Comparative analysis of the socio-economic developments and competitiveness of the agri-food sector at a sectoral and macro level in the pre-accession countries

Annex

Country Factsheets

Written by Lusine Aramyan, Michiel van Galen, Katja Logatcheva, Nera Herceglic in contribution from Ivana Janeska, Stamenkovska, Ahmet Ali Koç, Vlado Kovacevic, Milan Markovic, Aleksandra Martinovska Stojceska, Edvin Zhllima
[*November – 2022*]

EUROPEAN COMMISSION

Directorate-General for Agriculture and Rural Development

Directorate G International
Unit G.4 Neighbourhood, enlargement and pre-accession assistance

Contact content: Unit G.4

E-mail: AGRI-G4@ec.europa.eu

Contact dissemination: Unit A.3 – Policy Performance

E-mail: AGRI-EVALUATION@ec.europa.eu

European Commission
B-1049 Brussels

Comparative analysis of the socio-economic developments and competitiveness of the agri-food sector at a sectoral and macro level in the pre-accession countries

Annex

Country Factsheets

Directorate-General for Agriculture and Rural Development

2024

Europe Direct is a service to help you find answers to your questions about the European Union.

Freephone number (*)**:**

00 800 6 7 8 9 10 11

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Luxembourg: Publications Office of the European Union, 2024

PDF ISBN 978-92-68-05377-5 doi:10.2762/649475 KF-09-23-315-EN-N

CONTENTS

GLOSSARY

Concept	Definition	Source
Age dependency ratio	Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.	https://databank.worldbank.org/metadataglossary/all/series
Agricultural products (in trade statistics, according to WTO)	Defined for the coverage of the WTO's Agriculture Agreement, by the agreement's Annex 1. This excludes, for example, fish and forestry products. It includes various degrees of processing for different commodities. https://www.wto.org/english/res_e/reser_e/ersd202112_e.pdf	https://www.wto.org/english/thewto_e/glossary_e/agricultural_product_e.htm
Agricultural products (in trade statistics, according to FAO)	Refers to imports and exports of food and agriculture products, excluding fishery and forestry products. The aggregated item "Agriculture products, Total" (FAOSTAT item code 1882) includes only the food and agriculture products. It does include also some non-food items like beehives, hides and skins, cotton, silk, wool, and tobacco, and feed products. It does not include forestry products, but does include floricultural products such as cut flowers and plants, under 'Crude materials'.	FAO Statistics Division
At risk of poverty rate	The at-risk-of-poverty rate is the share of people with an equivalised disposable income (after social transfer) below the at-risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income after social transfers. This indicator does not measure wealth or poverty, but low income in comparison to other residents in that country, which does not necessarily imply a low standard of living. The at-risk-of-poverty rate before social transfers is calculated as the share of people having an equivalised disposable income before social transfers that is below the at-risk-of-poverty threshold calculated after social transfers. Pensions, such as old-age and survivors' (widows' and widowers') benefits, are counted as income (before social transfers) and not as social transfers. This indicator examines the hypothetical non-existence of social transfers.	https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At-risk-of-poverty_rate
Central government	From IMF Coverage of the GFS System, par. 2.48: The political authority of a country's central government extends over the entire territory of the country. The central government can impose taxes on all resident institutional units and on nonresident units engaged in economic activities within the country. The central government typically is responsible for providing collective services for the benefit of the community as a whole, such as national defense, relations with other countries, public order and safety, and the efficient operation of the social and economic system of the country. In addition, it may incur expenses on the provision of services, such as education or health, primarily for the benefit of individual households, and it may make transfers to other institutional units, including other levels of government.	https://datahelp.imf.org/knowledgebase/articles/577248-in-the-government-finance-statistics-gfs-what-c https://www.imf.org/external/pubs/ft/gfs/manual/pdf/ch2.pdf

Concept	Definition	Source
	https://datahelp.imf.org/knowledgebase/articles/577248-in-the-government-finance-statistics-gfs-what-c : Central government CG = BA + EA + SS + CC CG (Consolidated Central Government) BA (Budgetary Government) EA (Extrabudgetary Accounts) SS (Social Security) CC (Consolidation Adjustment for CG) It is used to eliminate any double-counting between the sub-sectors of the Central Government.	
Completion rate (primary education, lower secondary education, upper secondary education)	SDG Indicator 4.1.2: Percentage of a cohort of children or young people aged 3-5 years above the intended age for the last grade of each level of education who have completed that grade. The intended age for the last grade of each level of education is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full-time and had progressed without repeating or skipping a grade. For example, if the official age of entry into primary education is 6 years, and if primary education has 6 grades, the intended age for the last grade of primary education is 11 years. In this case, 14-16 years (11 + 3 = 14 and 11 + 5 = 16) would be the reference age group for calculation of the primary completion rate.	http://uis.unesco.org/en/glossary
Credit to Agriculture	Credit to agriculture measures the amount of loans and advances given by the banking sector to farmers or to rural households, to agricultural cooperatives or to any agri-related businesses.	https://www.fao.org/publications/card/es/c/CB8790EN/
Current health expenditure (% of GDP)	Level of current health expenditure expressed as a percentage of GDP. Estimates of current health expenditures include healthcare goods and services consumed during each year. This indicator does not include capital health expenditures such as buildings, machinery, IT and stocks of vaccines for emergency or outbreaks.	https://databank.worldbank.org/metadataglossary/all/series Source: World Health Organization Global Health Expenditure database (apps.who.int/nha/database)
Deposit interest rate (%)	Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability.	https://databank.worldbank.org/metadataglossary/all/series Source: IMF.
Education level of adult population	A composite measure based on, (a) the percentage of the population without any education, (b) the proportion of workers with secondary education, and (c) the proportion of workers with tertiary education. Index, 0-1.	Legatum prosperity index https://www.prosperity.com/about/resources
Educational attainment of the population aged 25 years and above	Distribution of the population aged 25 years and above according to the highest level of education attained or completed. Education levels are defined according to the International Standard Classification of Education (ISCED).	http://uis.unesco.org/en/glossary
Employment to population ratio, 15+, total (%)	Employment to population ratio is the proportion of a country's population that is employed. Employment is defined as persons of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit, whether at work during the reference period (i.e., who worked in a job for	https://databank.worldbank.org/metadataglossary/all/series

Concept	Definition	Source
(national estimate)	at least one hour) or not at work due to temporary absence from a job, or to working-time arrangements. Ages 15 and older are generally considered the working-age population.	
General government	General government includes central government, state government, and local government. From IMF Coverage of the GFS System, par. 2.28: The general government sector consists of all government units and all nonmarket non-profit institutions (NPIs) that are controlled and mainly financed by government units. https://datahelp.imf.org/knowledgebase/articles/577248-in-the-government-finance-statistics-gfs-what-c : General government GG = CG + SG + LG + CT GG (Consolidated General Government) CG (Consolidated Central Government) SG (State Government) LG (Local Government) CT (Consolidation Adjustment for GG) It is used to eliminate any double-counting between the sub-sectors of the General Government.	https://datahelp.imf.org/knowledgebase/articles/577248-in-the-government-finance-statistics-gfs-what-c https://www.imf.org/external/pubs/ft/gfs/manual/pdf/ch2.pdf
GDP (Gross Domestic Product)	GDP growth (annual %): Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2015 prices, expressed in U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. GDP (current US$): GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used. GDP per capita (current US$): GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. GDP per capita, PPP (current international $): This indicator provides per capita values for gross domestic product (GDP) expressed in current international dollars converted by purchasing power parity (PPP) conversion factor. GDP is the sum of gross value added by all resident producers in the country plus any product taxes and minus any subsidies not included in the value of the products. conversion factor is a spatial price deflator and currency	https://databank.worldbank.org/metadataglossary/all/series

