amount for each subsidy for the period 2008–2020, in descending order.

Table 2. Crop subsidies in Republic of North Macedonia for period 2008–2020

Type of subsidy	Total euros	%
Subsidies for manufactured and sold raw tobacco harvested previous year	298,715,889	41.0%
Subsidies for arable agricultural area for maintenance of existing vineyards	104,513,752	14.3%
Subsidies for arable area for all field crops except tobacco	119,650,403	16.4%
Subsidies for arable area for maintenance of existing orchards	50,335,158	6.9%
Subsidies for arable area for garden crops and flowers in the open and in the green-houses	36,979,788	5.1%
Subsidies for manufactured and sold grapes	20,783,462	2.9%
Subsidies for garden crops delivered for further processing	15,636,104	2.1%
Subsidies for the manufacture of domestic certified seeds from the first and second generation of crop cultures, industrial cultures, fodder cultures, and greenhouse cultures	11,612,564	1.6%
Subsidies for sown areas with autumn crop cultures (wheat and barley)	9,133,777	1.3%
Subsidies for raising new orchard	7,857,244	1.1%
Subsidies for fruit crops delivered for further processing	6,451,044	0.9%
Subsidies for reduction of vine stocks and support for grape purchase	5,484,352	0.8%
Subsidies for arable agricultural area with sunflower, rice, and poppy	4,704,923	0.6%
Subsidies for arable agricultural area with fodder	4,614,442	0.6%
Subsidies for raising new vineyard	4,458,801	0.6%
Subsidies for domestic vine graft and fruit seeds	3,022,516	0.4%
Subsidies for arable agricultural area for garden crops	2,950,490	0.4%
Subsidies for greenhouse production (tomatoes, peppers, cucumbers, and cut flowers)	2,524,607	0.3%
Subsidies for small agricultural economies defined by historical payments in the last 3 years	2,520,323	0.3%
Subsidies for manufactured and sold apples	2,393,518	0.3%
Subsidies for partial compensation of the diesel fuel expenses for crop production	2,237,890	0.3%
Subsidies for sown areas with certified seed material	1,820,289	0.2%
Subsidies for area under vineyards	1,762,115	0.2%
Subsidies for area under spring crop cultures, industrial crops, and autumn crop cultures	1,709,089	0.2%
Subsidies for maintenance of area with existing apple orchards	1,475,186	0.2%
Subsidies for sown areas with crop cultures with certified seed material	1,136,847	0.2%
Subsidies for production of raw rice	923,853	0.1%
Subsidies for the area under fodder crops	695,552	0.1%
Subsidies for production of young flowers in in-vitro conditions	496,452	0.1%
Subsidies for horticulture in the open and in the greenhouses and cultivated production of medicinal plants, aromatic plants, and herbs	410,359	0.1%
Subsidies for purchased domestically produced wheat	409,893	0.1%
Subsidies for production of pre-primary and primary seed material for crop cultures	381,974	0.1%
Subsidies for purchased domestically produced plums	235,980	0.0%
Subsidies for arable agricultural area with 0.02 to 1 hectare in size	185,485	0.0%
Subsidies for arable agricultural area with 5 to 10 hectares in size	167,820	0.0%
Subsidies for successful orchards after two years from the payment of the initial subsidy for raising new orchard	120,110	0.0%
Subsidies for pedological analysis (analysis for sodium, phosphorus, potassium, PH level, humus, and carbonates)	98,497	0.0%
Subsidies for orchards maintenance	55,720	0.0%

Subsidies for production of certified seed material for garden crops and flower cultures	48,387	0.0%
Subsidies for hiring creditors during the purchase of raw tobacco	42,546	0.0%
Subsidies for arable agricultural area with 10 to 50 hectares in size	37,086	0.0%
Subsidies for delivered eatable tomatoes for further processing	33,110	0.0%
Subsidies for industrial garden crops sold for further processing	8,522	0.0%
Subsidies for arable agricultural area for maintenance of decorative and fast-growing seedlings	6,480	0.0%
Subsidies of 15% for agricultural property in areas with limited capacities for production	75	0.0%
Subsidies for domestic production and refinement of certified tobacco seeds	0	0.0%
Subsidies for domestic grown cabbage	0	0.0%
Subsidies for raising parent plants for the production of certified vine planting material	0	0.0%
Subsidies for raising parent plants for the production of certified fruit planting material	0	0.0%
Subsidies for plant production projects	0	0.0%
Subsidies for support of the transition from crop cultures to garden cultures, orchards, and vineyards for economies with areas under 5 hectares	0	0.0%
Subsidies per area for reconstructed orchards due to change in sort structure	0	0.0%
TOTAL	728,842,471	100.0%

Source: Data provided by the Agency for Financial Support of Agriculture and Rural Development, presented by authors

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
- Subsidies for domestic production and refinement of certified tobacco seeds.

According to the Regulation for direct payments for 2021 for users of produced and sold raw tobacco in 2020 crop, published in the Official Gazette of RNM no. 12/2021, these are the criteria for the subsidies for produced and sold raw tobacco harvested the previous year:

Users of this sub-measure are individuals and legal entities that have sold their tobacco for the 2020 crop to the registered enterprise for tobacco purchase according to the Law for tobacco, tobacco products, and similar products.

Realization of this sub-measure 1.10 from this Regulation will proceed according to the data for purchased quantities of raw tobacco from 2020 crop, filed in the Electronic System for Tobacco Records (ISET) by the legal entities registered in the Register for Tobacco Purchasers.

5.1. The increase in tobacco subsidies

In North Macedonia tobacco subsidies became part of political campaigning, which has been a trend for decades. A recent example is the increase of the tobacco subsidies that was credited to the current government and presented as a reward for the effort and dedication of the tobacco farmers. The government emphasizes that the administrative procedures are being simplified to achieve secure tobacco production and continuous tobacco purchase. The government has also declared that tobacco producers are its priority and the focus of government policies.²⁴

Compliance with the EU common agricultural policy (CAP) is being treated as an “issue for further consideration.” The EU integration process for North Macedonia is difficult and long-term, while the tobacco subsidies are important “traditional” tools that effectively provide social peace and political gain in the shorter term. A high-ranking official explained:

“The purpose of the subsidies is to maintain agricultural production, to help farmers who want to stay in their fields and make a living from their production. Policies pursued by the state are not only to ensure social peace, but also to ensure a quality of life in rural areas by increasing the profit/earnings of farmers and by improving agricultural production. The improvement in agriculture is supported by other programs, such as the Rural Development Program and the IPARD program, which envisage investments in agriculture. In order to have a success story in the agricultural sector, there should be utilization of all programs.” – Deputy Minister for Agriculture

A prominent member of the business community concurred:

“The purpose of the subsidies in the agricultural sector is to differentiate professional farmers and producers from everyone else...to stimulate professional farmers...The purpose of subsidies is to professionalize the agricultural sector...to differentiate and consolidate the farmers.” – Advisor to the Economic Chamber of the Republic of North Macedonia

Detailed presentation of the crop subsidies, expenditures from the central budget and national gross domestic product are presented in Table A17 in Annex A.

5.2. The agricultural budget

As presented in Table 3, out of the total agricultural budget around 70 percent on average is allocated to agricultural subsidies. The larger part is meant for crop subsidies (around 46 percent on average) and the smaller part is for livestock subsidies (around 26 percent on average). In the past several years the funding for subsidies is decreasing, going from a total of 74 percent for all subsidies in 2013 to 65 percent for all subsidies out of the total agricultural financing in 2019. According to the official statistics, the amount for total subsidies surpasses the realized agricultural budget, where most likely additional funds were used to fulfill the required funds.

Table 3. Structure of subsidies in agricultural budget (%)

Percentage	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Crop subsidies of agricultural financing	32.6	43.5	55.1	69.6	45.8	48.6	43.5	40.7	40.6	43.7	43.0	43.2
Livestock subsidies of agricultural financing	24.9	29.5	29.1	32.6	24.1	25.5	22.4	24.6	27.3	24.2	23.5	21.7
Total subsidies of agricultural financing	57.5	73.0	84.2	102.2	69.9	74.0	65.9	65.3	67.9	67.9	66.5	65.0

Source: Agency for Financial Support of Agriculture and Rural Development and Ministry of Finance of RNM, presented by authors

According to the data presented in Table 4, the budget expenditures grew over the observed period from 1.7 billion in 2008 to 2.7 billion in 2019. While in absolute values the expenditures of the central budget grew in the observed period, when taken as a percentage of GDP they are quite steady at around 25 percent. Also, the steady trend follows the general budget expenditures as a percentage of GDP of approximately 32 percent. So, spending follows GDP growth. This is in accordance with the national fiscal strategy to strengthen fiscal discipline. The Medium-Term Fiscal Strategy introduces budget expenditure ceilings, both total ceilings and ceilings by budget users. Related to this, the annual growth rate of total budget expenditures of the central government (Budget of the Republic of North Macedonia) will gradually decrease, and prudent public financial management fiscal policy will contribute to a gradual decline of the level of the overall budget deficit.

Tobacco subsidies as a percent of total central government expenditures fluctuate in accordance with the government policies. Notably, the highest subsidies were given in 2011, 2014, and 2020—all election years. This pattern suggests that subsidies are being used to serve political aims, rather than for the purpose of long-term economic development.

Table 4. Structure of subsidies in the overall budget and national GDP

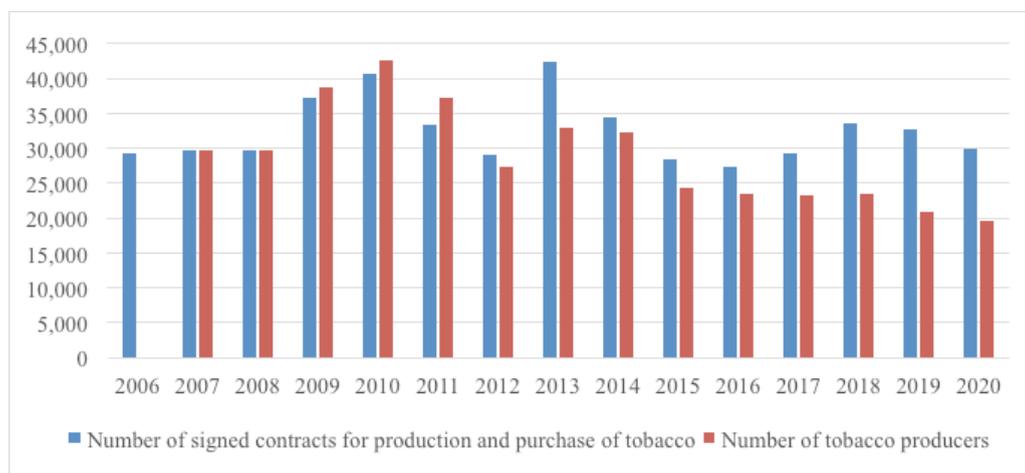
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GDP at market prices (current prices, millions of euros)	6,772	6,767	7,108	7,544	7,585	8,150	8,562	9,072	9,657	10,038	10,744	11,209
Total expenditures of the central budget (realized, millions of euros)	1,664	1,676	1,707	1,800	1,862	2,114	2,133	2,587	2,496	2,578	2,739	2,703
Subsidies for manufactured and sold raw tobacco (millions of euros)	7.9	11.7	22.5	25.5	20.3	27.1	30.2	24.0	18.3	24.3	27.4	29.0
Subsidies for manufactured and sold raw tobacco (% of total realized expenditures of the central budget)	0.5%	0.7%	1.3%	1.4%	1.1%	1.3%	1.4%	0.9%	0.7%	0.9%	1.0%	1.1%
Total expenditures of the central budget (as % of GDP)	24.6%	24.8%	24.0%	23.9%	24.5%	25.9%	24.9%	28.5%	25.9%	25.7%	25.5%	24.1%
General government total expenditures (as % of GDP)	33.8	33.6	32.5	31.9	33.3	31.7	31.7	32.2	31.1	31.8	30.3	31.6

Sources: Eurostat, World Economic Outlook, IMF, and Agency for Financial Support of Agriculture and Rural Development and Ministry of Finance of RNM, presented by authors

Finally, when analyzing tobacco subsidies it is inevitable to mention the number of tobacco farmers who receive these subsidies. The number of signed contracts is higher than the total number of tobacco producers for the period 2014 to 2020 (Figure 14). This shows that these two indicators are not the same. In North Macedonia one tobacco producer is allowed to sign contracts with several tobacco purchasers, thus the number of contracts is almost always higher than the number of tobacco producers.

24 http://www.ipardpa.gov.mk/root/mak/vest_dolga_mak.asp?VestiID=2668

Figure 14. Number of signed contracts for tobacco production and number of tobacco producers



Source: Ministry of Agriculture, Forestry and Water Economy, presented by authors

The downward trend of the number of tobacco farmers is evident from 2010, including a significant downward trend from 2013. In 2020 the number of tobacco farmers (19,702) is less than half the number in 2010 (42,622). This period is also characterized by a continuing emigration from rural areas (villages) in the two regions where most of the tobacco in the country is cultivated—Pelagonia and the Southeastern region (except for 2019 in the Southeastern region). This is true for both internal migrations from villages to the cities and external migrations to other countries.²⁵ Additionally, part of the population, while staying in rural areas, leaves agriculture and migrates to industry (mostly the automotive industry and the food industry where there has been recent foreign direct investment).

Are subsidies to blame for such market distortions?

In North Macedonia in 2020, there was dissatisfaction from tobacco growers about their inability to sell the entire amount of tobacco produced at the contract prices (by quality/class). Part of the problem is in the purchase agreements with the authorized legal entities, in which many of the tobacco producers agreed to a smaller amount of cultivated tobacco compared to the one they produced. For example, there were producers who signed a contract for the purchase of 1 ton of tobacco and produced 2.5 tons of tobacco. Many of the registered agricultural holdings, in order to be able to use other measures for financial support, report part of the cultivated areas with another crop although they also have a tobacco crop planted, so they recorded a smaller amount of contract production than the actual amount of produced tobacco. Therefore, for the 2020 harvest, there was a significantly higher amount of tobacco (4,000 tons of surplus) compared to the total contractual purchase amount between tobacco producers and tobacco companies.

A very high amount of surplus tobacco (non-negotiable production) indicates a flaw in tobacco production policies. The problem here is clearly in the constant increase of tobacco subsidies that motivates tobacco farmers to grow more tobacco to get more subsidies despite not being certain they will be able to sell the produced quantity. Hence, these distortions are caused by tobacco subsidies.

In order to avoid such a problem in the coming years, it is necessary for the Government to create additional measures but also to provide advisory assistance in concluding contracts and reporting on the area to be cultivated with tobacco. This means production under a legal framework where the producer has to strictly comply with the agreed area planted with tobacco, and the buyer has to provide a consistent purchase policy.

What actually happened in 2020?

The harvest from 2020 was agreed to prior to planting the tobacco, between tobacco farmers and purchasing companies, to be about 23,000 tons. However, 27,000 tons of tobacco were produced and purchased at an average price of 158 denari/kilogram. The purchasing companies came forward and bought the entire surplus, and there is a risk that the same thing will happen in 2021.¹ In the end all the surplus was bought but at a lower price. There was a surplus of 4,000 tons, which was also a problem for the purchasing companies, but there was no unpurchased tobacco. This harvest should be a lesson for everyone, so that the situation is not repeated with the harvest in 2021 (note: 2021 data were not yet available at the time of publication in the first quarter of 2022). One part of the problem is that the tobacco produced was of much lower quality due to the bad weather conditions, but the other part of the problem was excess production. This situation suggests strongly that it is time for changes in the policy of growing tobacco. The surplus of tobacco likely cannot be absorbed by the market and therefore the replacement of tobacco with another crop must be considered immediately.

There must be a balance between producers and buyers, as companies are limited according to the needs of the world market and are bound by certain legal regulations. According to the calculations of purchasing companies in North Macedonia for global demand on oriental tobacco, the optimal annual production is from 20,000–25,000 tons per year²⁷. Anything above that will be a problem for buyers and producers.

What will happen in 2021?

For the 2021 harvest, tobacco is planted on 11,784 hectares and production of 22,137 tons of raw tobacco leaf is expected. A total of 27,670 contracts were concluded, 18,752 tobacco producers were registered, and there are reduced quantities of agreed-upon production (Table 5). It can be concluded that such an agreement between the tobacco growers and the purchasing companies does not solve the problem of surplus tobacco production. For the excess production of tobacco, the tobacco growers are paid a lower price and, at the same time, the state subsidizes tobacco for which there is no demand by the purchasing companies. In a sense, the state creates such distortions with its tobacco subsidy policies.

27 The future of North Macedonian tobacco is in production according to competitive standards with high quality. Chamber of Commerce of North Macedonia, <https://www.mchamber.mk/default.aspx?mid=3&evid=59699&lng=1>

Year	Number of contracts	Cultivated land (ha)	Production (tons)	Average price/kg (denari)	Subsidies (denari)
2006	29,230	17,438	25,036	118.1	4,800,244
2007	29,646	17,132	22,056	140.6	7,946,341
2008	29,827	17,064	17,087	167.4	11,799,512
2009	37,198	17,800	24,122	191.9	22,655,292
2010	40,743	20,300	30,280	136.6	25,749,268
2011	33,324	19,679	26,537	164.8	20,511,220
2012	29,090	19,639	27,333	180.2	27,310,244
2013	42,367	19,178	27,859	152.6	30,240,976
2014	34,445	17,756	27,758	117	23,623,089
2015	28,454	16 128	24 237	185	35,035,691
2016	27,380	16 376	25 443	196.80	24,518,332
2017	29,354	15 959	22 885	217.60	27,519,347
2018	33,501	16 582	25 547	214.26	27,645,836
2019	32,800	16 679	26 234	219.89	29,190,478
2020	29,932	12 114*	27 000*	158	30,000,000
2021 (preliminary data) ¹	27 670	11 784*	22 137*		

On the other hand, comparing the 2021 data with the 2019 and 2020 data, a decline can be observed in every parameter of the tobacco production system. There is a decline in the number of contracts, cultivated land in hectares, and production in tons. This leads to the conclusion that the interest in planting tobacco is decreasing and tobacco farmers have begun to recognize the need for reorientation to other crops beyond tobacco.

The Association of Tobacco Farmers is keeping up with the economic dynamics of the industry and sent an open letter to the government and to the buyers to seriously consider what the tobacco growers should do if they can no longer conclude contracts for tobacco. The Association points out the downward trend in the tobacco sector (including lower purchase prices and decreasing number of contracts) and proposes transformation of tobacco production to other crops and corresponding investment by the government²⁹

As the general manager of Tutunski Kombinat AD Prilep concluded:

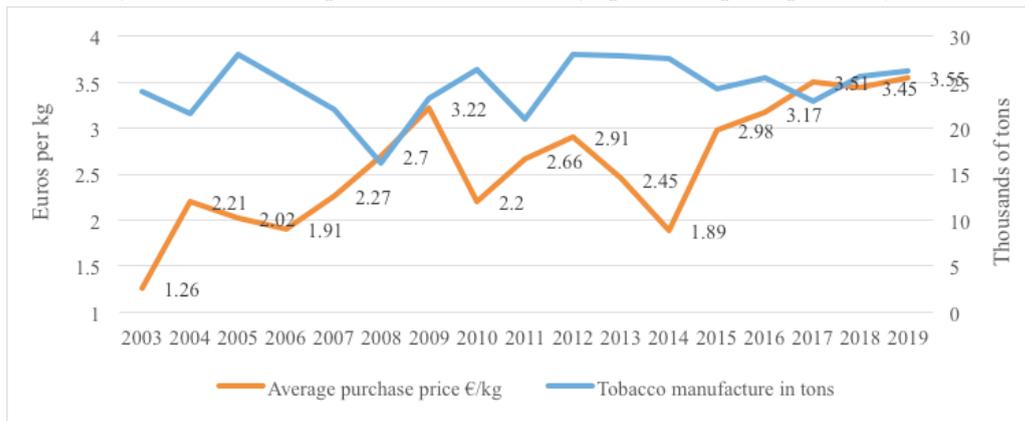
“Globally, in recent years there has been a demand for raw tobacco from 135 to 140 million euros, but it has dropped to 115 to 120 million euros, precisely for these reasons: the reduction of cigarette consumption, the use of electronic cigarettes, and the use of non-combustible types of tobacco. All these parameters should always be taken into account so that it becomes clear to all of us—that everyone should be very careful.... Those 7 to 8 million euros, instead of being spent on the purchase of surplus tobacco produced, the government should spend them on stimulating farmers to convert land areas for the production of other crops.”

²⁹ <https://kanal5.com.mk/privrshuva-otkupot-na-vishokot-tutun-i-se-bara-plan-za-novoto-proizvodstvo/a467476>

5.3 Correlation between different tobacco variables

When analyzing tobacco trends in a national economy, variables that need to be considered include tobacco production, tobacco subsidies, tobacco export and import, and tobacco purchases. Hence, to properly understand tobacco production in North Macedonia, the following variables are analyzed: subsidies for manufactured and sold raw tobacco (in euros), tobacco production (in tons), tobacco production (kilograms per hectare), purchased tobacco (in tons), purchased tobacco (dry leaf) (in thousands of denari), average purchase price (denari per kilogram), area in hectares sown, area in hectares harvested, exports (in euros), and imports (in euros). Data about purchased prices per kilogram can be seen in Figure A3 in Annex A. Presentation of the correlation matrix and more details can be found in Annex B.

Figure 15. Tobacco production and average purchase price per kilogram



Source: SSO, presented by authors

There seems to be a correlation between the purchase price of the previous year and the quantity of manufactured tobacco in the current year (Figure 15). When purchase prices decrease in the current year, the production is reduced in the following year. This contributes to the conclusion that tobacco purchase price may influence tobacco production. To examine this claim, a regression model is estimated between the tobacco production as a dependent variable and tobacco purchase price, with one time lag as an independent variable, so that the influence from the price in the previous year is captured onto the production in the current year. Since the series are not stationary, they have been previously differenced. The regression produces the following results:

$$\Delta(\text{production}) = -396.99 + 4820.73 \cdot \Delta(\text{price})$$

$$(0.67) \quad (0.01)$$

$$R = 0.63$$

Since the p-value for the estimated regression coefficient is smaller than 0.05, the null hypothesis of a nonsignificant coefficient can be rejected, meaning the coefficient of 4820.73 is significant and states that an increase in purchase price of €1 can contribute to an increase in production of 4820.73 tons. The correlation coefficient is 0.63, which is relatively high. However, these results should be interpreted with caution since the observed sample is relatively short (only 15 periods) and there are likely explanatory variables that could not be included (that is, the model is probably under-specified). The authors can only assume that the average purchase price might have some influence on the tobacco production, but that is yet to be confirmed and can be evaluated better in the future with more data.

Next, here is what people from the tobacco industry observe regarding tobacco production:

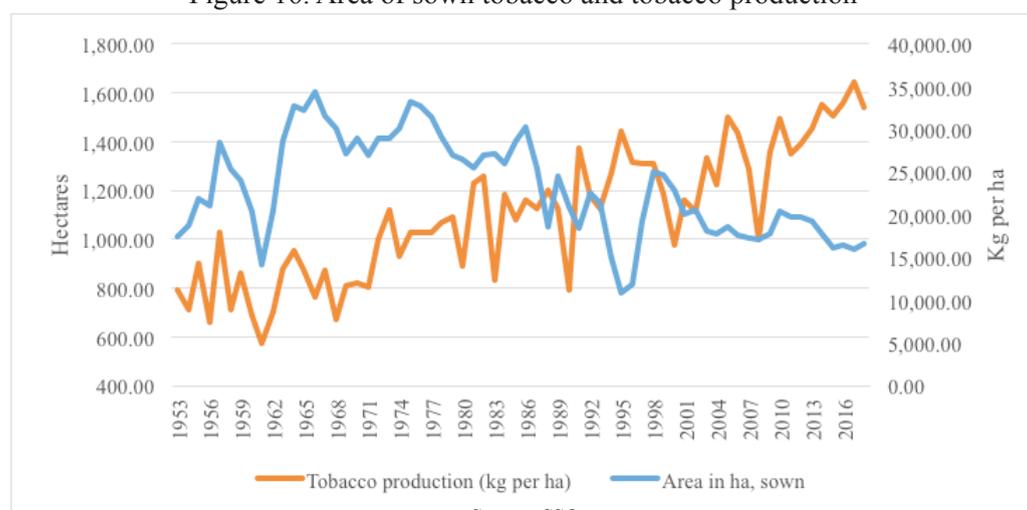
“Around 20,000 families grow tobacco.... That is approximately 80,000 people engaged in tobacco farming. The total number of farmers in the country is 441,829. This means that tobacco growers make up 18 percent of the total number of farmers.... It seems that a lot of money is directed as tobacco subsidies...but €30 million in relative terms is not a high amount.... For example, the tobacco companies’ purchase is worth €150 million.... That is a 20-percent share of subsidies in the total value of tobacco exports.... In comparison with other cultures, subsidies represent 40 percent of the purchased value (export).” – Deputy Minister for Agriculture

“The tobacco growers are given a subsidy according to economic logic. There is a high purchase price, but also the tobacco exports are high. If you want to subsidize a crop you need to have exports of that particular crop first. That is the logic behind subsidies...in order to have a development component.... For example, we do not export milk. Hence, first we need to have exports of the products/crop and then stimulate production of that products/crop.” – Independent advisor at the Economic Chamber of the Republic of North Macedonia

“The Ministry should not allow smaller quantities of tobacco than the last year to be contracted by the companies. The Ministry should 1) maintain the production volume of 23 thousand tons of tobacco, 2) increase the purchase prices of tobacco by classes by 25 percent, and 3) increase the subsidies to 90 denari per kilogram for all classes to mitigate this year’s price shock.” – Tobacco farmer from the municipality of Prilep

As presented in Figure 16, tobacco production is a tradition that has existed for decades. In the best days in the 1960s and 1970s it reached an area of more than 30,000 hectares. With demographic changes such as village-to-town migration, this area was reduced in the 1980s. With the country’s declaration of independence and the turbulent transition years in the 1990s, the area with tobacco reached its lowest point of only 10,891 hectares in 1995. There was an increase in the following years, and in 2003 it reached 18,101 hectares. Until 2019 the numbers seem to hover around this amount. When the government started to stimulate agricultural production, particularly with tobacco subsidies (significant growth marked in 2010, 2011, and 2014), tobacco farmers responded and increased their production. This motivation seemed to last for only a few years, since after the 2010–2014 increase in area sown with tobacco there has been a continuing decrease thereafter.

Figure 16. Area of sown tobacco and tobacco production



Source: SSO

6. Social, Economic, and Natural Characteristics and Conditions in the Tobacco Sector in North Macedonia

According to the Tobacco Production Strategy for the period 2021–2027³⁰ and field surveys conducted for 2,200 households engaged in tobacco production within the IPA project, Building the Foundations for Reforms in the Tobacco Sector, 2018–2020 (EUROPEAID / 138538 / IH / SER / MK), tobacco growers have a small number of employees. For instance, 41 percent of respondents have two employees (Table 6). Agricultural holdings with three employees account for 23 percent, while those with four employees represent 19 percent of the interviewees. These are followed by eight percent of agricultural holdings with one employee, six percent of agricultural holdings with five employees, and two percent of agricultural holdings with six employees.

Table 6. Number of employees

Number of employees	%
1	7.7
2	40.8
3	23.2
4	19.4
5	5.6
6	2.4
7	0.5
8	0.2
10	0.1
13	0.0
Total	100.0

Source: Tobacco Production Strategy for the period 2021–2027

Tobacco producers' demographic profiles show that most of them are adults, with 54 percent between ages 45 and 64, 20.2 percent between 35 and 44 years, and the younger generation (25–34) represents 9.8 percent. This number indicates that the younger generation is not interested in tobacco farming and is reorienting towards other professional activities.

Below are some comments regarding tobacco producers' demographic profiles:

“In more developed municipalities, tobacco production is slowly being abandoned and young people are starting to work in other jobs, while in rural, underdeveloped municipalities and areas, young people are still growing tobacco because it is their only way of earning an income. Therefore, underdeveloped areas and regions should be developed. Care must be taken to preserve agriculture, to stimulate the development of villages, because there are many workers in agriculture.” – Tobacco farmer from municipality of Prilep

30 Tobacco Production Strategy for the period 2021–2027, adopted by the Government of the Republic of North Macedonia

“Currently tobacco is profitable to grow, especially because of the subsidies that provide a clean income. But slowly, due to the different interests of the new generations, who do not want too much manual, agricultural work, and prefer ‘physical’ work abroad due to higher earnings, production is slowly moving to rural areas. Tobacco, physically tormenting in processing and production, requires many months of engagement, thus reducing the interest of the younger generations, especially in the city. Gradually, tobacco production shifted to rural areas. The young people from the city, especially in Prilep, are not attracted to tobacco production. They leave it to remain in the generational heritage, and they have new interests.” – President of Tobacco Association

Table 7. Age structure of tobacco producers

Age	%
Up to 24	2.4
25–34	9.8
35–44	20.2
45–54	27.2
55–64	27.0
65+	13.4
Total	100.0

Source: Tobacco Production Strategy for the period 2021–2027

As Table 8 illustrates, most tobacco producers have many years of experience: 28 percent have between 21 and 30 years of work experience, and 24.7 percent have between 31 and 40 years.

Table 8. Work experience of tobacco producers

Years spent in tobacco farming	%
Up to 10 years	8.8
11–20 years	19.1
21–30 years	28.0
31–40 years	24.7
41–50 years	13.4
50+ years	6.1

Source: Tobacco Production Strategy for the period 2021–2027

Regarding the form and economic size of the tobacco economy and the socio-economic characteristics of tobacco producers, it can be concluded that 43.5 percent of them have an average annual income in the range of 100 001 to 300 000 MKD, or 29.80 percent have from 300 001 to 600 000 MKD, 12.3 percent have from 600 001 to 1 000 000 MKD, 8.48 percent have up to 100 000 MKD and 4.13 percent have an average annual income that is over 1 000 000 MKD.³¹

This means that most tobacco farmers live with annual income of less than 5,000 euros, which indicates that a tobacco grower has an average monthly income of 416 euros. To compare, the average net monthly salary for April 2021³² was 463 euros and value of the minimum household consumer basket for April 2021 was 552 euros³³; according to official statistics data, a family of four needs an average of 552 euros to cover basic expenses. To conclude, the average tobacco-growing household has 136 euros less than it needs to survive the month.

31 Source: Tobacco Production Strategy for the period 2021–2027

32 State Statistical Office announcement: <https://www.stat.gov.mk/PrikaziSoopstenie.aspx?rbtxt=40>

33 Minimum household consumer basket for 2021: <https://www.ssm.org.mk/mk/ekonomija/minimalna-sindikalna-koshnica>

As shown in Table 9, agricultural holdings dedicated to tobacco production are generally small: 30 percent of households farm less than 0.49 ha of tobacco, 25.6 percent farm 1.0 to 1.99 ha, and 16 percent farm 0.7 to 0.99 ha. The evidence indicates clearly that most tobacco producers work on smaller tobacco fields.

Table 9. Structure of tobacco fields area

Structure of tobacco fields area, in hectares	%
<0.49	30
0.50–0.59	11
0.60–0.69	10
0.70–0.99	16.1
1.00–1.99	25.6
2.00–2.99	5.6
> 3.00	1.7

Source: Tobacco Production Strategy for the period 2021–2027

Table 10. Structure of annual tobacco production by tobacco producers

Value in kg.	%
0–500	9.1
501–1,000	30.1
1,001–2,000	36.5
2,001–3,000	14.6
3,001–4,000	6.2
4,001–5,000	2.2
5,001+	1.3
Total	100%

Source: Tobacco Production Strategy for the period 2021–2027

According to the amount of annual tobacco production, around two-thirds of tobacco growers produce between 500 and 2,000 kilograms of tobacco.

7. North Macedonia and the EU Common Agricultural Policy Requirements

Since North Macedonia began its accession process into the European Union in 2009 policy makers have struggled to balance EU requirements and WHO policies to reduce smoking with strong anti-smoking policies while at the same time supporting tobacco farming with high subsidies, even though subsidies directly violate the WHO Framework Convention on Tobacco Control (FCTC).³⁴ Like other Balkan countries and producers of oriental tobacco, North Macedonia struggles to comply with the requirements of the FCTC, to which North Macedonia is a Party, to reduce and reorient tobacco farming to other crops and livelihoods. The shift from tobacco production is resource intensive and requires strong political commitment and support. North Macedonia ratified the FCTC in 2006. Since 2010, the country began implementing serious anti-smoking measures. The treaty identifies the importance of supply-side reduction (that is, reducing tobacco production and availability), compelling FCTC Parties to find sustainable alternative livelihoods for those working in the tobacco supply chain (Article 17). Nevertheless, the government continues its support of tobacco farming, based on the argument of the importance of tobacco as a traditional and important export crop.

Tobacco farming has been consistently declining in the EU since 1991, when the production was 400,000 tons in eight EU tobacco-producing countries, to 140,000 tons in 2018 with 12 tobacco-producing countries. A system for restriction of tobacco production was introduced (a so-called “quota system” by countries, by quantities, and by types), and since 2010 the EU does not grant specific subsidies for raw tobacco production.³⁵

North Macedonia, as a candidate country for EU membership, will need to comply with the EU Common Agricultural Policy (CAP) and will have to consider possible exit strategies and replacement of tobacco with other crops. It is positive to note that the government’s new National Strategy for Tobacco 2021–2027 already states measures and steps for adaptation of the tobacco sector in North Macedonia to the CAP.

The European Commission has already adopted several approaches to different groups of countries in terms of tobacco production and raw tobacco procurement. Since the last CAP reform in 2013, national complementary direct payments have turned into transitional national financial support. For these reasons, North Macedonia needs to update the road map for harmonization of the support system of the tobacco production sector with that of the EU CAP. In the Strategy, the government elaborates two approaches for a gradual replacement of the direct payments to tobacco farmers per kilogram of produced tobacco with indirect or decoupled payments in the future, after joining the EU. The measures should achieve the strategic goal of support of the income of tobacco holdings.

1. The first approach assumes additional national payments as a percentage of the financial package for direct payments, complementing the percentage of the given year with national participation of 30–100 percent. These additional national payments could partly be financed by the rural development funds for up to 20 percent of the annual allocation for rural development for the first three years. The assistance is not related to the produced quantities.

³⁴ Lazarevik et al., 2012

³⁵ Strategy for Tobacco Production 2021–2027

2. The second approach assumes a “sunset clause,” where the new member state is allowed to maintain the complete state aid applied during the negotiation period for three years after joining the EU and implement the above measures after the three-year period.

Thereafter, a reduction in tobacco production can be expected because of full implementation of EU regulations.

Likewise, the Strategy clearly states measures and activities for support and stimulation of the diversification of the tobacco crop with other crops. What is important to note is that, according to the field survey of 2,205 agricultural holdings (tobacco and mixed),³⁶ 30 percent of the interviewed producers are ready to diversify their production according to the requirements that may arise during the EU accession process. This percentage is significant and can be increased if the government works on educating and informing the tobacco producers in North Macedonia about the need for preparations in case of such requests.

Due to this reason, the agriculture ministry and other relevant institutions should work on thorough analyses to identify the crops that accumulate high values and that could replace tobacco. But first, the government needs to reduce or shift some part of the tobacco subsidies in order to substitute tobacco with other crops. This will decrease the demand for tobacco subsidies and will free up funds for cultivation of other viable alternative crops. Therefore, it is inevitable for North Macedonia to start thinking about structural changes and adjustments in the agricultural sector as well as in the program for financing agricultural development.

7.1 Alternatives to tobacco cultivation – Does North Macedonia have a way out?

In the National Tobacco Strategy 2021–2027, the Ministry of Agriculture states that an analysis shows that peppers are a good alternative to tobacco. Peppers are good because they are supported and subsidized, and the pepper market is relatively well developed. At the same time, according to results of research activities in Bulgaria, sesame and tobacco also have similar requirements including heat, sunlight, moisture, and nutrients in the soil in the flat region of the country up to 500 meters above sea level.³⁷ According to the analysis, growing tobacco without state subsidies is not an economically viable crop compared to sesame. Also, the period of work engagement in tobacco production lasts seven months, while for sesame the work engagement is only three months, which gives farmers time to pursue other economic activities. Preliminary evaluation of tobacco alternatives conducted in the area of Tumpa (northern Greece) shows that the most profitable alternatives for farmers are fruit trees (pomegranate, pears, cherries, and plums) and aromatic plants (basil, mint, chamomile, mountain tea, and lavender). The production of echinacea requires equipment that is commonly available in the tobacco industry, including cultivators, planters, and flatbed wagons. Echinacea has been successful in the herbal medicine market as a booster of the immune system.

Though there appear to be options for tobacco farmers, some stakeholders are skeptical and believe that conditions need to be improved to facilitate change:

36 Survey conducted within the project “Building the foundations for tobacco sector reform (EUROPEAID / 138538 / IH / SER / MK)”.

37 Growing of sesame as an alternative crop on the tobacco in Bulgaria S. Georgiev*, S. Stamatov*, M. Dechev*, S. Ishpekov** *Institute of Plant Genetic Resources “K. Maikov”, Sadovo, Bulgaria **Agricultural University, Plovdiv, Bulgaria

“There is currently an option to reorient towards the production of hazelnuts with SOKOTAB, one of the tobacco buyers who also produces hazelnuts together with Ferrero. They would provide placement, a 10-year contract, seedlings, but there is no interest. ... Tobacco is a tradition. It has been grown for decades, five generations. The mindset should be changed. They cannot do this easily; it is very difficult to get rid of habits, especially for planting tobacco. This is an annual crop. It gives them security. For the hazelnut they have to wait for five years. They do not want to. ... There have been many such attempts. Many international companies have approached with offers, but nothing has been accepted.” – Director of the Agency for Financial Support of Agriculture and Rural Development

“The land has no conditions for growing other crops, no irrigation systems, only conditions for growing fodder, cereals, and tobacco. The government should make an irrigation system and then think about growing other crops. One tobacco producer has been producing tobacco for 50 years, and it is therefore very difficult to divert it to another production.” – President of the Association of Farmers and Tobacco Producers

“Tobacco farmers cannot easily be reoriented to another production.... The government should find a solution for these tobacco farmers who will remain without contracts to work something...an appeal to all tobacco farmers to reduce the quantities that are without a contract.... Surplus of tobacco will be bought without subsidies.... The tobacco farmers need to reorient...but the government should help.... It should also be a subsidy; there should be a guarantee for prices and purchase.” – Tobacco farmer from municipality of Prilep

8. Conclusion and Recommendations

Assessing the effects of subsidies is a complicated task because climate conditions highly affect agricultural output. Due to the somewhat uneven nature of the sector, it responds much more slowly to new policies compared to other sectors, and external factors such as economic crises further complicate such assessments. For these reasons, the effects need to be evaluated over longer periods of time (time series data), perhaps decades. An additional problem is that North Macedonia has not conducted a population census since 2002, which makes it difficult to quantify migration. Regular statistics on farmers' incomes and investments in agriculture are insufficiently accurate to estimate the effects of subsidies. Therefore one of the more meaningful assessments could be the trade deficit with agricultural products. This analysis shows a large trade deficit in the food sector. From 2008–2019 the trade deficit of food was increasing—that is, the country imports much more food than it exports, including many foods that it produces. The goal of subsidies was to support the agricultural sector, meaning that ideally overall production should have increased, the trade deficit should have been reduced, and rural emigration slowed. However, the precise opposite has occurred: production of most agricultural goods decreased including tobacco, the trade deficit in the agriculture sector worsened mostly because of the need to import food (especially higher-value processed foods), and migration to the cities from the countryside increased. Clearly, North Macedonia urgently needs more thorough analysis based on good data to make reforms of existing policies to engender economic growth and improved livelihoods.

The need for reforms in the agricultural sector is important because North Macedonian agriculture creates about 10 percent of GDP, employs more than 15 percent of the working population, and agricultural subsidies continue to consume a substantial two percent of GDP with no obvious positive returns for the economy.

The following conclusions capture the crucial points of this research:

- **The government justifies the amount allocated for tobacco subsidies mainly by the large number of families whose main income comes from tobacco production.** In a way, the government is “buying” social peace because most tobacco producers are directly dependent on government subsidies, but in the medium and long term it is unlikely that this will be economically sustainable for the government.
- **Subsidies often generate market distortions by “blurring” market signals.** Farmers often decide to grow crops only because of the subsidies and, as a result, more tobacco is produced than can be absorbed by the market, costing the government even more money, driving down prices, and undermining the livelihoods of the farmers.
- Though tobacco production has remained relatively stable due to the subsidies, since 2009 there has been an increase in imports of agricultural products instead of an increase in domestic production of agricultural products, suggesting that **tobacco farming is displacing production of other agricultural goods that are now imported at high cost.**
- Since 2010, **cultivated land in hectares and the number of signed contracts with tobacco buyers have been decreasing, suggesting a natural shift away from tobacco despite the large subsidies.**

- **Tobacco farmers live with average monthly income below the average net monthly salary³⁸ and below the value of the minimum household consumer basket.**
- **Global demand for cigarettes is declining, which is already leading to decreases in demand for tobacco and prices.** North Macedonia is not an exception to these global trends, will be affected directly by them, and must adjust soon to avoid even more economic decline.

To improve the situation in the agricultural sector and the position of the farmers, especially tobacco farmers, this report provides the following recommendations:

- **To increase the effect of subsidies, it is necessary for them to be conditional and purposeful.** The logical near-future transformation is to reorganize the land from tobacco growing to food growing and to reallocate tobacco subsidies to subsidize this transition and to help develop the closely related food-processing sector. These changes will decrease food imports, likely increase exports, and improve the trade deficit.
- **More generally, agriculture subsidies must emphasize long-term investment in the sector** that contributes to increased productivity and efficiency.
- **The government needs to implement a thorough mapping of tobacco farmers to distinguish professional agriculture from farmers who only have short-term goals of taking advantage of subsidies for that crop.** It is easier to begin the transition with casual or new tobacco growers who are more likely open to shifting than those who grow larger quantities or have done so for many years.
- **Focus initial tobacco alternatives efforts according to the level of urbanization of regions.** In regions with better infrastructure, it may be possible to consider reducing tobacco production more quickly because there are more choices about where to sell their other crops and/or to work. This is especially important because, in regions where there is good infrastructure, parents will not have to worry about where they will leave their children and will have more flexibility to work in different jobs because the children will be in state-funded kindergarten.
- **North Macedonia, as a candidate country for EU membership, will need to comply with the EU Common Agricultural Policy (CAP),** which includes a gradual transition to direct support based on farmed hectares, not crop quantity. Proponents of reform need to remind the government and other stakeholders of this broader commitment to help speed up change.
- The new National Strategy for Tobacco 2021–2027 outlines several approaches for possible exit strategies and replacement of tobacco with other crops (such as peppers or hazelnuts).