Concept	Definition	Source
	converter that controls for price level differences between countries. Total population is a mid-year population based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.	
Gini Index	Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.	https://databank.worldbank.org/metadataglossary/all/series
Gross debt (public debt)	All liabilities that require future payment of interest and/or principal by the debtor to the creditor. This includes debt liabilities in the form of special drawing rights, currency, and deposits; debt securities; loans; insurance, pension, and standardized guarantee schemes; and other accounts payable. (See the 2014 edition of the IMF's Government Finance Statistics Manual and Public Sector Debt Statistics Manual). The term "public debt" is used in the Fiscal Monitor, for simplicity, as synonymous with gross debt of the general government, unless otherwise specified. (Strictly speaking, the term "public debt" refers to the debt of the public sector as a whole, which includes financial and nonfinancial public enterprises and the central bank.)	https://www.imf.org/external/datamapper/G_XWDG_G01_GDP_PT@FM/ADVEC/FM_EMG/FM_LIDC
Gross fixed capital formation (% of GDP)	Gross fixed capital formation (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.	https://databank.worldbank.org/metadataglossary/all/series Source: World Bank national accounts data, and OECD National Accounts data files.
Individuals using the Internet (% of population)	Internet users are individuals who have used the Internet (from any location) in the last 3 months. The Internet can be used via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.	https://databank.worldbank.org/metadataglossary/all/series Source: International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database
Lending interest rate (%)	Lending rate is the bank rate that usually meets the short- and medium-term financing needs of the private sector. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. The terms and conditions attached to these rates differ by country, however, limiting their comparability.	https://databank.worldbank.org/metadataglossary/all/series Source: IMF.
Life expectancy at 60 (years)	The average expected remaining years of life left at age 60, based on current mortality rates. Number /1 000 15-year olds	Legatum institute. Source: World Bank World Development Indicators.
Life expectancy at birth, total (years)	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	https://databank.worldbank.org/metadataglossary/all/series

Concept	Definition	Source
		Source: United Nations Population Division.
Literacy rate	The literacy rate is defined by the percentage of the population of a given age group that can read and write. The adult literacy rate corresponds to ages 15 and above, the youth literacy rate to ages 15 to 24, and the elderly to ages 65 and above. It is typically measured according to the ability to comprehend a short simple statement on everyday life. Generally, literacy also encompasses numeracy, and measurement may incorporate a simple assessment of arithmetic ability. The literacy rate and number of literates should be distinguished from functional literacy, a more comprehensive measure of literacy assessed on a continuum in which multiple proficiency levels can be determined.	http://uis.unesco.org/en/glossary
Mean nominal monthly earnings of employees by sex and occupation	Annual Description: The earnings of employees relate to the gross remuneration in cash and in kind paid to employees, as a rule at regular intervals, for time worked or work done together with remuneration for time not worked, such as annual vacation, other type of paid leave or holidays. This is a harmonized series: (1) data reported as weekly and yearly are converted to monthly in the local currency series, using data on average weekly hours if available; and (2) data are converted to U.S. dollars as the common currency, using exchange rates or using 2017 purchasing power parity (PPP) rates for private consumption expenditures. The latter series allows for international comparisons by taking account of the differences in relative prices between countries.	https://ilostat.ilo.org/resources/concepts-and-definitions/
Percentage of vocational enrolment	Total number of students enrolled in vocational programmes at a given level of education, expressed as a percentage of the total number of students enrolled in all programmes (vocational and general) at that level.	http://uis.unesco.org/en/glossary
Producer Price Index (2014-2016 = 100)	Producer prices are prices received by farmers for primary agricultural products as defined in the SNA 93. The producer's price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any VAT, or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer. Time series refer to the national average prices of individual commodities comprising all grades, kinds and varieties, received by farmers when they participate in their capacity as sellers of their own products at the farm gate or first-point-of-sale. Data are obtained from Producers (farmers or farmers' groups), purchasers or markets at the point of initial sale (at the farm-gate) The index is calculated by summing the Standardised Local Currency (SLC) price for a given year multiplied by production quantity in base year for all items in the aggregate and dividing by the sum of the SLC price in the base year multiplied by production quantity for the base year for the same items. The single item indices are calculated by dividing the SLC price in a given year by the SLC price in the base year. Source: FAO Statistics Division.	https://www.fao.org/faostat/en/#data/PP
School enrollment,	Gross enrolment ratio is the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Tertiary education, whether or not to an advanced research	

Concept	Definition	Source
tertiary (% gross)	qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.	
School enrollment, secondary (% net)	Net enrolment rate is the ratio of children of official school age who are enrolled in school to the population of the corresponding official school age. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.	
Unemployment, total (% of total labour force) (national estimate)	Unemployment refers to the share of the labour force that is without work but available for and seeking employment. Definitions of labour force and unemployment differ by country.	https://databank.worldbank.org/metadataglossary/all/series Source: International Labour Organization, ILOSTAT database
Vocational education	Education that is designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation or trade or class of occupations or trades. Vocational education may have work-based components (e.g., apprenticeships). Successful completion of such programmes leads to labour-market relevant vocational qualifications acknowledged as occupationally-oriented by the relevant national authorities and/or the labour market	http://uis.unesco.org/en/glossary

1. INTRODUCTION

This Annex report addresses the comparative analysis of the competitiveness of the agri-food sector for five IPARD countries: Albania, Montenegro, North Macedonia, Serbia and Türkiye. It provides an overview of the Country factsheets with the socio-economic development and competitiveness of the agricultural sector at a sectoral and macro levels in the IPARD countries. The country factsheets provide a detailed information on competitiveness indicators for each IPARD country and serve as a base for the cross-country analysis of the competitiveness and its comparison with the EU (report "Comparative analysis of the socio-economic developments and competitiveness of the agri-food sector at a sectoral and macro level in the pre-accession countries: Final report").

2. DATA COLLECTION APPROACH

Data on macro-economic indicators and agricultural sector indicators for the IPARD countries have been collected from open international data sources such as World Bank, IMF, FAO and other UN databases, Eurostat, as well as National statistical offices in the IPARD countries. The information, which was not available on international websites, has been gathered by National Experts (NEs) from national statistics, national surveys/registers, or secondary literature. In order to assist NEs in data gathering process WR team has prepared a questionnaire and templates for collecting missing data. The NEs have filled out the missing data to the extent possible. After collecting all the information, draft country factsheets have been prepared and shared with the NEs for their feedback. After receiving feedback, WR has adjusted the report accordingly.