38 State Statistical Office announcement, <https://www.stat.gov.mk/PrikaziSooopstenie.aspx?rbtxt=40>

Annex A

Table A1. Agricultural area 2005–2019 (in hectares)

Year	Agricultural area	Total arable area	Plows and gardens	Orchards	Vineyards	Meadows	Pastures
2005	1,229,150	545,514	447,562	13,368	26,023	58,561	682,771
2006	1,225,513	537,419	438,925	12,991	25,239	60,264	687,324
2007	1,077,235	526,477	431,608	13,400	22,665	58,804	549,860
2008	1,064,389	521,193	423,647	13,916	22,401	61,229	542,478
2009	1,014,410	513,234	420,163	14,266	20,606	58,199	500,468
2010	1,120,584	508,697	415,008	13,932	20,669	59,088	611,183
2011	1,120,213	511,316	414,829	14,469	20,695	61,323	608,176
2012	1,267,869	510,407	414,075	14,622	21,269	60,441	756,558
2013	1,260,336	508,546	412,972	15,212	21,497	58,865	751,187
2014	1,263,155	511,579	413,249	15,309	23,061	59,960	751,086
2015	1,264,408	513,564	415,004	15,856	23,240	59,464	750,359
2016	1,267,134	516,644	417,456	16,138	23,613	59,437	749,772
2017	1,266,008	516,870	416,709	16,546	23,703	59,912	748,413
2018	1,264,139	518,740	418,140	16,827	24,088	59,685	744,667
2019	1,264,578	519,848	418,823	16,784	24,468	59,773	743,991

Source. State Statistical Office

Table A2. Number of employees in agriculture, forestry, and fisheries and how many of them work in crop and animal production

Year	Agriculture, forestry, and fisheries	Crop and animal production, hunting, and related service activities
2010	12176	81.23
2011	12394	78.54
2012	12348	80.10
2013	12649	80.07
2014	11561	77.73
2015	11133	73.99
2016	11665	73.80
2017	11725	75.27
2018	13287	77.57
2019	13744	76.32

Source. State Statistical Office

Table A3. Gross value added created in the sectors: Agriculture, forestry, and fisheries; Manufacturing industry; Real estate activities; other activities 2006–2018 - relative share in the total gross value added

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture, forestry, and fisheries	10.34	10.36	13.29	12.00	11.73	10.87	10.53	11.52	11.72	11.13	10.58	9.08	9.75
Manufacturing industry	11.75	11.84	11.35	10.21	11.44	13.26	11.84	11.39	12.61	13.46	14.18	14.54	15.37
Real estate activities	15.06	16.26	15.16	14.59	14.95	14.19	14.83	13.80	13.08	12.60	11.57	11.09	11.53
Other sectors	48.61	48.29	47.98	50.24	49.17	47.11	48.83	47.69	47.15	47.70	48.09	48.68	46.54

Source. State Statistical Office

Table A4. Export and import of agricultural products for the period 2008–2019 (in 1000 euros)

Year	Export (value)	Import (value)	Export - Import
2008	542780	748727	-205947
2009	436546	661919	-225373
2010	548140	680189	-132049
2011	641221	831226	-190005
2012	606782	844771	-237989
2013	662281	838847	-176566
2014	639154	822747	-183593
2015	536743	742508	-205765
2016	585194	762360	-177166
2017	554216	816830	-262614
2018	580380	886318	-305938
2019	603216	887071	-283855

Source. State Statistical Office

Table A4.a Export and import according to SITC sectors, (2019–2020)

Category	Quantity/ Value	2020		2019	
		export	import	export	import
Total	Quantity in KG	3328651713	6954899473	3729554000	7123773139
	Value in USD	6633216176	8709485230	7198301793	9445774462
	Value in euros	5777904850	7594537083	6433299757	8441048766
Food and live animals	Quantity in KG	452601755	800711787	508236617	745450601
	Value in USD	415640410	757852248	411010254	751075011
	Value in euros	363231925	664543070	367515225	671234189
Beverages and tobacco	Quantity in KG	138068662	83070565	160729648	92049358
	Value in USD	221742270	78898158	245075701	93165666
	Value in euros	193695356	69223540	219039795	83135606
Crude materials, inedible, except fuels	Quantity in KG	791911094	1877060935	995765407	1898288950
	Value in USD	324950339	252012978	371630130	272924983
	Value in euros	283863455	220478295	332139825	244102406
Mineral fuels, lubricants, and related materials	Quantity in KG	112768565	1544438874	186488483	1693170650

Source. State Statistical Office

Table A5. Tobacco, unmanufactured export, import 2008–2019 (in tons and euros)

Year	Export – quantity	Import - quantity	Export - value (1000 euros)	Import - value (1000 euros)
2008	19739	4168	80935	9696.06
2009	16112	2893	73121.34	8019.46
2010	16839	4459	79225.16	12859.19
2011	21849	4397	98002.25	15638.86
2012	22954	5356	100712.2	19225.29
2013	25864	5437	127193.35	17355.3
2014	23996	3010	106137.08	8514.14
2015	22775	2998	79560.48	10336.82
2016	27692	5946	98039.6	19060.95
2017	27622	4803	118300.73	15716.05
2018	23327	4704	114387.28	17934.64
2019	24898	3664	118994.61	12749.63

Source. State Statistical Office

Table A6. Yields comparison on agriculture crops

Year	Almonds, with shell	Anise, badian, fennel, coriander	Apples	Apricots	Asparagus	Barley	Beans, dry	Beans, green	Cabbages and other brassicas	Carrots and turnips
2009	15223	10755	88986	90769	22222	30104	13462	9187	249955	102584
2010	15128	10805	88925	88378	23333	29511	13462	9085	317693	92055
2011	15059	10833	94616	86536	23033	31514	13462	9586	308076	104933
2012	14956	11034	94446	87778	23333	22014	13462	7952	267633	82779
2013	14882	10875	94691	88969	23707	29936	13462	8423	272818	72634
2014	15116	10893	87327	92751	24000	37188	12851	9855	279366	102901
2015	15382	10902	88623	94622	24371	24703	12887	9838	317698	91603
2016	15308	10920	91095	91825	24589	35071	12096	9521	319798	103590
2017	15272	11024	91067	92622	24906	21377	11604	7561	316032	79195
2018	15266	10968	91054	93397	25171	30717	11108	9334	301692	124229
2019	15269	10984	91031	94401	25480	31509	10614	8313	294260	98686
Year	Cherries	Chestnut	Chick-peas	Chilies and peppers, dry	Cucumbers and gherkins	Grapes	Corn	Millet	Oats	Potatoes
2009	11393	16667	12284	45120	307135	126982	47054	14000	18195	149105
2010	11269	17203	12500	45284	368365	126477	44778	15000	20077	155110
2011	11240	17699	12931	45449	395865	116596	42704	14412	18813	141647
2012	11213	20000	13415	45671	404302	114789	39554	15000	14889	128731
2013	11184	18194	13415	45835	303660	138365	42269	15000	18752	139459
2014	8292	17021	13229	46744	397157	86196	44898	14286	20999	149372
2015	7110	15525	12919	46650	534213	141709	42143	12857	18410	140169
2016	7704	14113	13040	45879	508254	143722	46266	11515	21103	146473
2017	7318	14187	13040	45947	497894	77079	38437	10857	15874	133188
2018	6933	14254	13068	46015	525280	124418	51456	10556	20434	143354
2019	6546	14333	13097	46129	492461	107918	42702	10556	18448	143588
Year	Rye	Soy-beans	Spinach	Sunflower seed	Tobacco, unmanufactured	Tomatoes	Wheat	Rice, paddy	Cauliflower and broccoli	
2009	24558	16271	135556	18787	13552	253699	30756	63686	128065	
2010	24652	22843	150000	18843	14916	296575	30443	62303	125000	
2011	23638	15909	141111	14938	13485	294109	33458	59920	125000	
2012	19347	21596	120000	12700	13918	259740	26956	52322	104000	
2013	23677	24433	130000	15590	14527	239985	31978	59916	120000	
2014	27363	12314	145556	18130	15532	280647	37550	58949	113864	
2015	20615	16667	131000	15336	15028	307398	27541	61238	111250	
2016	22775	10000	142222	16083	15537	288992	38385	49190	107059	
2017	20704	12593	143333	15361	14340	285369	27464	52169	102727	
2018	24450	16341	129000	14403	15406	290215	33965	61241	100517	
2019	22652	17172	130000	14200	15729	277148	34848	61126	97097	

Source. State Statistical Office

Table A7. Yields comparison on agriculture crops

Year	Millet	Oats	Corn	Rye	Soybeans	Sunflower seed	Tobacco, unmanufactured	Wheat	Rice, paddy
2009	14000	18195	47054	24558	16271	18787	13552	30756	63686
2010	15000	20077	44778	24652	22843	18843	14916	30443	62303
2011	14412	18813	42704	23638	15909	14938	13485	33458	59920
2012	15000	14889	39554	19347	21596	12700	13918	26956	52322
2013	15000	18752	42269	23677	24433	15590	14527	31978	59916
2014	14286	20999	44898	27363	12314	18130	15532	37550	58949
2015	12857	18410	42143	20615	16667	15336	15028	27541	61238
2016	11515	21103	46266	22775	10000	16083	15537	38385	49190
2017	10857	15874	38437	20704	12593	15361	14340	27464	52169
2018	10556	20434	51456	24450	16341	14403	15406	33965	61241
2019	10556	18448	42702	22652	17172	14200	15729	34848	61126

Source. State Statistical Office

Table A8. Tobacco areas, total production, and production per hectare of tobacco in North Macedonia in the period 2000–2019

Year	Area, in hectares, sown	Area, in hectares, harvested	Production, total, in tons	Production, kg, per hectare
2000	22,785	22,785	22,175	973
2001	20,310	20,074	23,217	1,157
2002	20,538	20,538	22,911	1,116
2003	18,101	18,088	23,986	1,332
2004	17,717	17,716	23,630	1,221
2005	18,490	18,488	27,691	1,498
2006	17,507	17,438	25,036	1,436
2007	17,183	17,132	22,056	1,287
2008	17,064	17,064	17,087	1,001
2009	17,809	17,800	24,122	1,355
2010	20,300	20,300	30,280	1,492
2011	19,693	19,679	26,537	1,348
2012	19,656	19,639	27,333	1,392
2013	19,178	19,178	27,859	1,453
2014	17,757	17,756	27,758	1,553
2015	16,128	16,128	24,237	1,503
2016	16,379	16,376	25,443	1,554
2017	15,961	15,959	22,885	1,434
2018	16,582	16,582	25,547	1,541
2019	16,719	16,679	26,234	1,573

Source. State Statistical Office

Table A9. Harvested area according to type of agricultural crop for the period 2006–2019
(in hectares)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Wheat	97458	90800	85454	88151	79865	76545	79745	80980	76686	73060	79832	72864	70987	68847
Rye	3928	4036	3923	3701	3590	3510	3767	3758	4167	3758	4483	4065	3836	3809
Barley	47881	47712	47351	48622	42802	41096	41057	41944	41157	41160	41297	43816	42331	43941
Oatmeal	2139	2554	2852	2726	2729	2443	2618	2781	2873	3070	3607	3415	3591	3640
Corn	31724	30859	31013	32466	28623	29369	29180	31028	30461	31651	31045	31287	36340	33967
Rice	2524	2504	2586	3120	4125	4500	4656	4660	5174	4985	5040	3274	3222	3481
Tobacco	17438	17132	17064	17800	20300	19679	19639	19178	17756	16128	16376	15959	16582	16679
Sunflower	3713	3505	4647	4138	4029	5688	3752	2458	5112	5542	3896	4022	2346	4605
Potatoes	13357	13799	13554	13527	13037	13454	13204	13474	13174	13360	13273	13188	12403	12939
Onions	3029	3131	3182	3361	3554	3488	3527	3490	3587	3606	3581	3633	3627	3562
garlic	964	1013	1003	1060	996	947	936	920	930	980	978	947	950	904
Beans	5261	4864	4798	4925	4612	4557	4726	4607	4833	4783	4817	4703	4577	4504
Pea-grain	895	901	963	1060	1568	1051	1106	1030	1137	1069	1008	1062	1045	1105
lentil	103	102	96	82	72	68	74	82	80	84	84	86	81	74
Cabbage	3132	3236	3362	3638	3706	3766	3734	4482	4366	4800	4593	4499	4502	4627
Tomatoes	5642	5368	5319	5731	5665	5632	5614	5457	5720	5642	5604	5597	5569	5497
Peppers	8313	8331	8199	8438	8474	8465	8626	8501	8522	8617	8751	8927	9179	9390
Cucumbers	1430	1478	1392	1351	1266	1260	1239	1213	1217	1251	1048	1035	1034	1036
Watermelon	6466	6152	6211	5977	5732	5800	5691	5586	5685	5509	5445	5385	5281	5132
Clover	3618	2911	2920	3011	3046	3275	3305	3392	3583	3544	3725	3716	3685	3922
Alfalfa	18114	19369	18808	19573	19408	19111	19224	19350	19678	19301	19579	19487	19698	19455
Граоп	2399	2418	2456	2557	2447	2339	2168	2173	2201	2034	1922	2180	2065	2018
Live peas	1418	1312	1308	1729	1829	1317	1625	1526	1406	1472	1253	1640	1428	1639
Corn	2241	2627	1825	2249	2487	2314	2249	2814	3554	5125	6378	6384	6196	8231
Livestock beet	435	420	479	561	513	543	418	404	378	386	387	382	376	475

Source. State Statistical Office

Table A10. Tobacco production in selected countries in the region for the period 2006–2019 (in tons)

Year	Albania	BIH	Bulgaria	Croatia	Greece	Montenegro	N. Macedonia	Serbia
2006	2000	3916	41956	10851	37405	431	25036	10808
2007	900	3265	41130	12639	29359	358	22056	11136
2008	1300	3098	42424	12866	27062	324	17087	10839
2009	1600	2424	51322	13348	26776	272	24122	9847
2010	1700	1854	41056	8491	29948	270	30280	10440
2011	1900	1835	40607	10643	32043	258	26537	10437
2012	2000	1494	28060	11787	34250	226	27333	6842
2013	2900	1812	36446	9834	40613	250	27859	7977
2014	3000	1812	29996	9164	40940	245	27578	9341
2015	2200	2196	23480	10132	37031	240	24237	8776
2016	1980	2315	15211	8977	37865	240	25443	7810
2017	1358	1760	13040	9413	32712	240	22885	7173
2018	1693	2715	8640	7560	22730	238	25547	7169
2019	1403	1433	6480	7880	22530	228	26234	7992

Source. State Statistical Office

Table A11. Tobacco production in selected countries in the region and the world for the period 2006–2019 (in tons)

Year	Albania	BIH	Bulgaria	Croatia	Greece	Montenegro	N. Macedonia	Serbia	Brazil	China	Turkey	EU (28)	India	World
2006	2000	3916	41956	10851	37405	431	25036	10808	900381	2746193	98137	290933	552200	6542278
2007	900	3265	41130	12639	29359	358	22056	11136	908679	2397152	74584	295390	520000	6165555
2008	1300	3098	42424	12866	27062	324	17087	10839	851058	2839947	93403	285471	490000	6647501
2009	1600	2424	51322	13348	26776	272	24122	9847	863079	3067928	81053	299504	622830	7164720
2010	1700	1854	41056	8491	29948	270	30280	10440	787817	3005928	53018	274622	690000	6983628
2011	1900	1835	40607	10643	32043	258	26537	10437	951933	3158737	45435	256345	830000	7518469
2012	2000	1494	28060	11787	34250	226	27333	6842	810550	3408142	73285	224037	820000	7593914
2013	2900	1812	36446	9834	40613	250	27859	7977	850673	3375400	93158	225868	765154	7606700
2014	3000	1812	29996	9164	40940	245	27578	9341	862396	2997050	74696	226272	719420	7294672
2015	2200	2196	23480	10132	37031	240	24237	8776	867355	2678604	75000	204920	738029	6826519
2016	1980	2315	15211	8977	37865	240	25443	7810	677472	2575371	74238	196230	759594	6388495
2017	1358	1760	13040	9413	32712	240	22885	7173	865620	2392335	93666	197230	773158	6442917
2018	1693	2715	8640	7560	22730	238	25547	7169	756232	2242070	75276	162540	788301	6238723
2019	1403	1433	6480	7880	22530	228	26234	7992	769801	2611610	70000	148020	804454	6685611

Source. State Statistical Office

Table A12. Share of direct payments in agriculture in GDP and in total expenditures from the Central Budget 2008-2019 (percent)

Year	Share of total direct payments in GDP (percent)	Share of total direct payments in total expenditures from the central budget (percent)
2008	0.52	1.55
2009	0.90	2.69
2010	1.24	3.80
2011	1.25	3.90
2012	1.11	3.32
2013	1.10	3.47
2014	1.09	3.42
2015	1.04	3.20
2016	0.98	3.15
2017	1.03	3.23
2018	0.96	3.18
2019	0.95	3.03
2020	0.24	

Source: Ministry of Agriculture, Forestry and Water Economy

Table A13. Subsidies for crop and livestock production (euros)

Year	Crop production	Livestock production
2008	16,615,059.47	18,761,106.32
2009	36,311,122.87	24,664,610.94
2010	57,668,504.21	30,453,962.94
2011	64,159,852.31	30,000,507.87
2012	55,135,717.66	29,076,032.11
2013	59,001,909.80	30,972,938.52
2014	61,737,710.00	31,836,384.78
2015	58,674,806.67	35,455,699.90
2016	56,829,558.85	38,193,132.76
2017	66,411,773.04	36,853,408.05
2018	66,883,517.02	36,513,003.71
2019	71,255,943.76	35,761,676.10
2020	25,385,413.12	817,837.40

Source: Ministry of Agriculture, Forestry and Water Economy

Table A14. Share of direct payments for crop production and direct payments for livestock production in total direct payments

Year	Crop production subsidies (percent)	Livestock production subsidies (percent)
2008	46.97	53.03
2009	59.55	40.45
2010	65.44	34.56
2011	68.14	31.86
2012	65.47	34.53
2013	65.58	34.42
2014	65.98	34.02
2015	62.33	37.67
2016	59.81	40.19
2017	64.31	35.69
2018	64.69	35.31
2019	66.58	33.42
2020	96.88	3.12

Source: Ministry of Agriculture, Forestry and Water Economy

Table A15. Share of direct payments by individual crops in the total direct payments for crop production

Year	Tobacco	Horticultural crops	Orchards	Vineyards	Tomatoes, peppers, and cucumbers
2008	48.07	0.00	3.79	6.54	0
2009	32.50	1.06	5.35	9.01	0.90
2010	39.27	5.67	4.57	16.40	0.58
2011	40.12	6.66	8.95	13.73	1.25
2012	37.14	7.66	7.60	16.31	0.49
2013	46.25	6.63	6.93	15.00	0.21
2014	49.37	6.67	6.55	14.21	0.23
2015	41.30	10.16	7.95	15.82	0.11
2016	32.41	12.54	9.39	16.36	0.09
2017	36.95	11.76	9.30	18.98	0.10
2018	41.34	10.99	9.26	17.27	0.12
2019	40.99	11.20	9.57	14.43	0.06

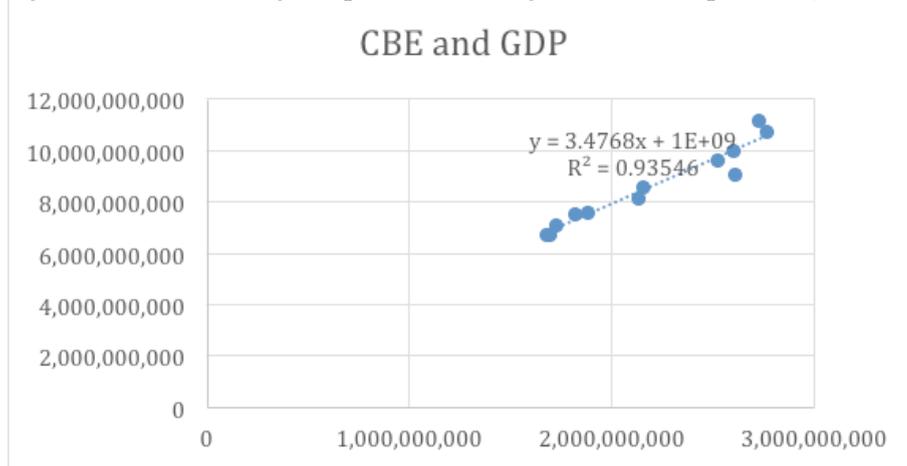
Source: Ministry of Agriculture, Forestry and Water Economy

Table A16. Share of direct payments by individual crops in the total direct payments for livestock production

Year	Produced and delivered cow's, sheep's, and goat's milk	Marked sheep
2008	43.89	23.83
2009	19.34	39.40
2010	18.11	38.30
2011	24.27	35.22
2012	24.07	37.87
2013	24.09	34.44
2014	25.68	34.08
2015	24.29	31.30
2016	24.86	30.32
2017	23.97	31.43
2018	21.48	31.72
2019	22.18	30.70

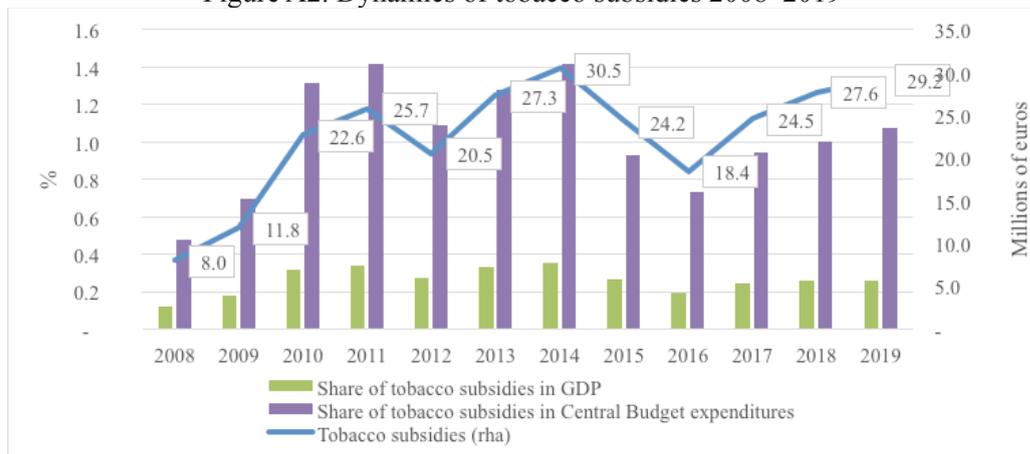
Source: Ministry of Agriculture, Forestry and Water Economy

Figure A1. Central budget expenditures and gross domestic product (in euros)