In addition to macro-economic and general agricultural sector indicators of countries, the data for the following agricultural sub-sectors are gathered and analysed in detail 1) Livestock dairy sector, 2) Livestock eggs and honey sector, 3) Livestock meat sector, 4) Fruit and vegetables 5) Cereals, potatoes and other crops.

For the product level analysis data on market prices (farm-gate), outputs and yields for 15 selected products has been gathered. Product selection has been carried out using a set of criteria and weighing approach. These data are collected from FAO data base. NEs were asked to complete the missing data from national sources to the extent possible. In addition, inputs prices for a number of important agricultural inputs have been collected including feed, fertilizers, and energy. Data on the prices of these inputs were available from Eurostat for some EU countries, but not for IPARD countries. This has required additional data collection in the countries. Hereby the focus was on the current prices and price developments were assessed more qualitatively. To collect this information, a questionnaire for NEs was developed, which included among others also questions related to the list of inputs.

Furthermore, unit production costs such as specific costs, overhead costs and external factor costs have been collected for 3 selected products. The selected 3 products were apples, tomatoes and cow milk. The information on costs of production was not available in open international resources. To collect this information, a questionnaire was developed, with a few specific input costs. In most countries, statistical data is not available and therefore, the NEs were required to estimate these costs using input from farmers (farm-level data) and other experts, data sources. For this purpose, data collection using interviews and desk study has been performed.

In addition, one high potential product per country has been selected as a showcase product. NEs have selected these showcase products for their own country based on their own expert knowledge. They have provided a justification for their choice. For the showcase product the NEs have collected information on prices and provided a short qualitative description of the developments in the production and the strengths and weaknesses of the producers. The following showcase products have been selected: Albania: watermelon, Montenegro: lamb meat, North Macedonia: wine, Serbia: raspberries, Türkiye: cherry.

An important note is that in many instances data from international statistical databases (e.g., FAO or UN COMTRADE) were used in the analysis instead of the national statistics. The reason for this is to have a consistent comparison among countries with comparable definitions of the indicators. During the data collection it was noted that in some cases the national statistical indictors were defined differently from the international data definitions (such as the definition of agricultural product trade in WTO and FAO) as well as from the definitions used within different IPARD countries, which made it difficult to use them in the comparative analysis.

3. ALBANIA

3.1. Introduction

This chapter describes the key characteristics and developments of Albania, regarding socio-economic developments, the agricultural sector and rural-urban disparities. The data described in this chapter is used to make cross-country comparisons in the main study report as well as to assess the competitiveness of the agri-food sectors of the various IPARD countries.

3.2. Social and macro-economic developments

3.2.1. Population

Albania has a population of about 2.8 million inhabitants (see Figure 3.1). Albania is divided into 12 regions and 61 municipalities. According to FAO data (see Figure 3.2), more than half of the population is living in urban areas. The overall population density is about 100 inhabitants per square km.

The total population has been steadily declining over the recent years, from 2.9 million in 2010 to 2.84 million in 2020 with a subsequent decrease in 2021 (see Figure 3.1). The decline in the population has been going hand in hand with a relative increase in the urban population (see Figure 3.2). The rural population decreased from 1.39 million to 1.08 million over the same period, indicating a gradual shift of the population from rural areas to urban areas.

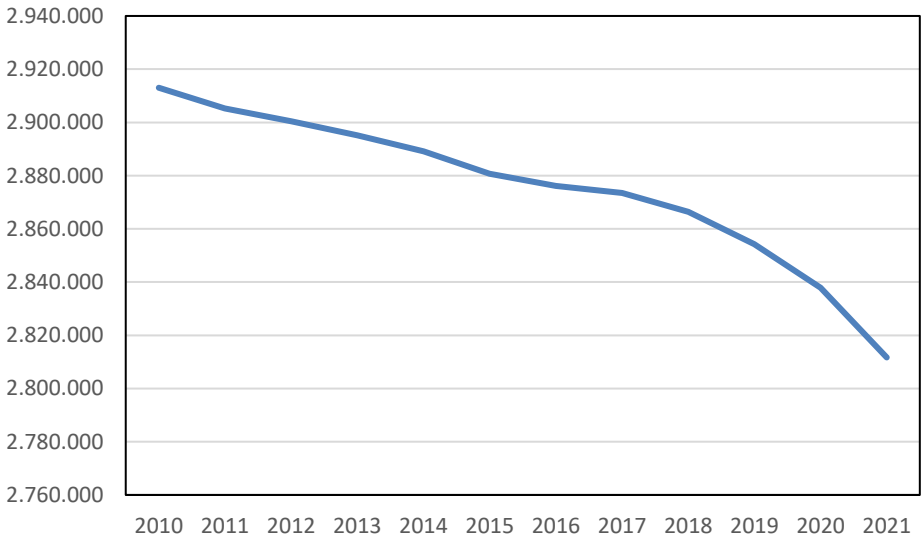

Figure 3-1. Total population of Albania, persons, 2010-2021. Source: World Bank.

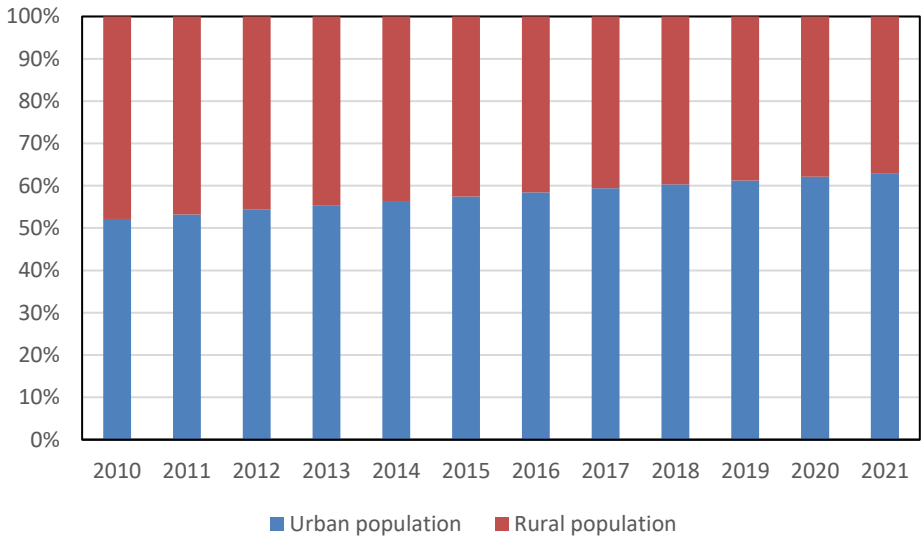

Figure 3-2. Population, urban and rural, %, 2010-2021. Source: World Bank.

3.3. Migration

The decline in population is further increased by a net-emigration trend in the past years. Especially in 2019 and 2020, the data shows that more people have emigrated from Albania than immigrated to Albania (see Figure 3-3).