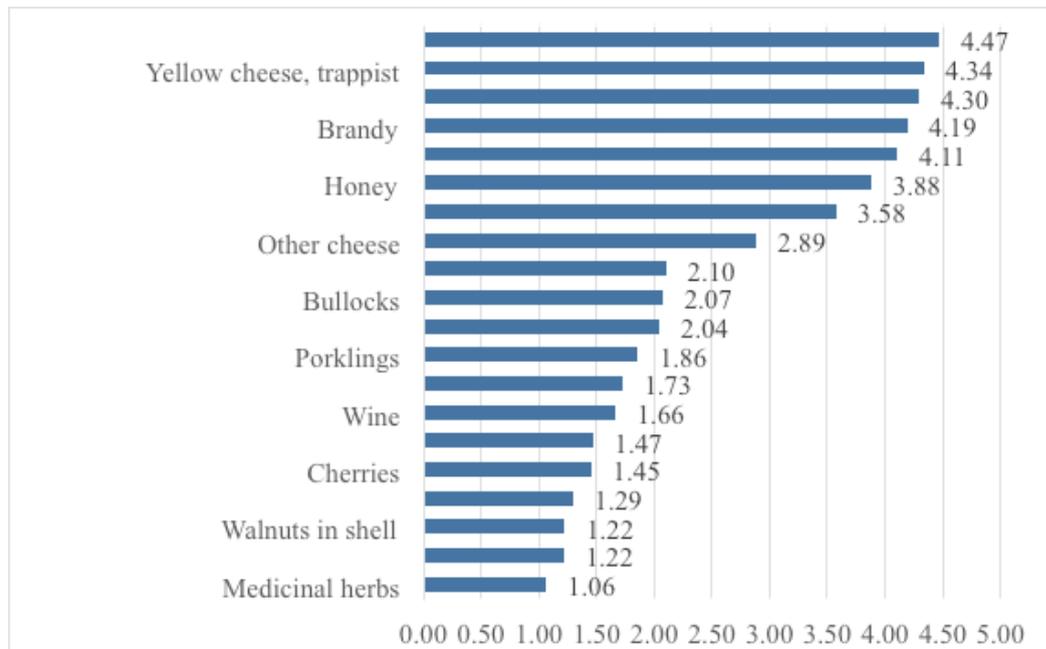
Source: Ministry of Finance of RNM

Figure A2. Dynamics of tobacco subsidies 2008–2019



Source: AFSARD, Ministry of finance, authors' calculations

Figure A3. Purchase price per kg/liter (in euros)



Source: State Statistical Office, presented by authors

Table A17. Review of total crop subsidies, total expenditures of the central budget, and gross domestic product at market prices in the Republic of North Macedonia for period 2008–2019, in millions of euros

INDICATOR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total expenditures of the Central Budget (planned)	1,834	1,834	1,829	1,970	1,975	2,279	2,272	2,739	2,701	2,729	2,914	2,880
Total expenditures of the Central Budget (realized)	1,664	1,676	1,707	1,800	1,862	2,114	2,133	2,587	2,496	2,578	2,739	2,703
GDP at market prices, Current prices, euros	6,772	6,767	7,108	7,544	7,585	8,150	8,562	9,072	9,657	10,038	10,744	11,209
Subsidies for manufactured and sold raw tobacco harvested previous year	7.878	11.704	22.464	25.536	20.314	27.070	30.232	24.040	18.272	24.341	27.426	28.973
Subsidies for arable agricultural area for maintenance of existing vineyards	0	0	8.477	8.186	8.476	8.777	8.702	9.207	9.223	12.505	11.455	10.199
Subsidies for arable area for all field crops except tobacco	0	0	11.743	11.606	11.384	11.071	11.549	10.414	13.239	12.447	9.408	9.764
Subsidies for arable area for maintenance of existing orchards	0	0	1.028	2.894	3.059	4.055	4.011	4.625	5.295	6.127	6.144	6.766
Subsidies for arable area for garden crops and flowers in the open and in the greenhouses	0	0	0	3.873	3.407	3.135	3.072	3.965	4.694	5.478	4.966	4.390
Subsidies for manufactured and sold grapes	4.606	6.180	2.218	2.396	2.870	0	0	0	0	0	0	2.514
Subsidies for garden crops delivered for further processing	0	0	0.293	0.366	0.783	0.745	1.011	1.947	2.377	2.268	2.323	3.524
Subsidies for manufacture of domestic certified seeds from the first and second generation of crop cultures, industrial cultures, fodder cultures, and greenhouse cultures	7.325	0.552	0.764	0.503	0.216	0.345	0.238	0.383	0.340	0.254	0.246	0.447
Subsidies for sown areas with autumn crop cultures (wheat and barley)	0	9.134	0	0	0	0	0	0	0	0	0	0
Subsidies for raising new orchard	0.569	1.806	1.585	2.802	1.096	0	0	0	0	0	0	0
Subsidies for fruit crops delivered for further processing	0	0	0	0	0.317	0.456	0.621	0.975	1.150	0.664	2.051	0.219
Subsidies for reduction of vine stocks and support for grape purchase	0	0	2.392	3.092	0	0	0	0	0	0	0	0
Subsidies for arable agricultural area with sunflower, rice, and poppy	0	0	0	0.460	0.505	1.037	0.261	1.321	0.062	0.186	0.784	0.089
Subsidies for arable agricultural area with fodder	0	0	0	0	0	0.619	0.735	0.888	0.974	1.078	0.320	0
Subsidies for raising new vineyard	1.077	1.481	0.902	0.553	0.446	0	0	0	0	0	0	0
Subsidies for domestic vine graft and fruit seeds	0.007	0.070	0.166	0.144	0.393	0.266	0.227	0.230	0.221	0.316	0.365	0.618

Subsidies for arable agricultural area for garden crops	0	0	2.950	0	0	0	0	0	0	0	0	0
Subsidies for greenhouse production (tomatoes, peppers, cucumbers, and cut flowers)	0.242	0.325	0.333	0.798	0.268	0.122	0.139	0.064	0.050	0.063	0.078	0.043
Subsidies for small agricultural economies defined by historical payments in the last 3 years	0	0	0	0	0	0	0	0	0	0	0	0
Subsidies for manufactured and sold apples	0	0	0	0	0	0	0	0	0	0	0	2.394
Subsidies for partial compensation of the diesel fuel expenses for crop production	2.238	0	0	0	0	0	0	0	0	0	0	0
Subsidies for sown areas with certified seed material	0	0	0	0	0.966	0.441	0.413	0	0	0	0	0
Subsidies for area under vineyards	0	1.762	0	0	0	0	0	0	0	0	0	0
Subsidies for area under spring crop cultures, industrial crops, and autumn crop cultures	0	1.709	0	0	0	0	0	0	0	0	0	0
Subsidies for maintenance of area with existing apple orchards	0	0	1.475	0	0	0	0	0	0	0	0	0
Subsidies for sown areas with crop cultures with certified seed material	0	0.390	0.314	0.432	0	0	0	0	0	0	0	0
Subsidies for production of raw rice	0	0	0	0	0.191	0.362	0	0	0.246	0	0	0.125
Subsidies for area under fodder crops	0.324	0.372	0	0	0	0	0	0	0	0	0	0
Subsidies for production of young flowers in invitro conditions	0	0	0	0	0	0	0	0.099	0.099	0.099	0	0.198
Subsidies for horticultures in the open and in the greenhouses and cultivated production of medicinal plants, aromatic plants, and herbs	0.038	0.372	0	0	0	0	0	0	0	0	0	0
Subsidies for purchased domestically produced wheat	0	0	0	0	0	0	0	0	0	0	0.410	0
Subsidies for production of pre-primary and primary seed material for crop cultures	0	0	0	0	0	0.026	0.030	0.043	0.094	0.044	0.060	0.087
Subsidies for purchased domestically produced plums	0	0	0	0	0	0	0	0	0	0	0.236	0
Subsidies for arable agricultural area with 0.02 to 1 hectare in size	0	0	0	0	0	0	0	0	0	0	0	0.185
Subsidies for arable agricultural area with 5 to 10 hectares in size	0	0	0	0	0	0	0	0	0	0	0.070	0.098
Subsidies for successful orchards after two years from the payment of the initial subsidy for raising new orchard	0	0.120	0	0	0	0	0	0	0	0	0	0

Subsidies for pedological analysis (analysis for sodium, phosphorus, potassium, PH level, humus, and carbonates)	0	0	0.098	0	0	0	0	0	0	0	0	0
Subsidies for orchards maintenance	0.056	0	0	0	0	0	0	0	0	0	0	0
Subsidies for production of certified seed material for garden crops and flower cultures	0	0	0	0	0	0	0	0	0	0	0	0.048
Subsidies for hiring creditors during the purchase of raw tobacco	0.043	0	0	0	0	0	0	0	0	0	0	0
Subsidies for arable agricultural area with 10 to 50 hectares in size	0	0	0	0	0	0	0	0	0.033	0.004	0	0
Subsidies for delivered eatable tomatoes for further processing	0	0.033	0	0	0	0	0	0	0	0	0	0
Subsidies for industrial garden crops sold for further processing	0	0.009	0	0	0	0	0	0	0	0	0	0
Subsidies for arable agricultural area for maintenance of decorative and fast-growing seedlings	0	0	0	0	0	0	0	0	0.002	0.002	0.002	0
Subsidies of 15% for agricultural property in areas with limited capacities for production	0	0	0	0	0	0	0	0	0	0	0	0
Subsidies for domestic production and refinement of certified tobacco seeds	0	0	0	0	0	0	0	0	0	0	0	0
Subsidies for domestic grown cabbage	0	0	0	0	0	0	0	0	0	0	0	0
Subsidies for raising parent plants for the production of certified vine planting material	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Subsidies for raising parent plants for the production of certified fruit planting material	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Subsidies for plant production projects	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Subsidies for support of the transition from crop cultures to garden cultures, orchards, and vineyards for economies with areas under 5 hectares	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Subsidies per area for reconstructed orchards due to change in sort structure	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: Data provided by the Agency for Financial Support of Agriculture and Rural Development, presented by the authors

In mil. euros	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Central government expenditures	1.677,2	1.689,5	1.721,4	1.814,4	1.877,0	2.131,0	2.150,6	2.608,0	2.516,7	2.598,7	2.761,5	2.725,0
GDP at market prices, Current prices	6.746,2	6.741,8	7.110,5	7.547,7	7.588,7	8.160,8	8.579,4	9.088,7	9.671,5	10.050,5	10.746,0	11.210,2
Agricultural subsidies	35,4	61,0	88,1	94,2	84,2	90,0	93,6	94,1	95,0	103,3	103,4	107,0
Crop subsidies	16,6	36,3	57,7	64,2	55,1	59,0	61,7	58,7	56,8	66,4	66,9	71,3
Livestock subsidies	18,8	24,7	30,5	30,0	29,1	31,0	31,8	35,5	38,2	36,9	36,5	35,8
Tobacco subsidies	8,0	11,8	22,6	25,7	20,5	27,3	30,5	24,2	18,4	24,5	27,6	29,2
Share of crop subsidies in agricultural subsidies	47,0	59,6	65,4	68,1	65,5	65,6	66,0	62,3	59,8	64,3	64,7	66,6
Share of livestock subsidies in total agricultural subsidies	53,0	40,4	34,6	31,9	34,5	34,4	34,0	37,7	40,2	35,7	35,3	33,4
Share of tobacco subsidies in agricultural subsidies	22,6	19,4	25,7	27,3	24,3	30,3	32,6	25,7	19,4	23,8	26,7	27,3
Share of tobacco subsidies in crop subsidies	48,1	32,5	39,3	40,1	37,1	46,3	49,4	41,3	32,4	36,9	41,3	41,0
Share of agricultural subsidies in GDP	0,5	0,9	1,2	1,2	1,1	1,1	1,1	1,0	1,0	1,0	1,0	1,0
Share of crop subsidies in GDP	0,2	0,5	0,8	0,9	0,7	0,7	0,7	0,6	0,6	0,7	0,6	0,6
Share of livestock subsidies in GDP	0,3	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,3	0,3
Share of tobacco subsidies in GDP	0,1	0,2	0,3	0,3	0,3	0,3	0,4	0,3	0,2	0,2	0,3	0,3
Share of agricultural subsidies in Central Budget expenditures	2,1	3,6	5,1	5,2	4,5	4,2	4,4	3,6	3,8	4,0	3,7	3,9
Share of crop subsidies in Central Budget expenditures	1,0	2,1	3,4	3,5	2,9	2,8	2,9	2,2	2,3	2,6	2,4	2,6
Share of livestock subsidies in Central Budget expenditures	1,1	1,5	1,8	1,7	1,5	1,5	1,5	1,4	1,5	1,4	1,3	1,3
Share of tobacco subsidies in Central Budget expenditures	0,5	0,7	1,3	1,4	1,1	1,3	1,4	0,9	0,7	0,9	1,0	1,1

In mil. euros	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Central Budget expenditures	1.677,2	1.689,5	1.721,4	1.814,4	1.877,0	2.131,0	2.150,6	2.608,0	2.516,7	2.598,7	2.761,5	2.725,0
GDP at market prices, Current prices	6.746,2	6.741,8	7.110,5	7.547,7	7.588,7	8.160,8	8.579,4	9.088,7	9.671,5	10.050,5	10.746,0	11.210,2
Agricultural subsidies	35,4	61,0	88,1	94,2	84,2	90,0	93,6	94,1	95,0	103,3	103,4	107,0
Crop subsidies	16,6	36,3	57,7	64,2	55,1	59,0	61,7	58,7	56,8	66,4	66,9	71,3
Livestock subsidies	18,8	24,7	30,5	30,0	29,1	31,0	31,8	35,5	38,2	36,9	36,5	35,8
Tobacco subsidies	8,0	11,8	22,6	25,7	20,5	27,3	30,5	24,2	18,4	24,5	27,6	29,2
Share of crop subsidies in total agricultural subsidies	47,0	59,6	65,4	68,1	65,5	65,6	66,0	62,3	59,8	64,3	64,7	66,6
Share of livestock subsidies in total agricultural subsidies	53,0	40,4	34,6	31,9	34,5	34,4	34,0	37,7	40,2	35,7	35,3	33,4
Share of tobacco subsidies in total agricultural subsidies	22,6	19,4	25,7	27,3	24,3	30,3	32,6	25,7	19,4	23,8	26,7	27,3
Share of tobacco subsidies in crop subsidies	48,1	32,5	39,3	40,1	37,1	46,3	49,4	41,3	32,4	36,9	41,3	41,0
Share of agricultural subsidies in GDP (in percent)	0,5	0,9	1,2	1,2	1,1	1,1	1,1	1,0	1,0	1,0	1,0	1,0
Share of crop subsidies in GDP	0,2	0,5	0,8	0,9	0,7	0,7	0,7	0,6	0,6	0,7	0,6	0,6
Share of livestock subsidies in GDP	0,3	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,3	0,3
Share of tobacco subsidies in GDP	0,1	0,2	0,3	0,3	0,3	0,3	0,4	0,3	0,2	0,2	0,3	0,3
Share of agricultural subsidies in Central Budget expenditures (in percent)	2,1	3,6	5,1	5,2	4,5	4,2	4,4	3,6	3,8	4,0	3,7	3,9
Share of crop subsidies in Central Budget expenditures	1,0	2,1	3,4	3,5	2,9	2,8	2,9	2,2	2,3	2,6	2,4	2,6
Share of livestock subsidies in Central Budget expenditures	1,1	1,5	1,8	1,7	1,5	1,5	1,5	1,4	1,5	1,4	1,3	1,3
Share of tobacco subsidies in Central Budget expenditures	0,5	0,7	1,3	1,4	1,1	1,3	1,4	0,9	0,7	0,9	1,0	1,1

in mil. euros												
Crop subsidies	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Tobacco	8,0	11,8	22,6	25,7	20,5	27,3	30,5	24,2	18,4	24,5	27,6	29,2
Vineyards + grapes	5,7	9,5	11,7	11,2	11,9	8,8	8,8	9,3	9,3	12,6	11,5	12,8
Field crops	-	9,6	12,2	12,6	13,2	13,0	12,3	11,8	13,7	12,7	10,3	10,2
Garden crops	0,2	0,3	3,6	5,1	4,5	4,0	4,3	6,0	7,2	7,9	7,4	8,0
Orchards+ Fruits	0,6	1,9	4,1	5,7	4,5	4,5	4,7	5,6	6,5	6,8	8,3	9,5
Fodder	0,3	0,4	-	-	-	0,6	0,7	0,9	1,0	1,1	0,3	-
Total crop subsidies	16,6	36,3	57,7	64,2	55,1	59,0	61,7	58,7	56,8	66,4	66,9	71,3
Livestock subsidies	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cattle	3,0	6,0	8,1	7,6	7,2	6,9	6,7	7,4	7,3	7,5	6,9	6,3
Milk	8,4	4,8	5,5	7,3	7,0	7,5	8,2	8,6	9,5	8,8	7,8	7,9
Sheep	4,5	9,7	11,7	10,6	11,0	11,9	12,1	12,6	13,3	13,1	13,0	12,3
Pig	1,3	1,7	2,1	1,9	1,4	1,6	1,7	2,0	2,3	2,5	2,4	2,8
Hen	0,1	0,4	0,5	0,4	0,2	0,5	0,3	0,2	1,5	1,4	1,9	1,5
Goat	0,5	0,6	0,8	0,6	0,7	1,0	1,1	1,3	1,4	1,4	1,4	1,2
Beehives	0,9	1,3	1,8	1,6	1,4	1,7	1,6	2,0	2,2	2,1	2,6	2,7
Total livestock subsidies	18,8	24,7	30,5	30,0	29,1	31,0	31,8	35,5	38,2	36,9	36,5	35,8
Total subsidies	35,4	61,0	88,1	94,2	84,2	90,0	93,6	94,1	95,0	103,3	103,4	107,0

List of interview questions:

1. Do you know how/why the subsidies first began? Why was it tobacco and no other crops (Note: unless you find in the research that other crops are receiving direct or indirect subsidies)?
2. How do they think the subsidies have evolved/changed over time? Why have they changed?
3. What do you think are the goals of the subsidies?
4. Do you think the implementation of the subsidies is effective? Are they given to the farmers who need/deserve them? Are there any challenges?
5. Do you think the subsidies are working? And if yes, what are they achieving? If not, what might work better?
6. Are there other subsidy structures they have considered? If yes, which ones? (Different sized subsidies, a different system of allocation, etc.) What do they think would happen if there were changes such as reductions in the subsidies? Would this please some actors? Annoy/anger some others? Why?
7. Many countries have abandoned subsidies because governments believe they create bad incentives for their farmers to grow things they wouldn't otherwise grow and/or they distort other markets. What would you counsel these governments? Is there any truth to what they're saying?
8. Some critics complain that subsidies are more political than economic—what would you say to that statement?
9. These subsidies require a lot of money – do you sometimes consider if there are other ways to spend the money? For example, some countries have invested in irrigation for farmers to increase crop yields and widen the variety of potential crops? Other countries have started rural credit schemes to give farmers wider opportunities because of better access to capital, etc.
10. Do subsidies encourage development, serve to buy social peace or serve the survival of agriculture? Did the subsidies help for the development of the Macedonian agrarian sector?
11. Do agricultural subsidies contribute to the tobacco farmers' productivity?

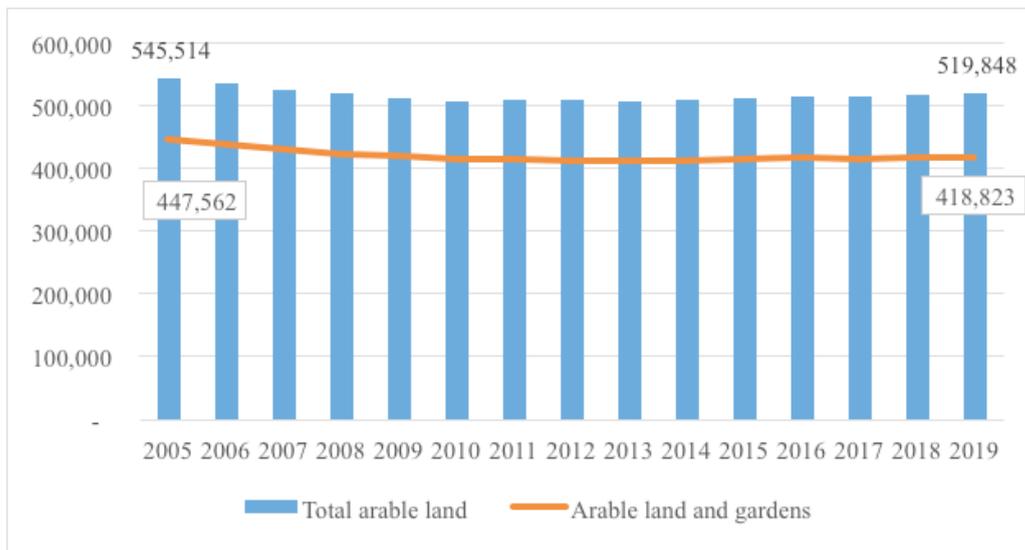
Annex B

B1. Background of tobacco production in North Macedonia

B1.1 Agricultural sector in North Macedonia

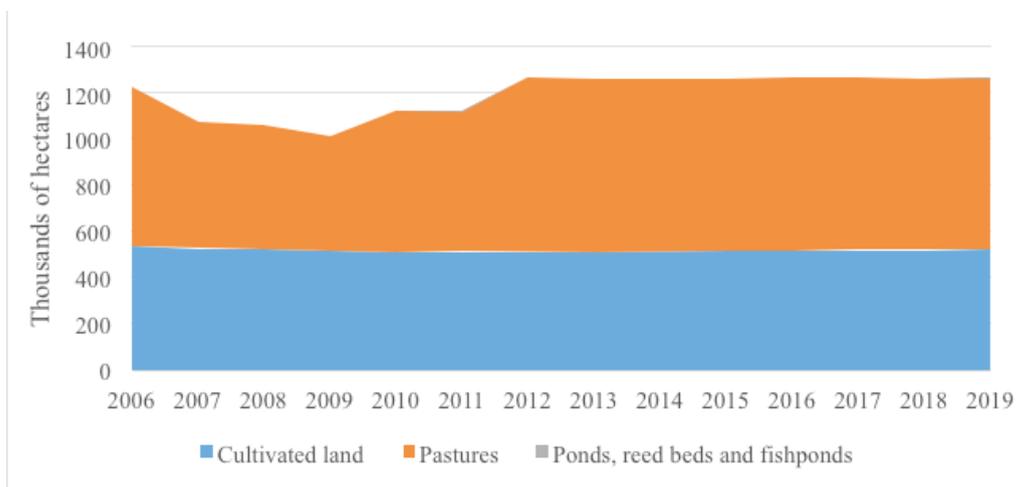
Reviewing the trend of agricultural land in the period 2005–2019, it can be concluded that the total arable land decreased by 25,666 hectares, while the area with arable land and gardens decreased by 28,739 hectares (Figure B1).