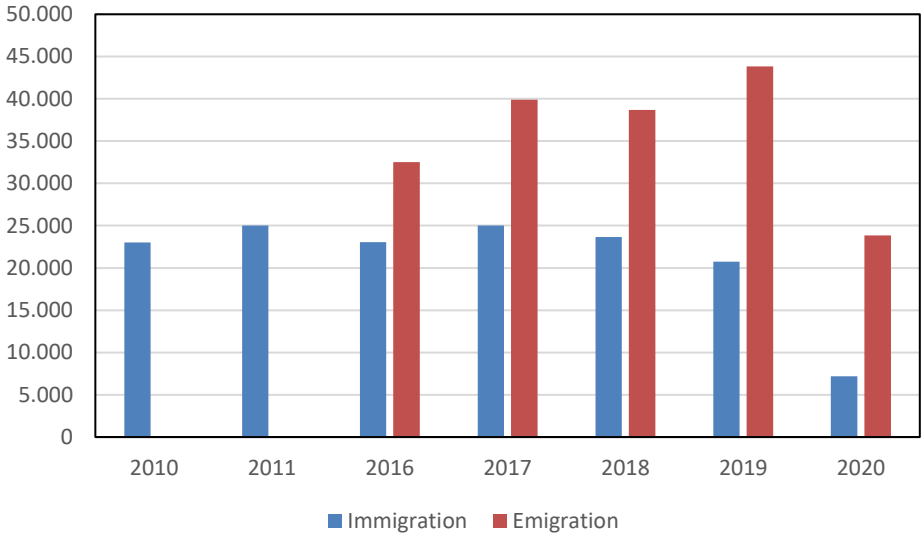

Figure 3-3. Immigration and emigration, to and from Albania. Source: Eurostat, INSTAT.

3.3.1. Employment

The employment and earnings have gradually improved in Albania in the recent years. However, in 2020 there seems to be a trend break in the employment development. But in 2021 employment to population ratio shows a growth again. The employment to population ratio varied between 44% and 52% in the 2010-2021 period. Starting from 2014 up to 2019, the employment to population ratio increased gradually up from 44.1% to 53.4% (see Figure 3-4). In the same period, the unemployment ratio (percentage of labour force) has been declining (see Figure 3-5), the ratio went down

from 18.5% to 11.5%. In 2020, the unemployment ratio slightly increased to 11.7%. In the same year, 52% of people older than 15 years were employed (see Figure 3-4), which means a slight decrease compared to the previous year. The mean nominal monthly earnings of employees increased from 325 euros in 2014 to 434 euros in 2020 (see Figure 3-6).

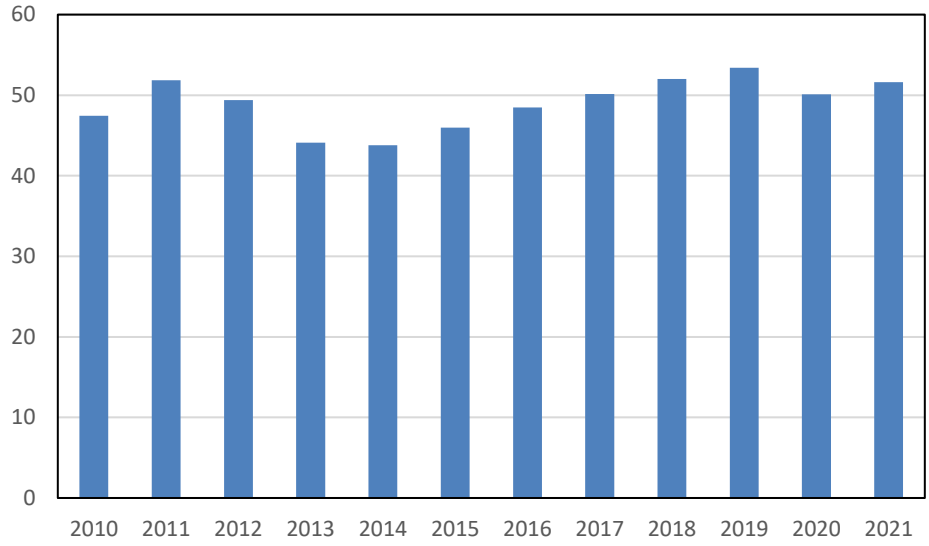

Figure 3-4. Employment to population ratio in Albania, 15+, total, %. Source: World Bank.

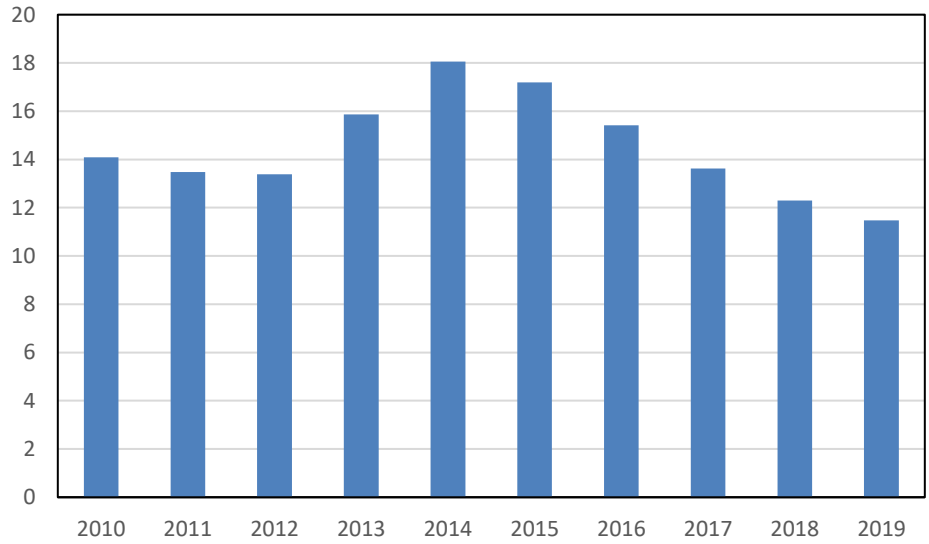

Figure 3-5. Unemployment in 2010-2019 in Albania, % of total labour force. Source: World Bank.

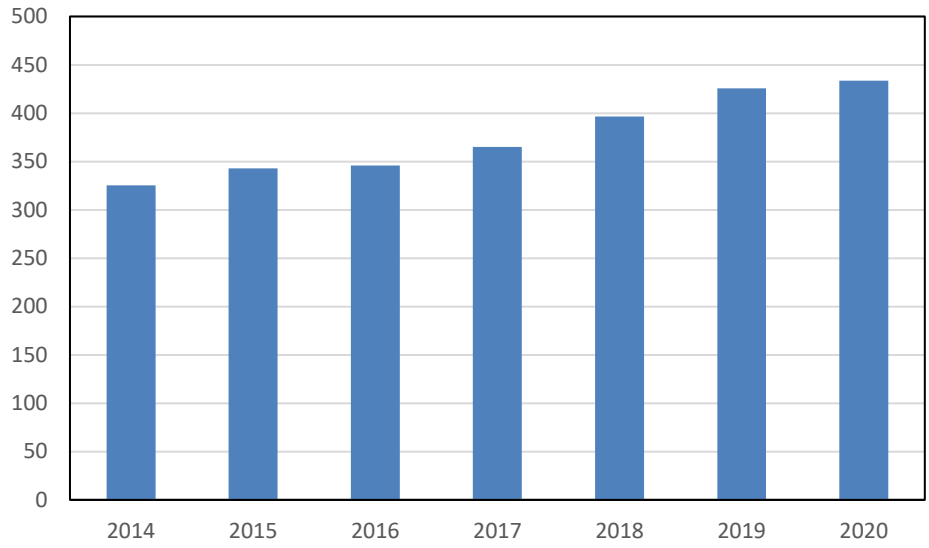

Figure 3-6. Mean nominal monthly earnings of employees in Albania, total, in EUR. Source: ILO.