Figure B1. Total arable land and farmland 2005–2019 (hectares)



Source: State Statistical Office (SSO)

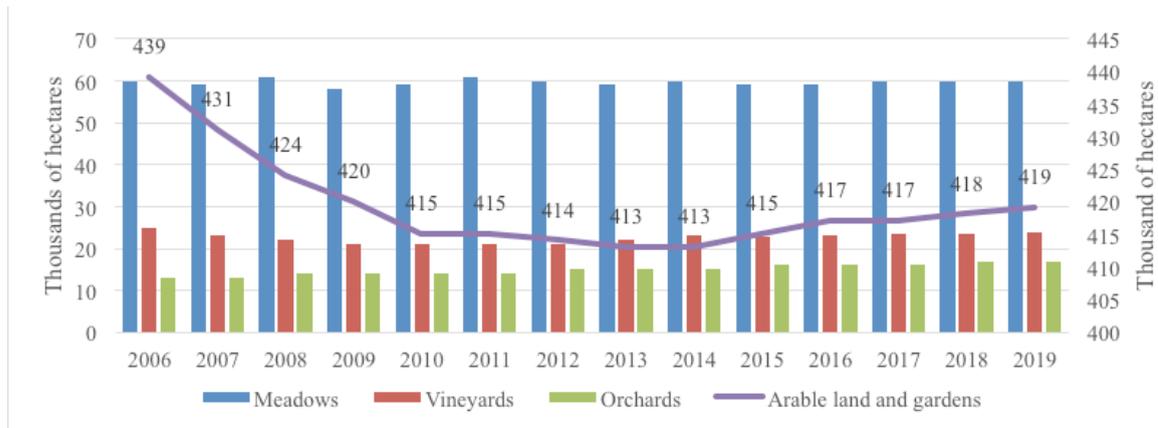
Figure B2. Agricultural area by categories of use



Source: SSO

The total agricultural area (TAA) in North Macedonia in 2019 was 1,265 thousand hectares. The trend has been stagnant without major changes for the last eight years. The total agricultural area is mainly divided among (Figure B2) cultivated land (520 hectares or 41.1 percent), pastures (744 hectares or 58.8 percent) producing 678 kilograms per hectare, ponds, reed bed, and fishponds (only 1 hectare).

Figure B3. Cultivated land by categories of use

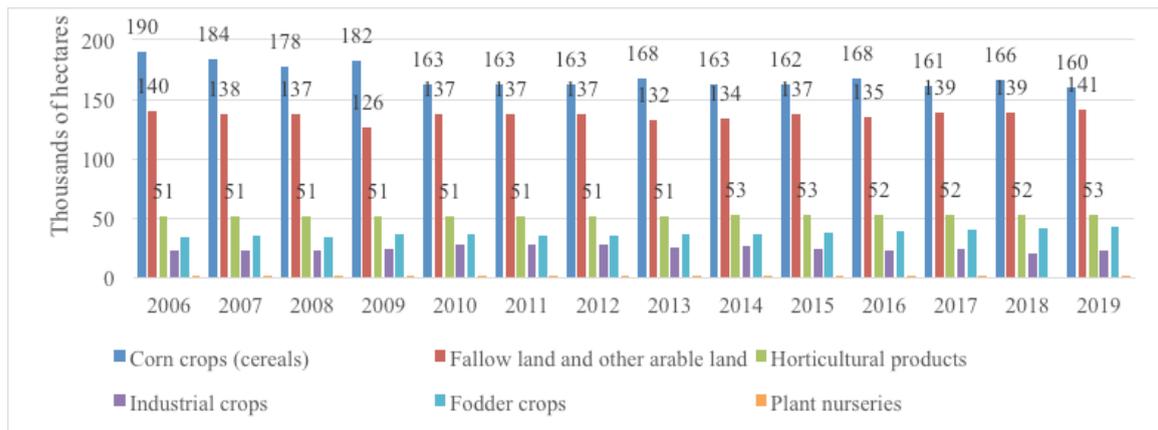


Source: SSO, presented by authors

When examining the total agricultural area by categories of use historically (Figure B2), most of the area (around 60 percent), particularly in the last seven years, is composed of pastures, while around 40 percent is cultivated lands. The area for ponds, reed beds, and fishponds is insignificant with only 1,000 hectares throughout the observed period. Cultivated land is mostly for arable land and gardens (around 80 percent of the cultivated land). It is important to mention that there was a decline in this trend from 2006 to 2010. In recent years, there has been a slight increase in the arable land. Other parts consist of meadows, vineyards, and orchards, where no significant changes are recorded in the observed period (Figure B3). In the cultivated land the major part in 2019 is for:

- arable land and gardens (419 hectares or 33.1 percent of the TAA)
- meadows (60 hectares or 4.7 percent of the TAA)
- vineyards (24 hectares or 1.9 percent of the TAA) producing 3 kilograms per vine
- orchards (17 hectares or 1.3 percent of the TAA).

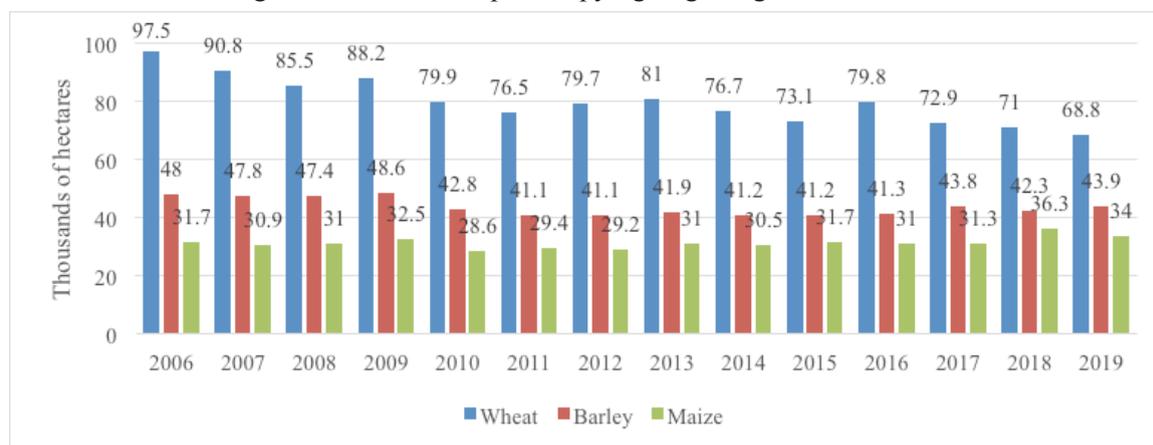
Figure B4. Arable land by categories of use



Source: SSO, presented by authors

Since the most significant part of the cultivated land is arable land and gardens, it is useful to examine the structure of this type of area (Figure B4).

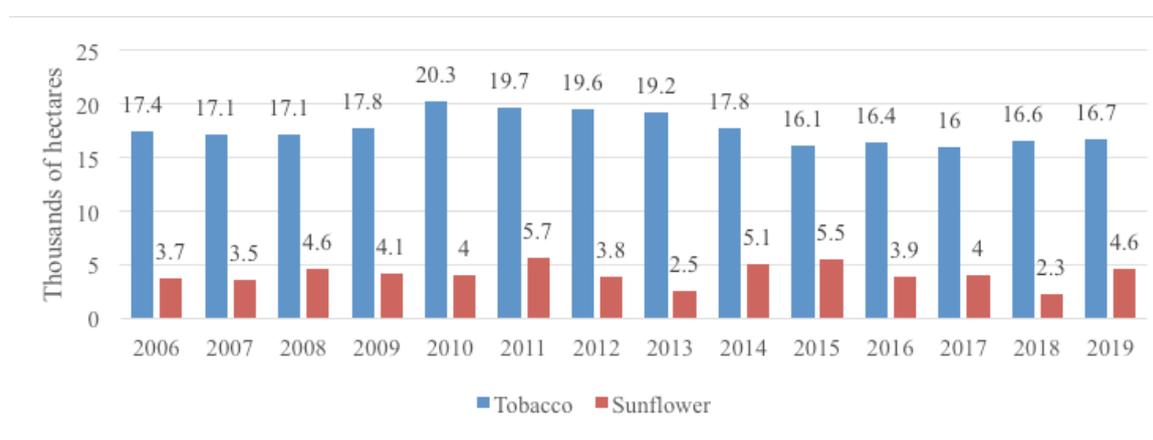
Figure B5. Fodder crops occupying largest agricultural areas



Source: SSO, presented by authors

Alfalfa takes about the same area of hectares in the observed period 2006-2019 (Figure B5). Fodder maize shows an increase in the area used for cultivation: it was 2,200 hectares in 2006 and 8,200 hectares in 2019, increasing almost fourfold. This crop has a high productivity of 22,749 kilograms of product per hectare in 2019. Fodder crops with the largest agricultural areas in 2019 are: alfalfa (19.5 hectares or 1.58 percent of the TAA) producing 5,502 kg per hectare and 6.2 denari per kilogram, fodder maize (8.2 hectares or 0.65 percent of TAA).

Figure B6. Horticultural crops occupying agricultural areas



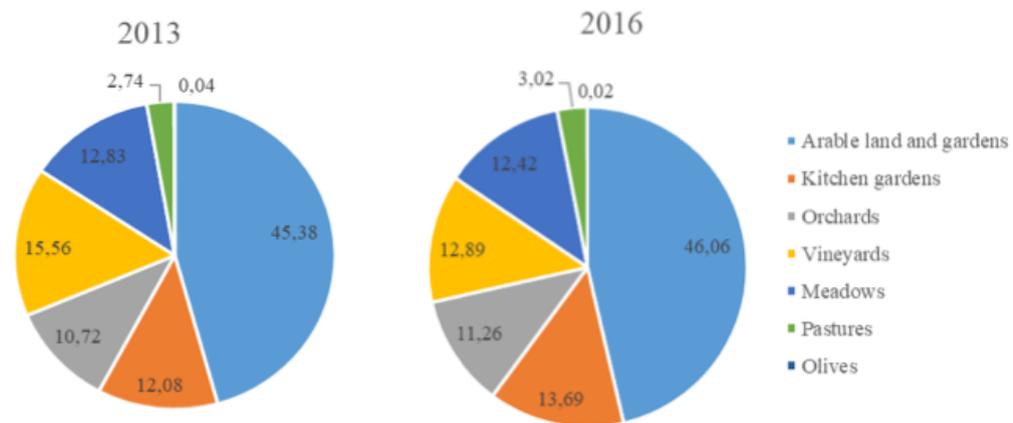
Source: SSO, presented by authors

Horticultural crops are more versatile, and few crops come under this category (Figure B6). Potatoes take most of the agricultural area, 13,300 hectares on average, followed by peppers with 8,650 hectares on average, tomatoes with 5,600 on average, and melons and watermelons with 5,700 hectares on average in the observed period from 2006 to 2019.

Other crops occupy smaller areas and are not presented here. Horticultural crops with a significant part of the arable area in 2019 are: potatoes (12.9 hectares or 1 percent of TAA) producing 14,609 kilograms per hectare and 15.8 denari per kilogram, peppers (9.4 hectares or 0.7 percent of TAA) producing 19,750 kilograms per hectare, tomatoes (5.5 hectares or 0.43 percent of TAA) producing 27,715 kilograms per hectare and 31 denari per kilogram, melons and watermelons (5.1 hectares or 0.4 percent of TAA) producing 24,595 kilograms per hectare and 9.7 denari per kg.

To summarize, the total agricultural area increased in the observed period, both for cultivated land and pastures. There is also a slight increase in the past several years in area for vineyards and orchards. Corn crops and industrial crops show a decrease in the observed period, while there is an increase in horticultural area and a significant increase in area for fodder crops. Area with wheat is decreasing, while the area with maize is increasing. There is also an increase in the area with fodder maize. Wheat is the crop that takes the largest portion of the total agricultural area (5.5 percent in 2019 or 80,000 hectares on average for the observed period). It is followed by barley (3.5 percent in 2019 or 4,400 hectares on average) and maize (2.7 percent in 2019 or 3,100 hectares on average). Tobacco harvested area is 1.3 percent of the total agricultural area or about 1,800 hectares on average). Other cultures participate with lower percentages and are not presented in the analysis.

Figure B7. Structure of agricultural holdings by category of utilized agricultural area, 2013 and 2016

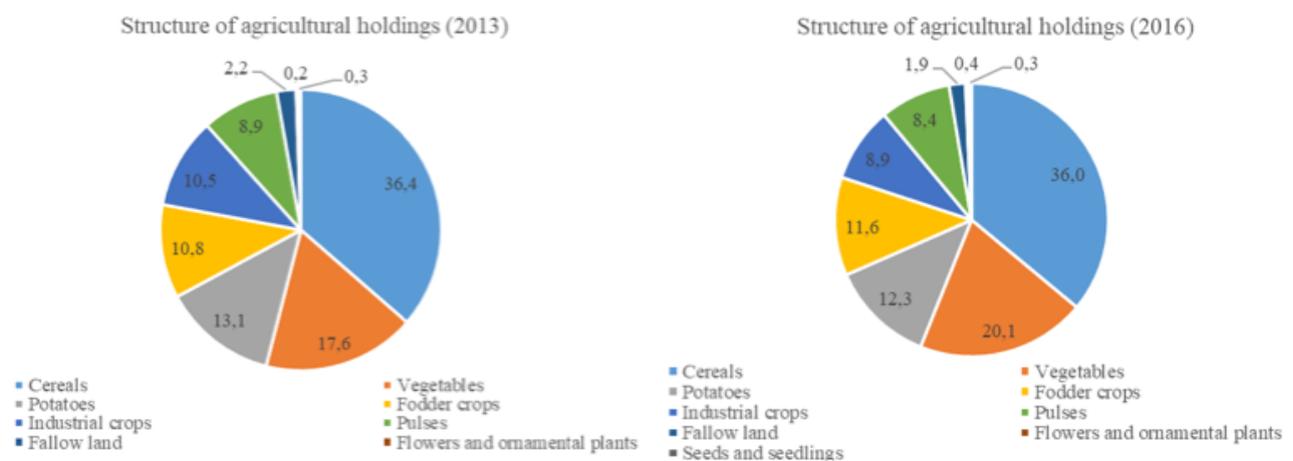


Source: SSO, authors' calculations

The State Statistical Office performed two research projects on the structure and typology of agricultural holdings and the data refer to 2013 and 2016. There were approximately 180,000 agricultural holdings in North Macedonia. In terms of the utilized agricultural area, almost half of the households utilized arable land and gardens (Figure B7). Gardens, orchards, vineyards, and meadows account for approximately the same share and only three percent utilized pastures.

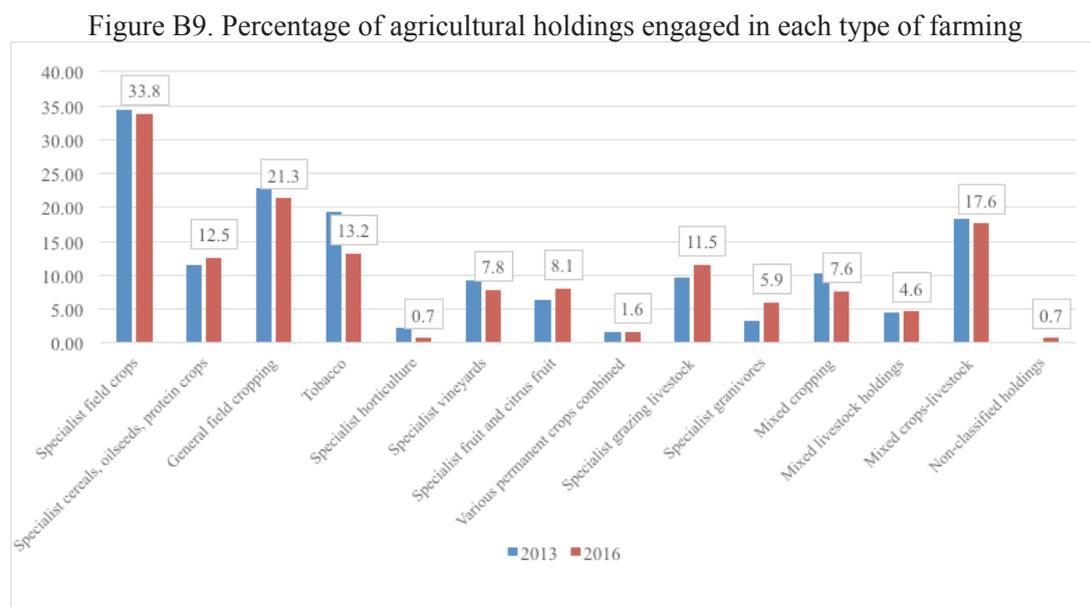
Within arable land and gardens, the largest share of households produces cereals (36 percent), followed by vegetables (20 percent). Industrial crops account for almost nine percent of total agricultural holdings, according to the area of arable land and gardens in 2016, recording a slight decline compared to 2013 (Figure B8).

Figure B8. Structure of agricultural holdings by area of arable land and gardens, 2013 and 2016



Source: SSO, authors' calculations

Figure B9 presents the percentage of farmers engaged in each type of farming. The classification is based on the specialty of the holding. Tobacco holdings are included in the figure with data taken from the Ministry of Agriculture, Forestry and Water Economy (MAFWE) for the number of tobacco farmers. According to the data, tobacco farmers represented 13.2 percent of total agricultural holdings in 2016, which marks a decline of 6.1 percentage points compared to 2013 (19.3 percent). Agricultural holdings for field crops (33.8 percent) including cereals, oilseeds, and protein crops account for 12.5 percent of agricultural holdings, while the other field crops account for 23.3 percent. Fruits and vineyards account for 8.1 percent and 7.8 percent, respectively. While the number and share of fruit producers has increased, possibly indicating transfer of some farmers from other crops to fruits, the number and share of vineyard households has declined. A significant number of households (17.6 percent) is engaged in both crop and livestock production.

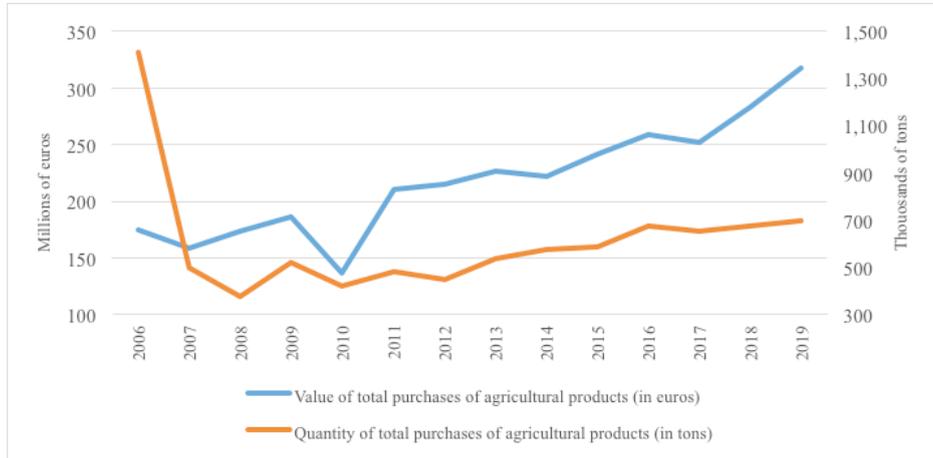


Source: SSO, MAFWE, authors' calculations

B2. Value and quantity of total purchases of agricultural products in comparison to tobacco

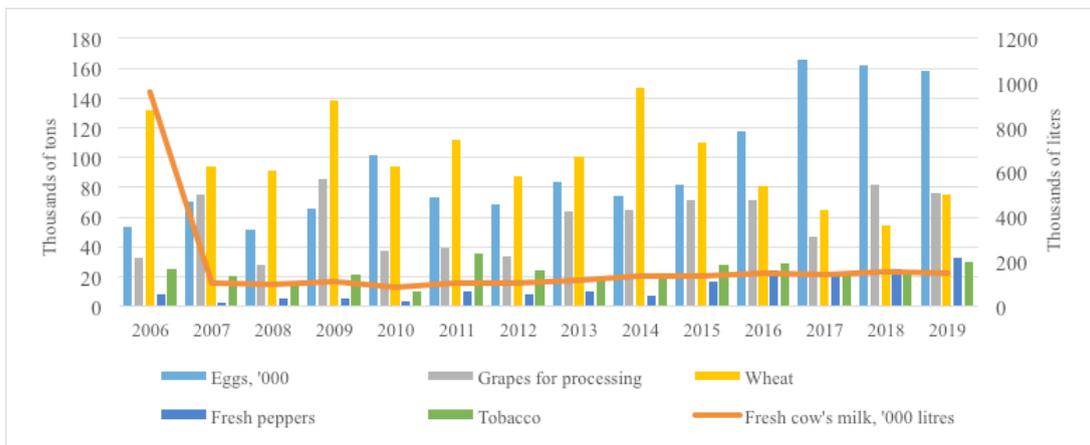
Analyzing the trends of total value and quantity sold of agricultural products (Figure B10) it is clear that these two indicators continue to grow over time. The value of total purchases has grown from €175 million in 2006 to €317.6 million in 2019, or an increase of 80.5 percent in the observed period. The quantity of purchased agricultural products has also been growing since 2007 (from 495 thousand tons in 2007 to 697.5 thousand tons in 2019), and the growth is quantified as 40.8 percent. It is important to note that the number of total purchases of agricultural products was very high in 2006, reaching a significant drop in 2007 of 64.9 percent. The crops with the most reduced quantities of purchases were wheat, maize in grains, other crops, milk, fresh peppers, watermelons, sunflower, and tobacco. As compensation, several cultures had increased purchase price per kilogram or liter in 2007 compared to 2006: wheat (from 7.3 denari to 10.9 denari), maize in grains (from 8 to 11.9 denari), other cereal crops (from 15.1 to 18.9 denari), fresh cow's milk (from 1.8 to 17.3 denari), fresh sheep's and goats' milk (from 3.2 to 49.7 denari and sunflower (from 12 to 19.7 denari).