3.3.2. Health

In Albania, life expectancy at birth was 78.7 years in 2021 (see Figure 3-7). In the period 2010-2021 this number increased gradually from 76.6 years in 2010 indicating improving health and other human development conditions in Albania.
In 2018, Albania spent around 5.3% of its GDP on health (see Figure 3-8). This percentage varies slightly over the years. In the period 2010-2018, the lowest share of health expenditure was 4.7% in 2010, and the highest 5.5% in 2014. No data on health expenditure is available for more recent years.

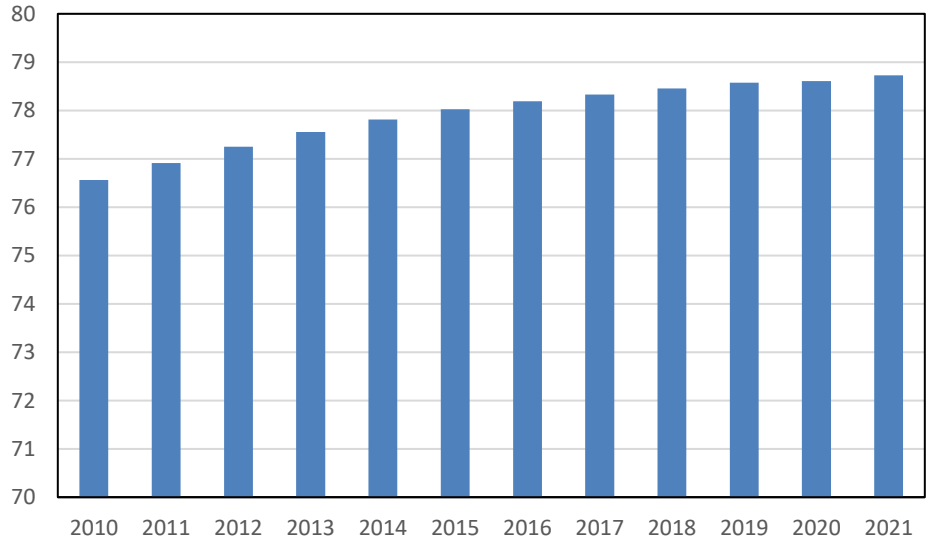

Figure 3-7. Life expectancy at birth in 2010-2021 for Albania, total (years). Source: World Bank.

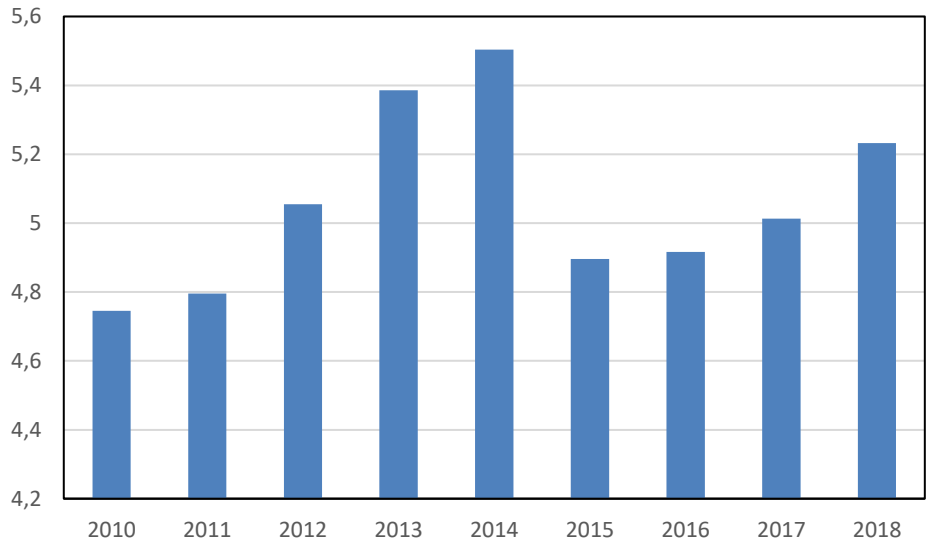

Figure 3-8. Current health expenditures, % of GDP, Albania, 2010-2018. Source: World Bank.

3.3.3. Education

Education level of adult population is a composite measure based on, (a) the percentage of the population without any education, (b) the proportion of workers with secondary education, and (c) the proportion of workers with tertiary education. Education level of adult population is an index between 0 and 1, with a higher number indicating a higher performance on education level of adult population (Barro and Lee dataset). In Albania this measure increased from 0.5 to 0.6 in the 2010-2021 period (see Table 3-1). The proportion of 15- to 24-year-olds enrolled in vocational education increased from 12.7% in 2012 to 17.6% in 2020. Adult literacy rate of population older than 15 years increased from 96.8% in 2011 to 98.1% in 2018. The completion rate of upper secondary education in rural areas was 72.5% in 2017.

Table 3-1. Education statistics in Albania, 2010-2021

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Education level of adult population	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Proportion of 15- to 24-year-olds enrolled in vocational education, both sexes (%)			12.7	15.0	16.3	16.4	16.5	17.2	18.3	18.0	17.6	
Completion rate, upper secondary education, both sexes (%)								80.0				
Educational attainment rate, completed upper secondary education or higher, population 25+ years, both sexes (%)		43.0	45.0									
Educational attainment rate, completed short-cycle tertiary education or higher, population 25+ years, both sexes (%)		12.0	13.0									

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, both sexes (%)		12.0	13.0									
Adult literacy rate, population 15+ years, both sexes (%)		97.0	97.0						98.0			

Source: Legatum, Unesco, World Bank, INSTAT.

3.3.4. Infrastructure and ICT

The Logistics performance index is a composite measure based on a number of indicators related to a country's trade logistics infrastructure. The Logistics performance index ranges between 0 and 5, with a higher number indicating a higher logistics performance. In Albania, the overall logistic performance is rated 2.7 (see Figure 3-9). The frequency with which shipments reach consignees within scheduled time is ranked highest, 3.2. The lowest rank is for the quality of trade and transport-related infrastructure, 2.3.

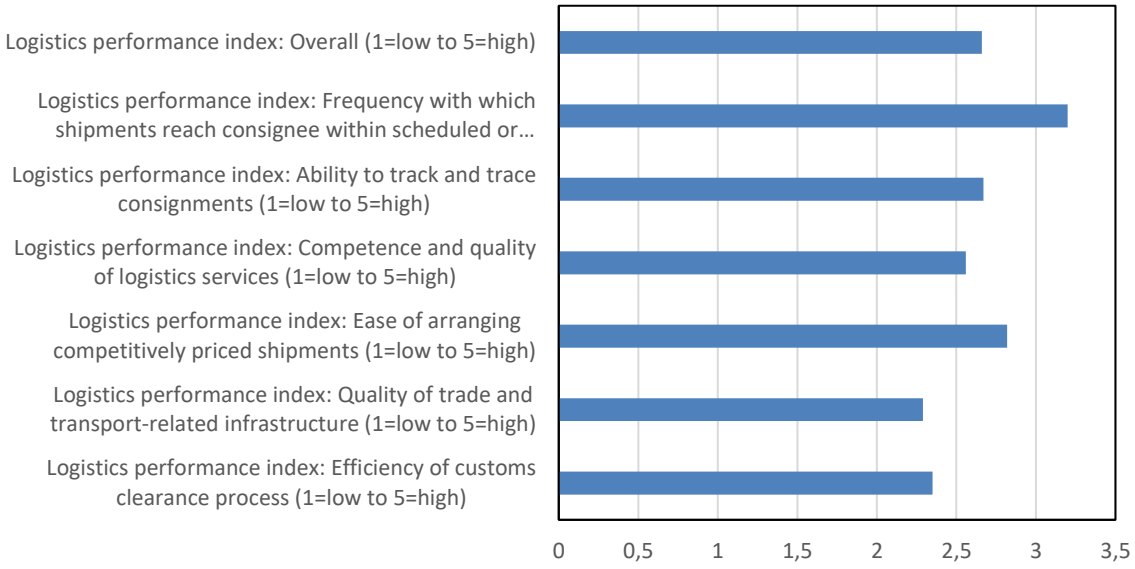

Figure 3-9. Logistics performance index, Albania, 2018. Source: World Bank.

The overall connection to internet in Albania has been improving in the recent years (see Figure 3-10). The percentage of individuals using the internet has increased from 45% in 2010 to 71% in 2020. The number of mobile cellular subscriptions increased from 91 to 126 per 100 people between 2010 and 2017. In the years after this number dropped to 91 subscriptions per 100 people in 2020.

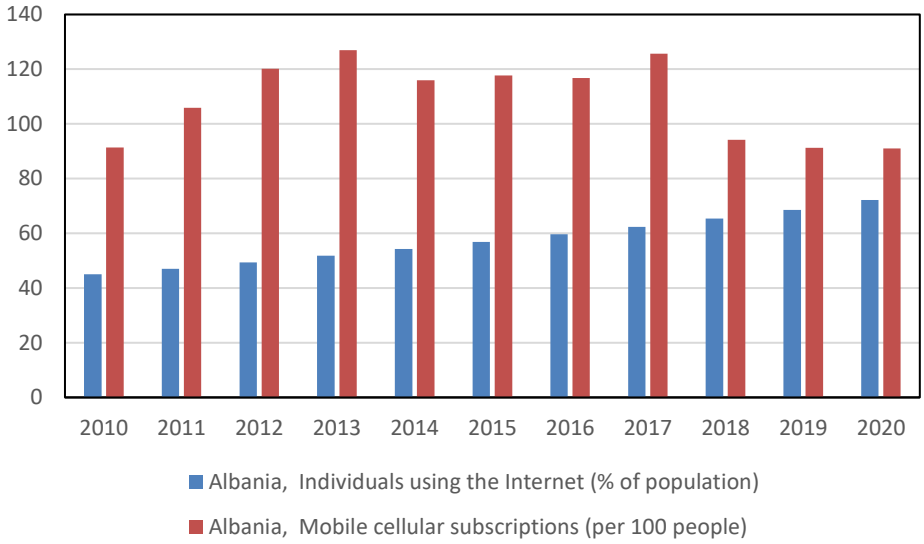

Figure 3-10. Individuals using the internet and mobile cellular subscriptions. Source: World Bank.

3.3.5. Income distribution

There has been a trend toward more income distribution inequality in Albania. In 2012, Gini index was 29. In the period 2014-2019, the index varied between 32.9 and 35.4 (see Figure 3-11).

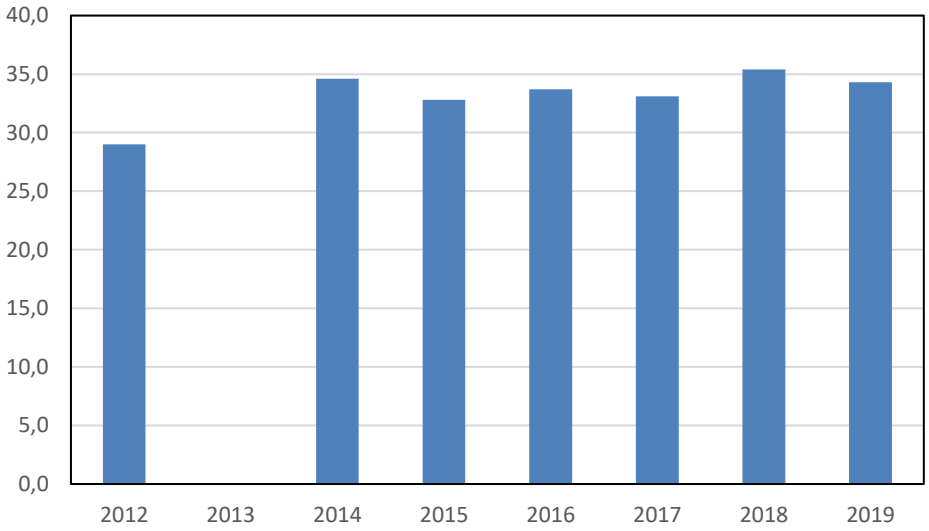

Figure 3-11. Gini Index, Albania. Source: World Bank.

3.3.6. Social protection

Albania has been spending an increasing share of the GDP on social protection (see Figure 3-12). In 2010 the share of social protection expenditure in percentage of the GDP was 8.2%, in 2017 this share was 9.3%. Also, in terms of euro per inhabitant, an increase of the expenditure on social protection is visible (see Figure 3-13). In 2010, the amount of money spent per inhabitant was 741 euros, in 2017, this amount increased up to 1,075 euros. No data is available on the social protection expenditures for more recent years.

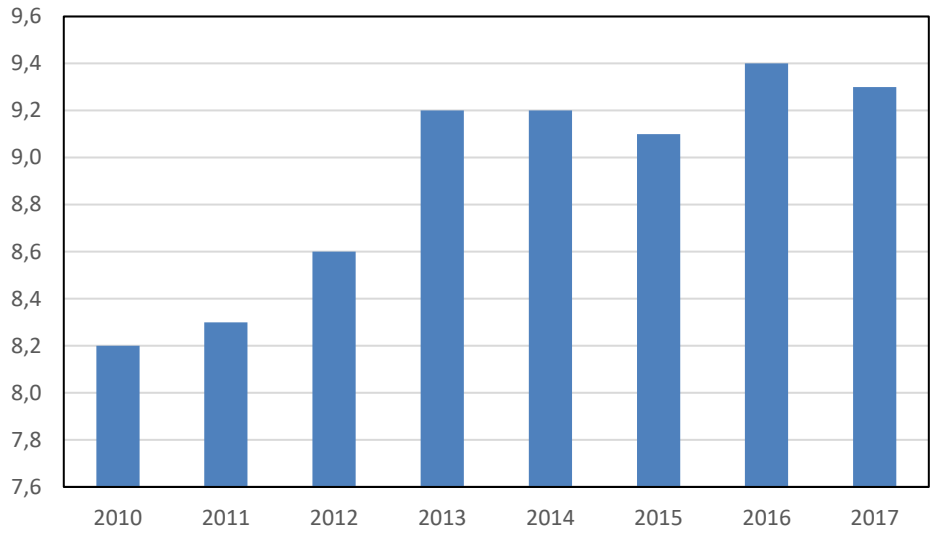

Figure 3-12. Social protection expenditure in Albania, % of GDP. Source: Eurostat.