Figure B10. Value and quantity of purchased agricultural products



Source: SSO, presented by authors

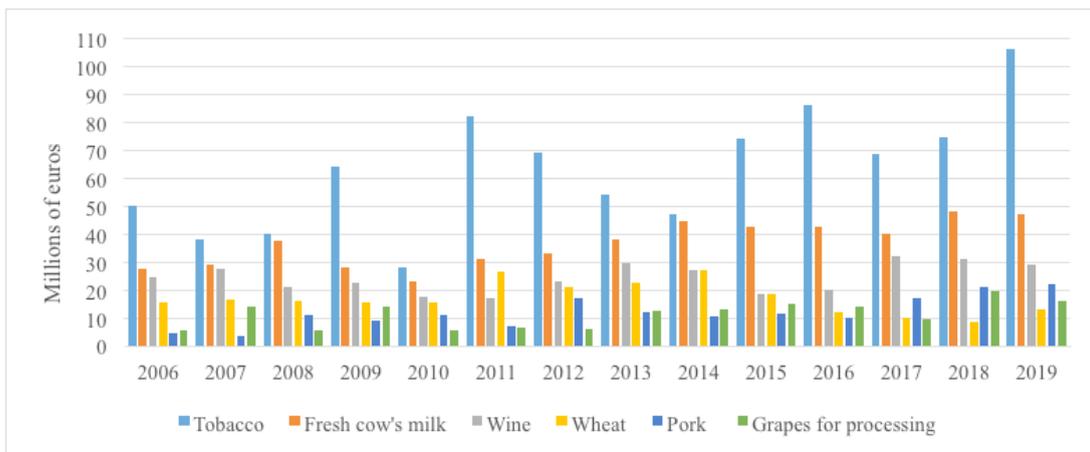
Figure B11. Quantity of total purchases - top 6 crops



Source: SSO, presented by authors

As presented in Figure B11, the most purchased products are eggs (per thousands), fresh cow's milk (per thousand liters) with a significant drop in 2007 from 2006 from 96,0132 thousands of liters to 105,077 thousands of liters in 2006, grapes for processing with a rising trend in the past several years, wheat with a seriously reduced quantity of total purchase in the past years, fresh peppers significantly rising from 7,986 thousand tons in 2006 to 32,973 thousand tons in 2019, an amazing 312.3 percent increase, and tobacco increasing in the past few years.

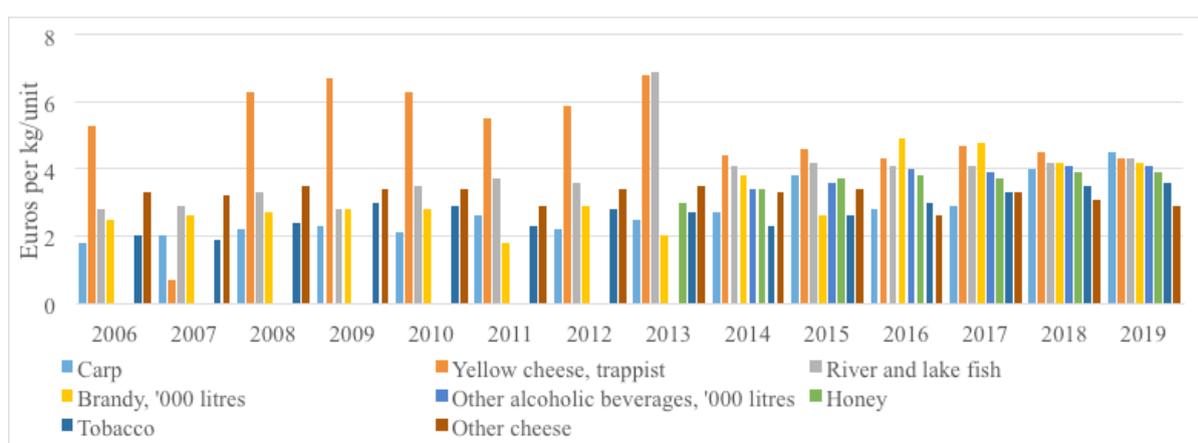
Figure B12. Value of total purchases - top 6 crops



Source: SSO, presented by authors

The structure is different when crops are analyzed by their purchase value (Figure B12). Tobacco has the highest value significantly before other crops and products, starting from €50 million in 2006 to €106 million in 2019. The overall value for tobacco probably explains to some extent the interest of the farmers for this crop. Fresh cow's milk is ranked second in culture with highest total purchase value starting from €27.6 million in 2006 and increasing to €47.4 million in 2019. Wine has an average total purchase value in the observed period of about €24.6 million, while wheat has shown an increase from 2006 to 2014, reaching its peak of €27 million and constantly declining afterwards. In 2019 the total purchase value of wheat increased to €13 million. Pork has constantly increased its total purchase value, from €4.6 million in 2006 to €22 million in 2019, an increase of 385 percent. The situation is similar with grapes for processing, with a value of €5.5 million in 2006 to €16 million in 2019, or an increase by 193 percent. Since there is a difference between the selected subsectors in purchased quantity and purchased value, it is worth considering the dynamics of the purchase prices (Figure B13).

Figure B13. Purchase prices of top 8 agricultural products



Source: SSO, presented by authors

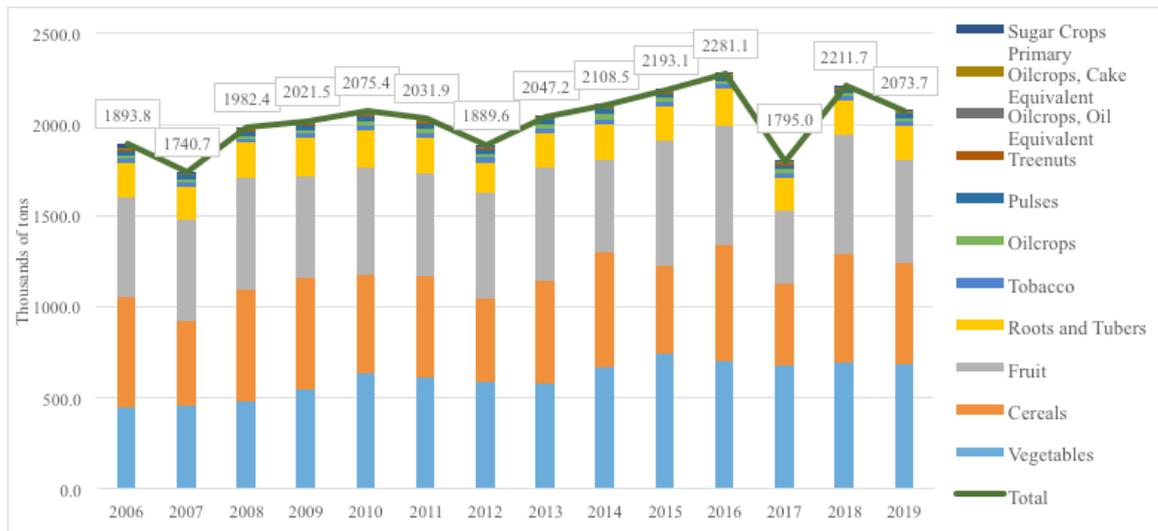
Presented purchase prices are calculated when the total purchase value is divided by the total purchase quantity for each product. Historically, the price of yellow cheese, trappist, is among the highest, reaching its maximum in 2013 of €6.3 per kilogram. The price of river and lake fish is also high, reaching its peak in 2013 of €6.9 per kilogram. In the last couple of years, the differences in prices of different products tend to equalize and most of the products have an average purchase price of about €4 per kilogram/liter. Fish, cheese, alcohol (from grapes), tobacco, and honey are the products with the highest purchase prices, and depending on the complexity of the process of production and costs for production some are more appealing to farmers than others.

Price in denari per kilogram is calculated when the value of total purchases of one culture is divided by the total quantity of the same culture. It is important to know the area that is used for a certain culture, yet also the productivity of the area (kilograms of product per hectare) and the purchase price are also important when a farmer decides what to cultivate. In the following chart prices in euros per kilogram (calculated as explained previously) for the top 20 cultures (out of 72) for 2019 are presented.

It is evident that tobacco is the agricultural product with the second-highest purchase price per kilogram, ranking below alcoholic beverages. These two products are of plant origin, and they rank as high as other products of animal origin with the highest prices per kilogram. This fact can contribute to the explanation of the preferences of the farmers to grow tobacco crops, stimulated by the high purchase price and relatively easier way to grow agricultural crop than raising an animal farm or working on aquaculture.

Figure B14 presents the production of crops, classified in groups for the period 2006–2019. Total crop production increased from 1,893,800 tons in 2006 to 2,073,700 tons in 2019. The slightly increasing trend has hit three troughs (2007, 2012, and 2017), with the lowest quantity of produced crops in 2017 (1,795,000 tons), due to bad weather conditions, that hit fruit production particularly hard, after reaching the peak of crop production in 2016 at 2,281,100 tons. In 2019 another decline is recorded compared to the previous year.

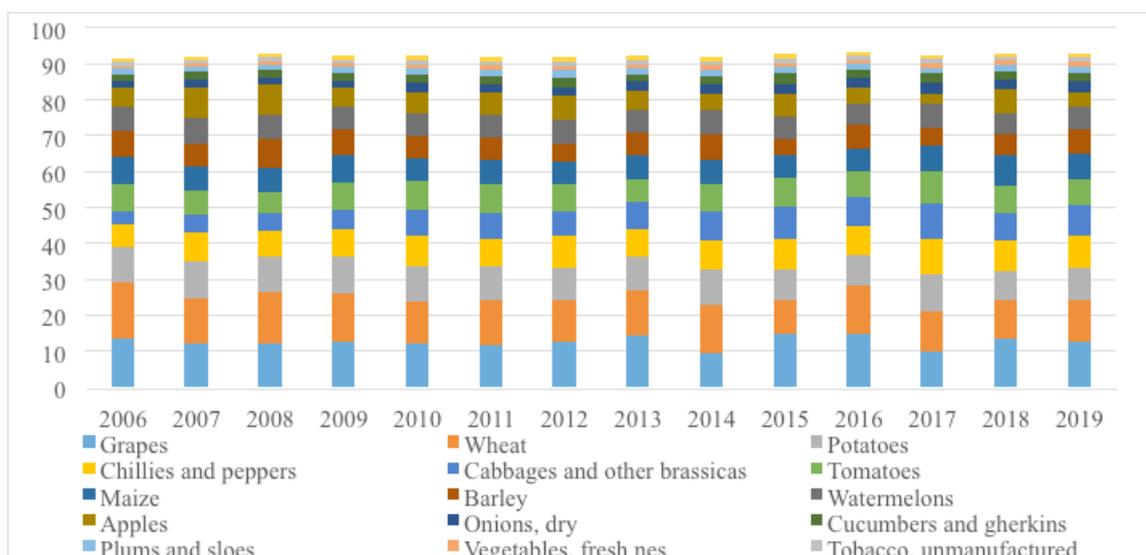
Figure B14. Crop production by crop group



Source: FAOSTAT

Vegetables account for the largest share of crop production, 33 percent in 2019, followed by cereals and fruit with around 27 percent each. Regarding individual crops, grapes account for 13 percent of total crop production, followed by wheat with 12 percent, potatoes and peppers with around nine percent each, and cabbages with eight percent. Tobacco accounts for 1.27 percent of crop production in 2019, a somewhat lower percentage than in 2006, when it was 1.32. The share of tobacco in crop production has oscillated around 1.25 in the period 2006–2019. These data are presented in Figure B15.

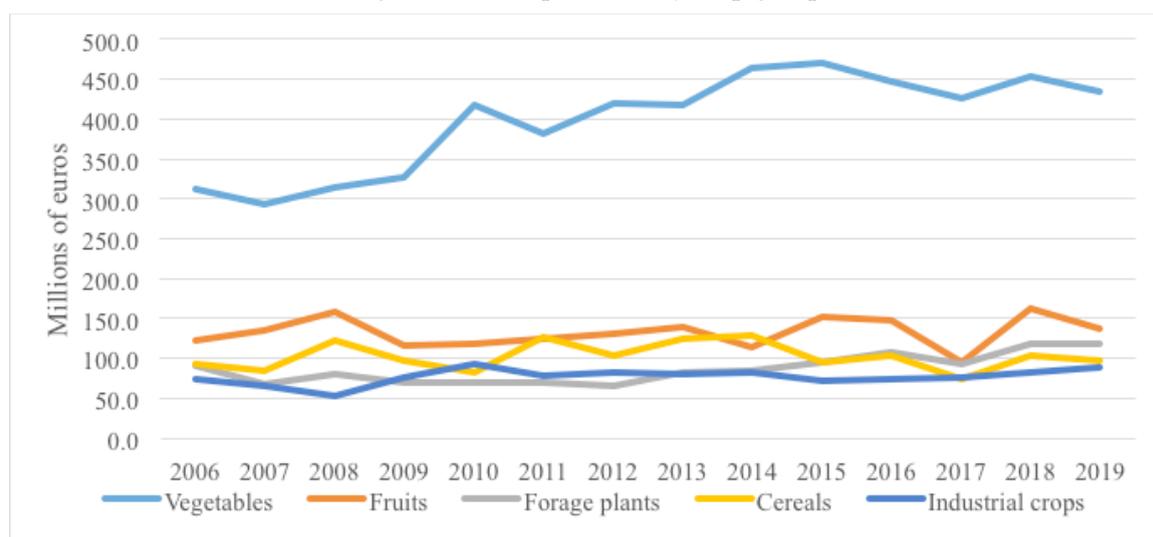
Figure B15. Share of different crops in total crop production



Source: FAOSTAT

Figure B16 illustrates the dynamics of the value of crop output in North Macedonia for the period 2006–2019, by group of crops. It is clear that vegetables achieved the highest output value during the entire period (€434.5 million) and the gap between the total value of produced vegetables and other crops is generally widening. Fruits had the second largest output value at €137 million, followed by forage plants (€118 million), cereals (€96.9 million), and industrial crops with €88.3 million.

Figure B16. Output value by crop group



Source: SSO, authors' calculations

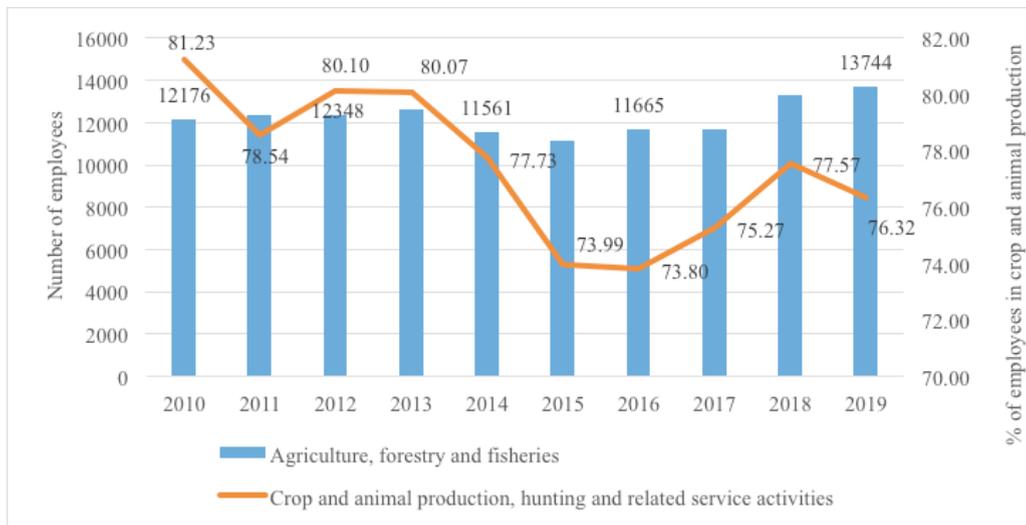
B2.1 Participation of agriculture in the formation of gross value added (GVA) in the economy

The importance of the overall agriculture sector for the North Macedonian economy is presented also through the degree of participation of agriculture in the formation of gross value added (GVA) in the economy, as well as through the number of employees within this sector in relation to the total number of employees (it absorbs a significant part of the labor force). Agribusiness (including agriculture, forestry, and fisheries) accounted for eight percent of GDP in 2019, 9.3 percent of total trade, and 14 percent of the total number of persons employed in the country (12 percent in 2020).^{39 40} In the rural areas (which cover about 87 percent of the total area of the country) 45 percent of the total population lives. Hence, it should be noted that in North Macedonia it still seems that agriculture is the most important economic activity in rural areas. Of course, the scarcity of agricultural land, the lack of investment in equipment and modern machinery in agriculture, as well as the lack of cooperation between government agencies and farmers contribute to low labor productivity in agriculture, which makes it less efficient compared to other sectors. However, in rural areas, where there is no developed industry and infrastructure, where opportunities to migrate to another sector (especially industry) are limited, agriculture likely has some positive impacts on poverty and well-being, though it may also be an impediment to growth under certain conditions. Of the total agricultural workers in 2019 (13,744 workers), about 76.32 percent of them (Figure B17) work within crop and animal production (Table A2 in Annex A).

39 However, it should be noted that North Macedonia is a country with a large informal sector and a large number of informal workers. According to data by the State Statistical Office, around 130,000 people work on an informal basis, and the International Labour Organization estimates that approximately half of them work in agriculture. Hence, the agriculture sector engages more workers than the registered number.

40 ILO, 2020

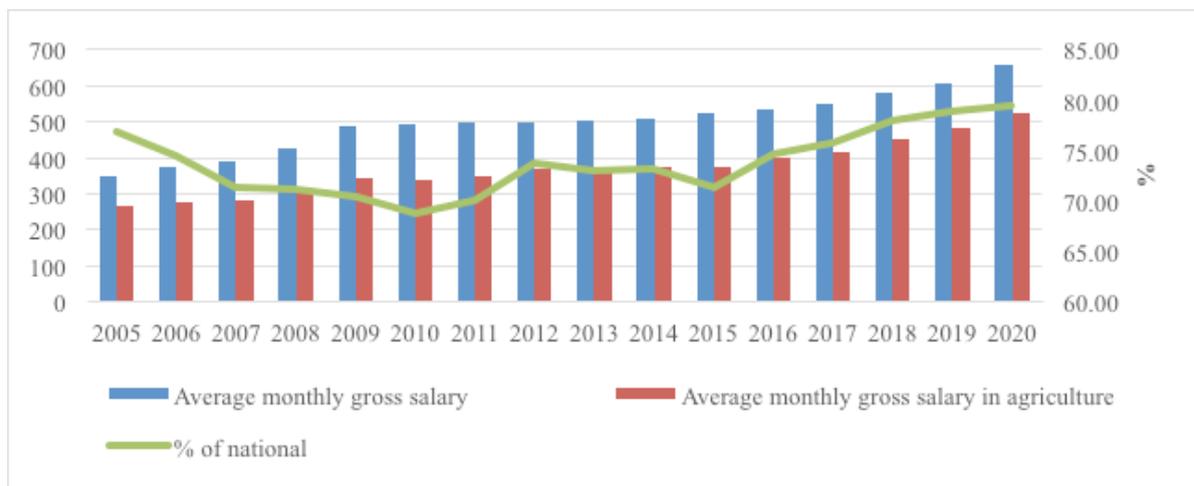
Figure B17. Number of employees in agriculture, forestry, and fisheries and how many of them work in crop and animal production



Source: State Statistical Office (SSO)

Regarding the average monthly gross salary paid in agriculture compared to the average monthly gross salary at the national level, it can be seen that throughout the analyzed period agriculture is significantly below average. In 2018, 2019, and 2020 this ratio occupies the highest value (2018 was 77.98 percent, 2019 was 78.95 percent, 2020 was 79.45 percent), while compared to 2010 (68.67 percent) wages improve significantly in agriculture in this period (Figure B18).

Figure B18. Average monthly gross salary - national level and average monthly gross salary in agriculture 2005–2020 (euros and percent)



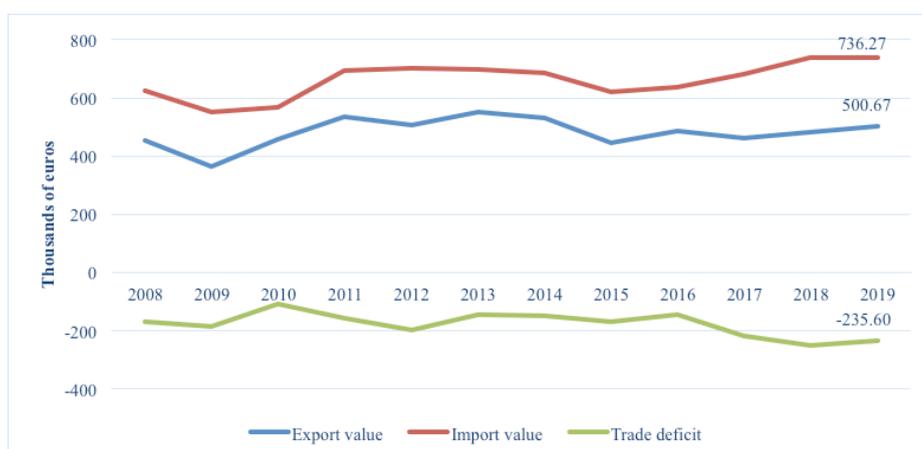
Source: SSO, presented by authors

Most of the gross value added in agriculture is created within crop and animal production, hunting, and related activities (95.89 percent) (Table A3 in Annex A).

B2.2 Import and export of agriculture products and tobacco (raw tobacco)

The analysis of foreign trade with agricultural products for the period 2008–2019 indicates that North Macedonia is a net importer of agricultural products (Figure B19). Throughout the analyzed period, the value of imports exceeds the value of exports of agricultural products (Table A4 in Annex A). In 2019, total exports of agricultural products amounted to around €500 million, while imports of agricultural products amounted to €736 million.