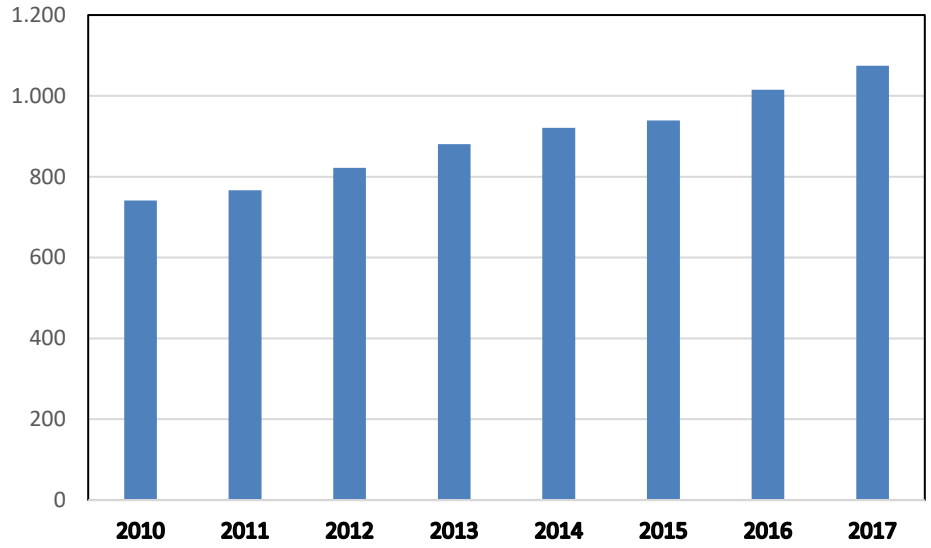

Figure 3-13. Social protection expenditure, EUR per inhabitant. Source: Eurostat.

3.3.7. National accounts

In the recent years, the development of the GDP and added value in Albania showed a positive trend. However, in 2020 there was a trend break with declining numbers but in 2021 shows an increase again. Between 2010 and 2019, the GDP in market prices increased from 9.0 billion euros to 13.8 billion euros. The real GDP growth varied between 1.0% and 4.2% between 2011 and 2019 (Table 3-2). In 2020, the GDP in market prices decreased to 13.0 billion euros. However, in 2021 the GDP in market prices increased with 2 billion euros. The real GDP growth was -3.0% in 2020 and 9.0% in 2021 (Table 3-2). The GDP per capita showed the same trend, increasing from 3 088 euros in 2010 to 4 820 euros in 2019, decreased to 4 593 euros in 2020 and again increasing in 2021 to 5,491 euros (Table 3-2). The gross value added at basic prices increased from 7.8 billion euros to 12.0 billion euros in the 2010-2019 period. In 2020, the gross value added at basic prices decreased to 11.4 billion euros. But in 2021 it increased to 13.5 billion euros. The Gross fixed capital formation in Albania was 24% in 2021. In the 2010 – 2021 period this percentage decreased from 29%.

Table 3-2. National accounts statistics, Albania

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth 2015-last availabl e year
GDP at market prices, current prices (million EUR)	8 997	9 261	9 589	9 620	9 957	10 263	10 716	11 525	12 834	13 758	13 248	15 439	50
Gross value added at basic prices (million current EUR)	7 820	8 054	8 308	8 392	8 691	9 014	9 396	10 067	11 225	12 027	11 614	13 464	49
Real GDP Growth (constant ALL)	4	3	1	1	2	2	3	4	4	2	-3	9	285
GDP per capita (current EUR)	3 088	3 188	3 306	3 323	3 446	3 563	3 726	4 011	4 477	4 820	4 668	5 491	54
Share of food in total household's expenditures (%)	38	39	39	40	40	41	40	40	40	40			-2
Compensation of employees (% of expense)		27	27	26	25	24	23	24	24	24	23		-5
Taxes on goods and services (% of revenue)		56	55	54	56	55	56	53	53	51	52		-5
Taxes on income, profits and capital gains (% of revenue)		15	14	14	14	15	11	16	17	18	15		3
Taxes on international trade (% of revenue)		3	4	4	3	3	2	2	1	2	2		-46
Gross fixed capital formation (% of GDP)	28	29	26	26	24	24	24	25	24	22	23	24	-1

Source: World Bank, INSTAT.

In Albania, Agriculture, forestry and fishing is the most important sector in terms of the contribution to the GDP (22% in 2021). The second important sector is wholesale and retail trade, transport, accommodation and foodservice activities is the second important contributor (20%), Public sector (public administration, defence, education, human health, social work, et.) is the third large sector in terms of share of the GDP (15%) (Figure 3-14).