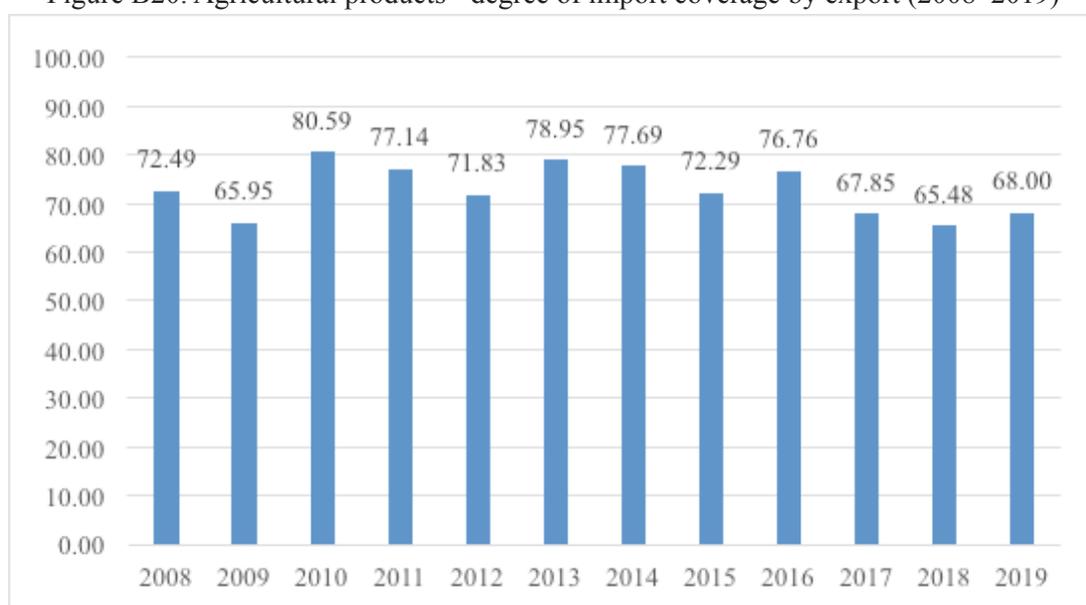
Figure B19. Export and import of agricultural products (€)



Source: State Statistical Office (SSO)

As an indicator of the degree of competitiveness in the foreign market, but also an analysis of the relationship between imports and exports, it is useful to show exports as a percentage of imports of agricultural products. The data indicate that in the last three years (2017, 2018, and 2019) total exports as a percentage of total imports of agricultural products is below 70 percent. The highest coverage of imports with exports was registered in 2014 (80.59 percent), while the lowest value was in 2018 (65.48 percent) (Figure B20). This tendency of sector-level trade deficits is present in almost all other sectors (Table 4A in Annex A). In addition to agricultural products, the products characterized by low value added have the largest share in exports. Hence, it can be concluded that the specialization and comparative advantages of the country must be identified clearly and incorporated when deciding which agricultural crop to grow as a substitute for tobacco production.

Figure B20. Agricultural products - degree of import coverage by export (2008–2019)

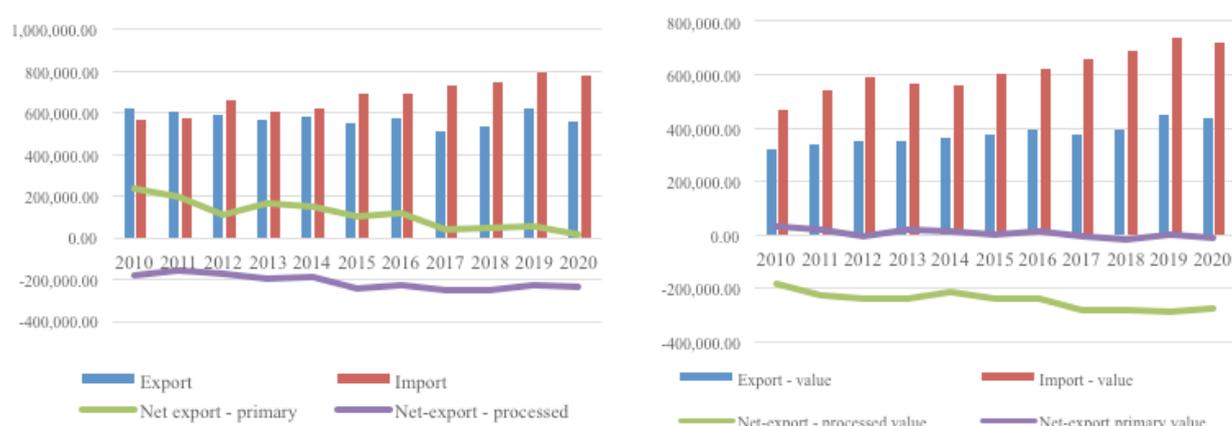


Source: State Statistical Office

Exports of agricultural and food products in 2019 constituted 9.72 percent of North Macedonia's total exports. The top markets for agriculture and food products are the EU (49.7 percent of total exports) including Greece (14.8 percent), Bulgaria (14.12 percent), Germany (12.6 percent), and Croatia (10.8 percent), and CEFTA countries (35.1 percent). The main export products from North Macedonia are tobacco, sweet biscuits (including waffles and wafers), wine, lamb, and processed and fresh vegetables and fruit. The main import products are meat (poultry, beef, and pork accounted for 20 percent of total agriculture imports), sunflower oil, chocolates and confectionery, cheese, processed foods, and grains.

Figure B21 presents the quantity and value of export and import of food and beverages for the period 2010–2018. The figure shows that there is an increasing trend of foreign trade with these products, with import exceeding export during the entire period (except in 2010 and 2011 in terms of quantity). However, it should be noted that the net-export position is better for primary products than for processed products. Namely the net-export for primary products is positive in terms of quantity, but there is an obvious declining trend, and in the last few years there is a negative foreign trade balance in terms of value. Processed products on the other hand exhibit a negative and worsening balance both in terms of quantity and value during the presented period.

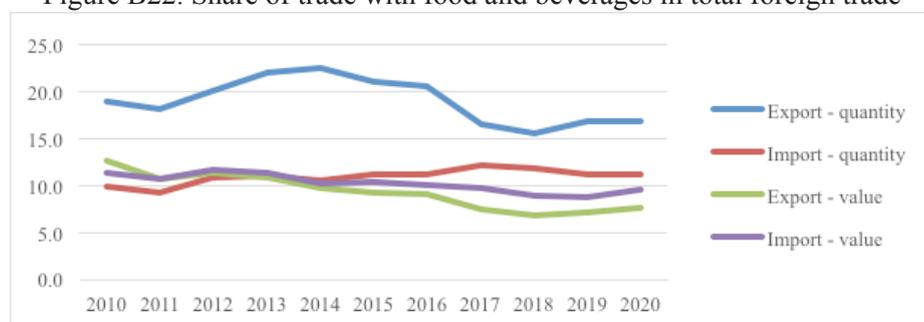
Figure B21. Foreign trade with food and beverages (quantity-left and value-right)



Source: SSO, authors' calculations

Figure B22 depicts the dynamics of the share of trade with food and beverages in total foreign trade of the country. Export of food and beverages account for approximately 17 percent of total export quantity in 2019 and eight percent of export value. The share has declined since 2010, due to increased export from propulsive industries with significant foreign direct investment in North Macedonia (their output accounts for a large share of North Macedonian exports). Import of food and beverages accounted for around 11 percent of total import quantity in 2019 and 10 percent of import value. Despite the fact that export quantity is higher than import quantity, export value is lower than import value. This is due to the low value (price) of primary products that the country exports and the highest value (price) of imported, mostly processed products.

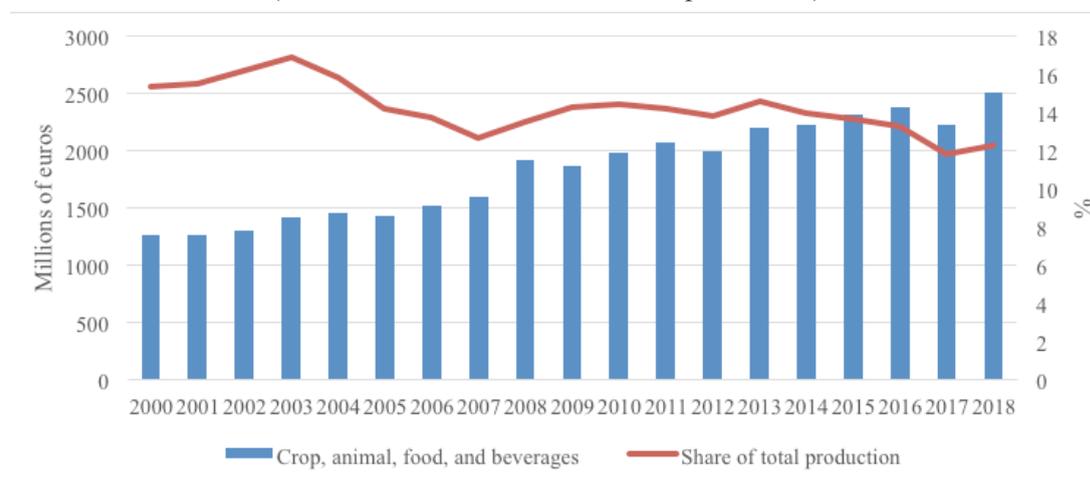
Figure B22. Share of trade with food and beverages in total foreign trade



Source: SSO, authors' calculations

Produced crop, livestock, food, and beverages account for 12.3 percent of the total output of the country (Figure B23). Compared to 2019, their share in output was 14.5 percent in 2000. Despite the declining trend of the share in total output, the output value of the agri-food sector increased during the last two decades, from €1.258 billion in 2000 to €2.516 billion in 2019. The falling share is due to the fact that the output by other sectors has increased more than the output of the agri-food sector.

Figure B23. Crop, livestock, food, and beverages output
(in million euros and share of total production)⁴¹



Source: SSO, authors' calculations

B2.3 Short background on tobacco leaf production

Data from the State Statistical Office show that tobacco production in relation to the planted area in North Macedonia is stable and, despite certain oscillations in given years, it is in the range of 20,000 hectares.

However, in recent years it has decreased. The harvested area with tobacco has decreased from 20,300 hectares in 2010 to 16,679 in 2019. In terms of production, that also has demonstrated some oscillations but is typically around 25,000 tons. Before the Balkan war (1912–1913), the annual production was 4–5 million kilograms and started rising after World War II, reaching its peak in 1982, when 36,221 tons were produced.⁴² There have been large improvements in the yield per hectare during the last 60 years, from about 700 kg/ha to about 1500 kg/ha. These data are presented in Table B1 and Figure B24.

41. The data were converted from US\$ (at 2010 prices) to euros.

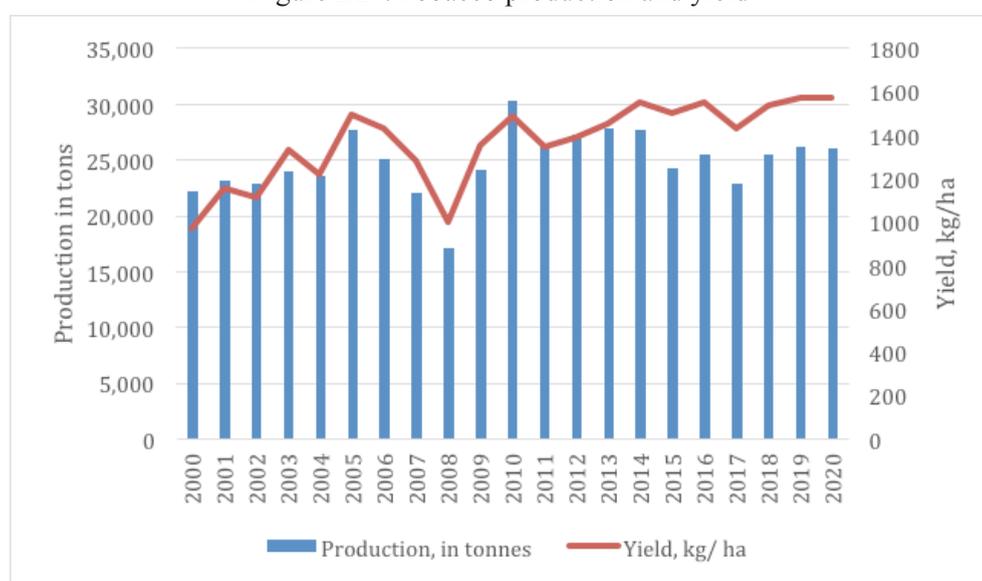
42. Ibid.

Table B1. Area, production, and yield of tobacco

Year	Area sown (ha)	Area harvested (ha)	Production (tons)	Yield (kg/ha)
2000	22.785	22.785	22.175	973
2001	20.310	20.074	23.217	1.157
2002	20.538	20.538	22.911	1.116
2003	18.101	18.088	23.986	1.332
2004	17.717	17.716	23.630	1.221
2005	18.490	18.488	27.691	1.498
2006	17.507	17.438	25.036	1.436
2007	17.183	17.132	22.056	1.287
2008	17.064	17.064	17.087	1.001
2009	17.809	17.800	24.122	1.355
2010	20.300	20.300	30.280	1.492
2011	19.693	19.679	26.537	1.348
2012	19.656	19.639	27.333	1.392
2013	19.178	19.178	27.859	1.453
2014	17.757	17.756	27.758	1.553
2015	16.128	16.128	24.237	1.503
2016	16.379	16.376	25.443	1.554
2017	15.961	15.959	22.885	1.434
2018	16.582	16.582	25.547	1.541
2019	16.719	16.679	26.234	1.573

Source: SSO

Figure B24. Tobacco production and yield



Source: SSO

North Macedonian tobacco farmers grow a few varieties of oriental tobacco, of which Prilep dominates with 95 percent of the production in 2019, rising from 65 percent in 2010, followed by Jaka, which accounts for the remaining five percent, falling from 26 percent in 2010, while the other two types (Basma and Jebel) have not been produced in the last four years.

This trend of movement between the total tobacco production and the average tobacco production (per cultivated hectare) indicates that, despite the fact that the total tobacco production is decreasing (which, among other factors, is a consequence of the reduction of agricultural land culture), there is an increase in average tobacco production (Figure B26) (Table A8 in Annex A).

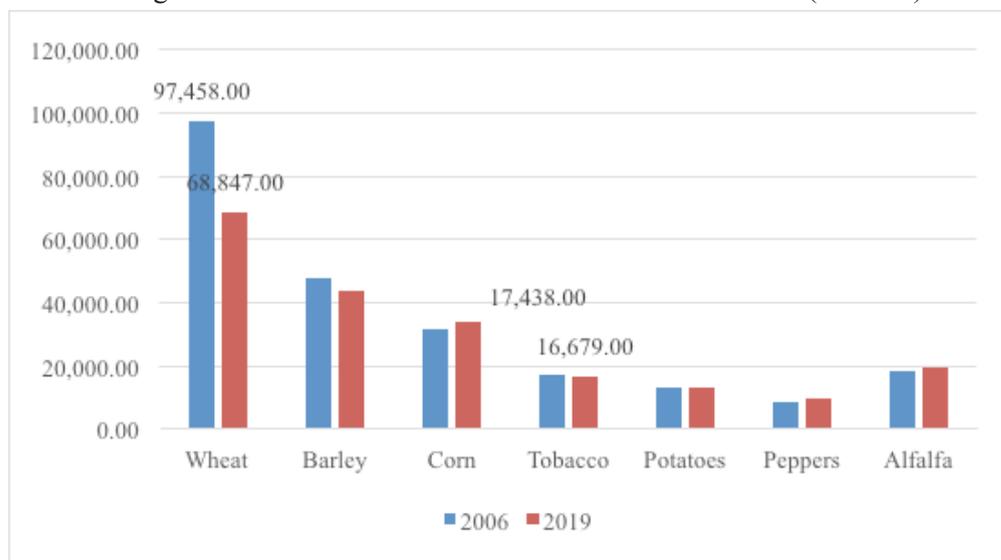
Figure B26. Production of tobacco crop in North Macedonia 2000–2019 (quantity)



Source: State Statistical Office (SSO)

From the total harvested agricultural land, it can be observed that wheat is the most cultivated agricultural crop in North Macedonia with a harvested area of 68,847 hectares in 2019 (Table A9 in Annex A). Despite the fact that wheat occupies the largest proportion of the agricultural land, in 2019 compared to 2006 it decreased by 29.4 percent (28,611 hectares). Harvested tobacco covers an area of 16,679 hectares and is the fourth-largest crop by area. Also, unlike wheat and barley, the area with harvested tobacco did not show a significant decrease in 2019 compared to 2006. The analysis of these related crops indicates that corn, alfalfa, and peppers are growing in the harvest area in 2019 compared to 2006 (Figure B27) (Table A9 in Annex A).

Figure B27. Harvested area in hectares in 2006 and 2019 (hectares)



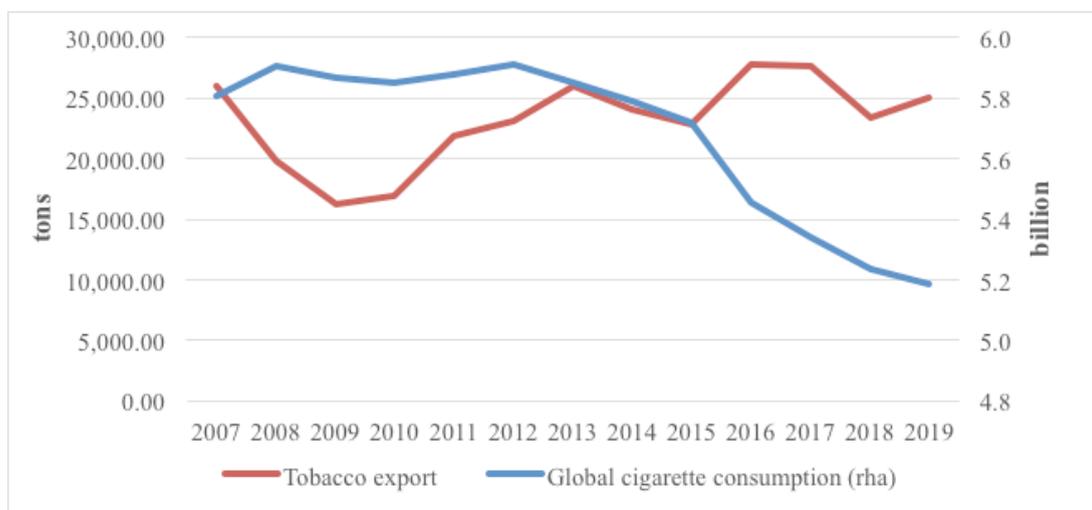
Source: State Statistical Office (SSO)

Figure B28 shows global cigarette consumption and tobacco exports from North Macedonia. It might be expected that such a trend would reduce demand and thus exports of North Macedonian tobacco, yet the figure does not provide evidence for this. Tobacco exports and global cigarette consumption only moved in the same direction from 2013–2015 and exported tobacco quantities have actually increased (though with oscillations in the exported quantity). However, this should not be interpreted as non-relevance of global cigarette consumption for tobacco production and export in North Macedonia. There are many additional factors other than global demand that dictate this, such as the price, the supply of tobacco from other countries (the declining demand is reflected in a decreased supply and export from other countries), the type of tobacco produced (the oriental type of tobacco cultivated in North Macedonia, used to blend cigarettes, accounts for a small share in total global tobacco production, and perhaps due to this the effect from the falling demand for cigarettes is still not that strong), and the weather. Also, the continuing government support of tobacco farming encourages farmers to continue cultivating tobacco, whereas most governments in the region have stopped this support.

General Manager of Tutunski Kombinat AD Prilep pointed out this issue:

“We are aware that a major anti-smoking campaign has been underway for the past 10 years: this product has been banned indoors, then electronic cigarettes appear, now lately the trend is cigarettes with non-combustible types of tobacco, where a much smaller percentage enters in these non-combustible cigarettes. All these parameters indicate a reduction in the use of the final product, cigarettes. This raw material that we produce, oriental type of tobacco, in these cigarettes produced worldwide, is used from 5 to 10 percent in cigarettes production, which is not a large amount. Globally, in recent years there has been a demand from 135 to 140 million euros, but it has dropped to 115 to 120 million euros, precisely for these reasons: the reduction of cigarette consumption, the use of electronic cigarettes, and the use of non-combustible types of tobacco. All these parameters should always be taken into account so that it becomes clear to all of us that everyone should be very careful—tobacco producers, purchasing companies, the ministry—to make an in-depth analysis and understand the big companies because they buy according to their needs.”

Figure B28. Global cigarette consumption and tobacco export from North Macedonia



Source: SSO

Annex C

THOROUGH DESCRIPTION OF THE SUBSIDY SYSTEM AND POLICY

Policy/legal framework

Tobacco production and its financing in the Republic of North Macedonia are regulated by the Law on Tobacco and Tobacco Products⁴³ in addition to the more general Law on Agriculture and Rural Development.⁴⁴ These laws are complemented with seven-year strategies and annual programs for financial support of agriculture. Each annual program is accompanied by a regulation on the closer direct criteria for direct payments, benefits of the funds, maximum amounts, and the method of direct payments.

The *Law on Agriculture and Rural Development* outlines a legal basis for the goals of agricultural policy and policy for rural development: providing stable production of affordable food of sufficient quality and quantity; securing a stable income level for farmers; sustainable development of rural areas; and optimal utilization of natural resources, respecting the environmental protection rules.

One of the instruments for achieving these goals is providing direct payments (subsidies) to farmers.⁴⁵ Article 16 of the Law prescribes direct payments as a measure for income support of agricultural holdings. They are provided to agricultural holdings per hectare of agricultural land, per unit of agricultural product, or per livestock head. The government sets the closer criteria and the method of direct payments and publishes them within a regulation each year. According to the Law, the payment of funds for the realization of agricultural policy and rural development policy measures is made by the Agency for Financial Support of Agriculture and Rural Development (the Agency).

Based on the Law, the government adopts a seven-year *National Strategy on Agriculture and Rural Development (NSARD)*. The latest strategy covers the period 2021–2027. The listed strategic aims of the agricultural sector (assisted by the government) in the strategy are:

- strengthening the competitiveness and sustainability of agricultural holdings;
- implementation of ecological practices in production, leading to reduced influence of climate changes and adjustment to them; and
- providing sustainable development of rural environments.

These goals are to be met with the measures and instruments of the national agricultural policy (Article 3 of the Law on Agriculture and Rural Development):

- subsidies/direct payments,
- arrangement and support of markets of agricultural products, and
- rural development.

43. Official Gazette 98/19, 27/20

44. 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

45. Law on Agriculture and Rural Development, Article 3(2)

In addition, other policies will be implemented: policies of sustainable natural resource management, policies for food safety, and policies for improvement of knowledge and innovation in agriculture. The NSARD is realized through the five-year National Programme for Development of Agriculture and Rural Development, the IPARD Programme, annual Programmes for Financial Support of Agriculture, and Annual Programmes for Financial Support of Rural Development during the period covered by the strategy.

The NSARD envisages enlargement of agricultural holdings and merging into cooperatives. They forecast a decline in the number of agricultural households from 187,125 in 2016 to 145,000 in 2027, and a growth of the average size of agricultural holdings in hectares, from 1.8 to above 2.⁴⁶ They also expect higher total factor productivity, as a result of investments, state support, improved knowledge, and activities for reducing emigration from rural areas.

“The goal is to consolidate the farmers. For example, Slovenia allowed land exchanges. No sales. No cleavage. That is the point with us as well. Consolidation to be enabled by legislation. To have more hectares and quality and to keep the same quantities.” – Independent advisor in the Chamber of Commerce of the Republic of North Macedonia

According to the NSARD, by the end of 2027 the government plans to continue the direct support to agricultural holdings’ income, as direct payments largely determine the profitability of agricultural activity, and for many farmers it is a determining factor in the decision whether to engage in agriculture. This is even more convincing considering the level of income and wages in agriculture compared to the national average (the average wage in agriculture, fishing, and forestry was 25 percent below the average for the period 2014–2019; agricultural holdings’ income was 35 percent below the average).

“Of course, subsidies improve farmers’ incomes, subsidies contribute 20 percent to 30 percent to the selling price of tobacco.... The purpose of the subsidies is to maintain agricultural production, to help farmers who want to stay in their fields and make a living from their production. Subsidies have an effect and for now no changes are expected to be made to subsidies in the tobacco sector.” – Deputy Minister of Agriculture

However, the large range of measures produce technical difficulties and high administration costs, requiring changes in terms of simplification. Additionally, with the intensification of the pre-accession process, the structure of direct payments needs to be gradually adjusted to the provisions of the EU Common Agricultural Policy, where the dominant form is direct support of income and is not related to the type of production, with a special emphasis on the support of measures for environmental protection and for mitigating climate change. Thus a gradual transformation of direct payments is intended. However, targeted production-related direct payments will continue to be used for some subsectors, including tobacco production, which is performed in a traditional manner in regions with limited alternatives for other agricultural or non-agricultural activities and which provides income and social security for many people.⁴⁷

The core legislation on tobacco production is the ***Law on Tobacco, Tobacco Products and Related Products***,⁴⁸ which regulates all aspects of the production, purchase, manufacturing, and trade of manufactured and unmanufactured tobacco and tobacco products. Regarding raw tobacco (unprocessed, dry tobacco leaves), it regulates the procedure (and the timeline) for arranging the production and purchase between the farmer and the buyer, the registry of tobacco buyers, the registry of tobacco farmers, financing, and control of tobacco. Due to the large number of changes, a new law was adopted in May 2019 (repealing the 2006 law and its subsequent amendments and additions).⁴⁹

47. National Strategy on Agriculture and Rural Development for the period 2021–2027, p.76

48. Official Gazette 98/19, 27/20

The Law recognizes the *tobacco farmer* as head of an agricultural holding, registered in the Single Registry of Agricultural Holdings, who has a tobacco production and purchase contract with a legal entity registered for purchase of tobacco (buyer). The Ministry of Agriculture, Forestry and Water Economy publishes the list of registered buyers of tobacco on their website. There are 10 registered tobacco buyers (Tutunski Kombinat AD Prilep, Sokotab DOOEL Bitola, Dalija-Tabak DOO, Alliance One Macedonia, Orbita Tabak-Prima DOOEL, Pasoski Tobacco Dealer DOOEL, Kaveks Balkan DOOEL, Centro Tobacco DOO, Seke DOOEL, Missirian DOOEL), however only eight of them bought tobacco from the last harvest.

The purchaser provides materials (seeds and products for protection of plants) to the farmer by 31 March in the current year. According to the provisions of the Law, tobacco farmers are only allowed to use certified seed material, provided by an authorized provider of tobacco seed material in accordance with the Law on seeds and seedlings of agricultural plants.⁵⁰ The only authorized institution for production of such material is the Scientific Tobacco Institute in Prilep.

The Government of the Republic of North Macedonia, upon proposal by the Minister of Agriculture, Forestry and Water Economy, adopts a **Strategy on Tobacco Production** for a seven-year period (with an action plan), with the aim to establish measures for support of agricultural holdings and state aid to tobacco farmers, provision of continuous and sustainable development of tobacco production, and enhancing competitiveness and maintaining the traditional reputation on the tobacco market. The strategy regulates the financing of activities related to tobacco production.

The Government adopted a new *Strategy for Tobacco Production (2021–2027)* in 2020. The goals of the strategy are: state aid to agricultural holdings engaged in tobacco production, income support to agricultural holdings, policies for balanced and sustainable development in the tobacco-producing regions, and support for the establishment of producer organizations. The strategy states that the measures for the development of the tobacco sector need to comply with the EU Common Agricultural Policy and the related regulations on direct payments to farmers, on establishing a common organization of the markets in agricultural products, and for support of agricultural production and rural development. The process of EU integration will impose requirements for reducing the area harvested by tobacco and hence become less profitable for farmers to engage in it. They need to consider diversification of their production. The strategy includes an action plan, according to which during the short-term period (2021–2024) the income support for tobacco farmers per kilogram remains, but preparations will be made with education and counseling for future change. In the medium term (2025–2027), a diversification of tobacco holdings is planned, compliance with the EU CAP regulations, adaptation of the direct payments system into an indirect or decoupled payments in the future, setting an amount for basic income support in production regions with similar socioeconomic and agro-ecological conditions, and liberalization of the system for negotiation in concluding tobacco contracts.

North Macedonia ratified the Framework Convention on Tobacco Control (FCTC) in 2006 that introduces a legal commitment for the reduction of tobacco production and consumption, but also to help those who are employed in the tobacco sector to find alternative viable livelihoods. In accordance with the FCTC, North Macedonia needs to prepare a program for gradual reduction of tobacco farming and a program for assistance to tobacco farmers for reorienting towards other livelihoods. This is also in line with adjusting to the EU Common Agricultural Policy, considering the EU integration process of the country. However, the tobacco sector in North Macedonia is specific and the

49. This Law provides compliance with Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC, CELEX number 32014L0040 and Council Directive 2011/64/EU of 21 June 2011 on the structure and rates of excise duty applied to manufactured tobacco, CELEX number 32011L0064.

50. Official Gazette 39/2006, 89/2008, 171/2010, 53/2011, 69/2013, 187/2013, 129/2015, 39/2016, 71/2016, 83/2018

implementation of tobacco control policies and policies for reduced financial support of tobacco farmers will be a difficult and complex process, due to the long history of growing tobacco, the number of families involved and the natural conditions in which this crop is grown, which might not be adequate for other crops.

The Government also adopts an *Annual Programme* for financing activities in tobacco production. According to the Law, the activities are financed from the budget, donations, and other sources in accordance with the law. Based on the Law on Agriculture and Rural Development, the government adopts an annual *Programme for Financial Support of Agriculture*, accompanied by a *Regulation on the closer direct criteria for direct payments, benefits of the funds, maximum amounts and the method of direct payments*. The financial support of tobacco production is included in these documents. Only for 2020 there was a separate program for financing tobacco farming activities (Official Gazette of RNM, No. 277, 28.12.2019) and a complementary regulation on the closer direct criteria for direct payments, benefits of the funds, maximum amounts, and the method of direct payments.

An information system for registering tobacco (ISET) was introduced by the Ministry of Agriculture, Forestry and Water Economy (MAFWE), where data on purchased tobacco (areas and quantities) are stored by key variables including farmer, purchaser, type, and quality, among others. This is the source of relevant information for assigning direct payments to tobacco farmers. The realization of the measure is prescribed according to the purchased unmanufactured tobacco from the previous year's harvest, entered into ISET by the buyers registered in the Registry of Tobacco buyers. This is different from the criteria for other crops, for which direct payments are made upon submitted requests for financial support by the agricultural holdings, or the producers.

The process of direct payments (subsidies) started in 2006. Direct payments in agriculture are a key tool for maintaining the sustainability of North Macedonian agricultural production. This type of direct financial assistance is essential for many farmers and complements their income, which directly affects the profitability of agricultural activity. For more than a decade, subsidies have been one of the key measures to support the agricultural production of all governments, regardless of their political background. Direct payments in agriculture as a form of income support to agricultural holdings can be most synthetically divided into direct payments for crop production, direct payments for livestock production, and direct payments for organic production. In addition to these forms of direct payments in agriculture, in certain years there are measures for additional support for agricultural development: assistance for insurance premiums, assistance for protection of agricultural land, assistance for providing technical support in agriculture, assistance for certain categories of holders of agricultural holdings, assistance for livestock world, assistance for the introduction of higher quality standards, material costs for implementation of the program, transferred liabilities from the financial support programs in agriculture from previous years, and financial support for fisheries and aquaculture.⁵¹

Beneficiaries of direct payments are physical and legal entities who have sold their production from the previous year's harvest to a registered buyer. The size of the direct payment per kilogram is 1.3 euros/kg for I class tobacco leaf, 1.14 euros/kg for II grade, and 0.98 euros/kg for III and IV grade tobacco leaf and I and II grade oriental additional tobaccos of Prilep, Jaka, Basmak, and Jebel varieties (the Minister established a Rulebook on measures and methods for qualitative and quantitative assessment of tobacco (Official Gazette 221/2020)). The oriental tobacco is characteristic for its rich aroma and small leaf (up to 20 cm), while the oriental additional tobacco leaf is larger than 20 cm.

51. National Strategy for Agriculture and Rural Development for the period 2021–2027, Ministry of Agriculture, Forestry and Water Economy

Several institutions are included in the support of the tobacco sector:

- The ***Agency for Financial Support of Agriculture and Rural Development***, established in 2007, is the main institution responsible for implementing the measures of agricultural policy in terms of financial support for agriculture and rural development. One of its main responsibilities is performing the measures for direct payments (subsidies) and state aid for agriculture. It also realizes the funds from the pre-accession assistance of the European Union for rural development. The Agency announces calls and criteria for financial support, it collects, analyzes, and approves requests for financial support and makes the payments to tobacco farmers. It also organizes and performs field controls and collects and processes data.
- ***Regional units of the Ministry of Agriculture, Forestry and Water Economy*** – The regional units of the Ministry are involved in collecting lists from tobacco buyers about the contracts that the latter have signed with tobacco producers. Tobacco buyers present these data to the ministry in addition to entering them into the electronic system for registering tobacco. These data are important for compiling the list of tobacco farmers and the amount of subsidy that they will receive.
- ***The Scientific Tobacco Institute – Prilep*** was established in 1924 and is the only authorized supplier of certified tobacco seeds material. It also organizes, prepares, and validates tobacco samples. The accredited laboratories perform controls of the quality of tobacco and tobacco products, the authenticity and quality of tobacco raw material, and the health of the plants. The Institute provides training and testing of candidates for licensed appraisers of tobacco and teaches second and third cycle studies in the field of the tobacco sector.
- ***Faculty of Agricultural Studies and Food – Skopje*** – The Faculty, established in 1947, includes courses on the tobacco sector within its study programs. In addition, the Faculty has two laboratories related to tobacco: Laboratory for quality control of tobacco and tobacco products and Laboratory for control of seed material from agricultural cultures.
- ***Highest Association of Tobacco Farmers*** – This is a representative union of associations of tobacco farmers, authorized by the MAFWI, covering more than 30 percent of the total tobacco holdings. Each contract between a tobacco farmer and a buyer is first sent to the Highest Association of tobacco farmers for their opinion. A representative of the Association is present during the assessment of the tobacco leaves and also a representative is a member of the Commission, appointed by the Minister of Agriculture, Forestry and Water Economy, for validation of tobacco leaf samples.
- ***Association of Tobacco and Tobacco Products Producers*** - The Association within the Economic Chamber of North Macedonia comprises economic entities and legal entities or individual producers of tobacco in this industry, production and processing of tobacco as well as tobacco products in the Republic of North Macedonia. The Association is the link among tobacco producers, tobacco buyers, and cigarette producers.
- ***National Extension Agency*** – The Agency provides counseling services to farmers and transfer of knowledge and information about agricultural policy and production, including tobacco production.
- The ***State Agriculture Inspectorate*** is authorized to perform supervision through controls and inspections of production and trade of tobacco. It also inspects the agricultural land, crops and plantations, legal entities, and individuals for receiving financial support in agriculture. It performs controls of the purchase sites in order to see if all necessary conditions are met. A representative of the Inspectorate is a member of the Commission, appointed by the Minister of Agriculture, Forestry and Water Economy, for validation of tobacco leaf samples.

Annex D

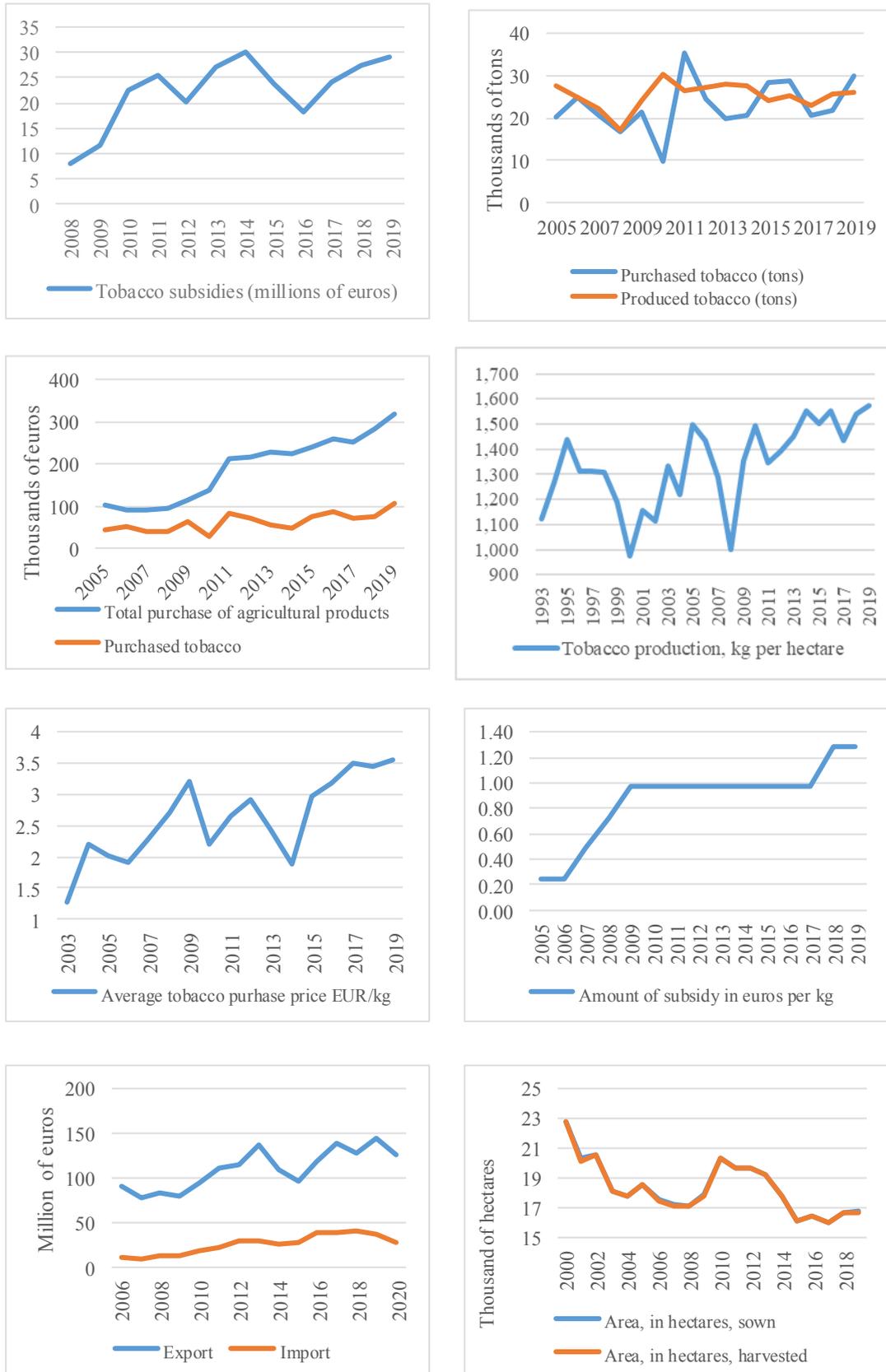
The correlation matrix

To further examine any possible relationships among variables, a correlation matrix is calculated. The results are presented in Table D1 and Figure D1. A cautionary note about the interpretation of the results since the sample utilized was small with only 12 observations: tobacco subsidies show significant correlation with tobacco production and tobacco import and export. Tobacco production is correlated with area sown and harvested with tobacco. Tobacco production expressed in kilograms per hectare shows relatively high correlation (0.69) with tobacco import. Purchased tobacco is significantly correlated with average purchase price (0.72) indicating that purchase price has a large influence on tobacco production.

Also, there is a high correlation between the purchased tobacco and tobacco import. Average purchase price has significant and negative correlation coefficients with area with sown and harvested tobacco. As the trends show, there has been a reduction in the area sown/harvested with tobacco, while the production of the tobacco has increased. Area sown and harvested with tobacco is positively and significantly correlated with tobacco production in tons, yet not with tobacco production per hectare. This indicates similarities in dynamics between these two variables in the observed period. They both reached their peak in 2010, followed by a decreasing trend and then a positive increase from 2017. Tobacco production per hectare continuously increases, indicating perhaps planting of higher quantities of tobacco (cultivation of tobacco in several rows) on a smaller area (land). Exports have a high correlation coefficient with tobacco subsidies and imports, while imports are positively correlated with tobacco subsidies, tobacco production per hectare, purchased tobacco in thousands of denari, and exports.

Regarding tobacco imports, from 2015 to 2020 more than 50 percent is for cigarettes that contain tobacco. Another significant part of the import is sun-cured unstemmed tobacco of the oriental type (around 25 percent) and flue-cured unstemmed or partly unstemmed tobacco (around 11 percent). Despite the statistically significant correlation, the authors cannot find a logical connection between increase in tobacco subsidies and increase in imports. Both trends seem to be on the rise, which is not uncommon, and the observation period is very short.

Figure D1. Main tobacco production indicators



Source: State Statistical Office and Agency for Financial Support of Agriculture and Rural Development, presented by authors

To conclude, according to the presented correlation coefficients, subsidies stimulate production and both exports and imports. Tobacco production and area sown and harvested with tobacco are correlated as expected, and purchase price has a significant effect on tobacco production.

Table D1. Correlation coefficients for important tobacco variables

n=12	Subsidies for manufactured and sold raw tobacco (euros)	Tobacco production, tons	Tobacco production, kg, per hectare	Purchased tobacco, tons	Purchased tobacco (thousands MKD)	Average purchase price MKD/kg	Area, in hectares, sown	Area, in hectares, harvested	Export (in euros)	Import (in euros)
Pearson Correlation										
Subsidies for manufactured and sold raw tobacco (euros)	1.00	0.66	0.77	0.25	0.30	-0.10	0.05	0.04	0.70	0.61
Tobacco production, tons	0.66	1.00	0.74	0.00	0.01	-0.35	0.58	0.58	0.29	0.23
Tobacco production, kg, per hectare	0.77	0.74	1.00	0.21	0.40	0.11	-0.12	-0.12	0.53	0.69
Purchased tobacco, tons	0.25	0.00	0.21	1.00	0.86	0.38	-0.22	-0.22	0.30	0.34
Purchased tobacco (thousands MKD)	0.30	0.01	0.40	0.86	1.00	0.72	-0.42	-0.43	0.53	0.61
Average purchase price MKD/kg	-0.10	-0.35	0.11	0.38	0.72	1.00	-0.62	-0.63	0.37	0.52
Area, in hectares, sown	0.05	0.58	-0.12	-0.22	-0.42	-0.62	1.00	1.00	-0.20	-0.48
Area, in hectares, harvested	0.04	0.58	-0.12	-0.22	-0.43	-0.63	1.00	1.00	-0.21	-0.48
Export (in euros)	0.70	0.29	0.53	0.30	0.53	0.37	-0.20	-0.21	1.00	0.84
Import (in euros)	0.61	0.23	0.69	0.34	0.61	0.52	-0.48	-0.48	0.84	1.00
Spearman Correlation										
Subsidies for manufactured and sold raw tobacco (euros)		0.02*	0.00**	0.43	0.35	0.75	0.89	0.89	0.01**	0.04*
Tobacco production, tons	0.02*		0.01**	0.99	0.98	0.27	0.05*	0.05*	0.36	0.48
Tobacco production, kg, per hectare	0.00**	0.01**		0.51	0.20	0.73	0.71	0.71	0.08	0.01**
Purchased tobacco, tons	0.43	0.99	0.51		0.00**	0.22	0.50	0.49	0.35	0.28
Purchased tobacco (thousands MKD)	0.35	0.98	0.20	0.00**		0.01**	0.17	0.16	0.07	0.04
Average purchase price MKD/kg	0.75	0.27	0.73	0.22	0.01**		0.03*	0.03*	0.24	0.09
Area, in hectares, sown	0.89	0.05*	0.71	0.50	0.17	0.03*		0.00**	0.53	0.12
Area, in hectares, harvested	0.89	0.05*	0.71	0.49	0.16	0.03*	0.00**		0.52	0.11
Export (in euros)	0.01	0.36	0.08	0.35	0.07	0.24	0.53	0.52		0.00**
Import (in euros)	0.04	0.48	0.01**	0.28	0.04*	0.09	0.12	0.11	0.00**	

*Correlation is significant at the 0.05 level; ** Correlation is significant at the 0.01 level

Source: State Statistical Office and Agency for Financial Support of Agriculture and Rural Development, calculated by authors