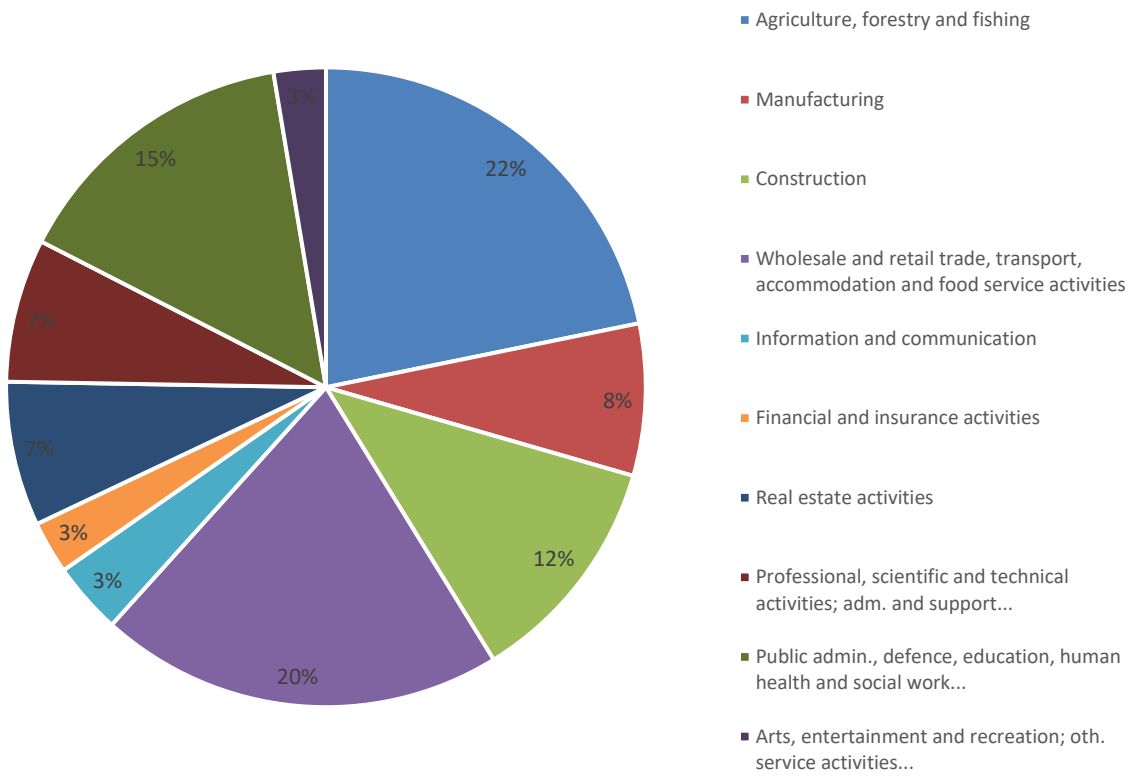

Figure 3-14. Breakdown of GDP by main activities in Albania, gross value added, 2021, %. Source: Eurostat.

In terms of Albanian government income in the 2011-2019 period, taxes on goods and services varied between 51% (2019) and 56% (2016), taxes on income, profits and capital gains varied between 11% (2016) and 18% of the revenue (2019), and taxes on international trade varied between 1% (2018) and 4% of the revenue (2012 and 2013) (see Table 3-2).

The compensation of employees was between 27% and 23% of expense and showed a slightly declining trend between 2011 and 2019. Gross fixed capital formation as a percentage of GDP declined from 28% (2010) to 22% (2020) (see Table 3-2).

The share of food in the total household's expenditures slightly increased from 38% in 2010 to 40% in 2019 (see Table 3-2).

3.3.8. Government finances

Table 3-3 shows the government finances of Albania between 2015-2021. General government final consumption expenditure has stayed stable between 11-12% of GDP. Central and general government expenditure on agriculture has also stayed stable between 2-3% of the total expenditure. General government debt was between 68-78% of the GDP in the years 2015-2020.

Table 3-3. Albania: Total general debt, general government expenditure, in % of GDP; and government expenditure on Agriculture, forestry, fishing, in % of total expenditure

	2015	2016	2017	2018	2019	2020	2021
General government final consumption expenditure (% of GDP) (World Bank)	11	11	11	11	11	12	12
Central Government Expenditure Agriculture, forestry, fishing (% of total expenditure) (FAO)	2	3	2	3	2	3	
General Government Expenditure Agriculture, forestry, fishing, % of total expenditure (FAO)	2	3	2	2	2	2	
General Government Debt (Percent of GDP) (IMF)	74	73	72	70	68	78	

3.3.9. Exchange rates

The lek (ALL) is the official currency of Albania. In the recent years, the currency became somewhat stronger compared to the euro. Between 2010 and 2015, the exchange rate varied between 138 ALL/EUR and 140 ALL/EUR. After 2015 the ALL/EUR rate improved to 122 ALL/EUR in 2021 (see Figure 3-15).

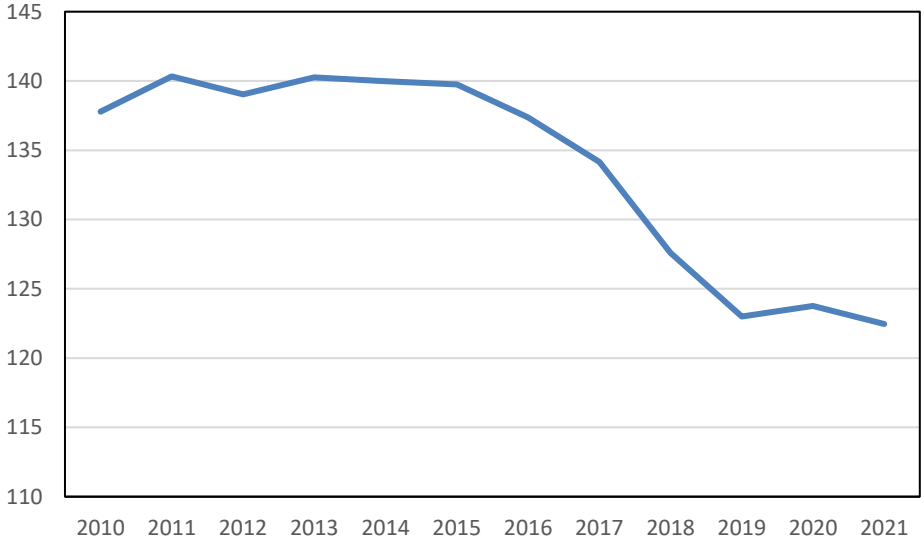

Figure 3-15. Exchange rate of Albanian Lek to Euro, 2010-2021. Source: Eurostat.

3.3.10. Interest rates

The interest rates in Albania show a long-term decreasing trend. The lending interest rate decreased from 13% in 2010 to 6% in 2021. The deposit interest rate decreased from 6% in 2010 to 0% in 2021 (see Figure 3-16).

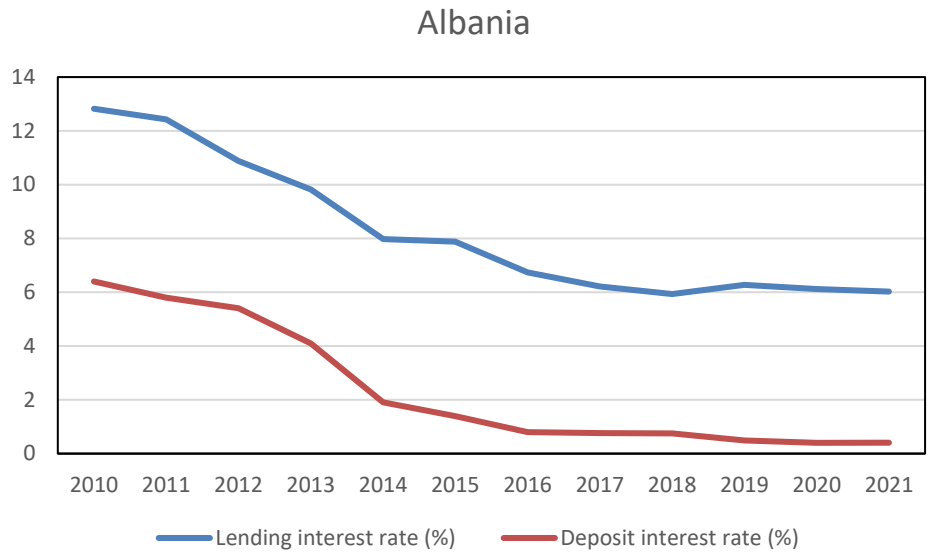

Figure 3-16. Interest rates in Albania, 2010-2021. Source: IMF.

3.3.11. Prices

The prices of consumer goods in Albania show a gradually increasing trend in the long-term. The consumer price index went up from 100 in 2010 (2010 = 100) to 121 in 2021 (see Figure 3-17).

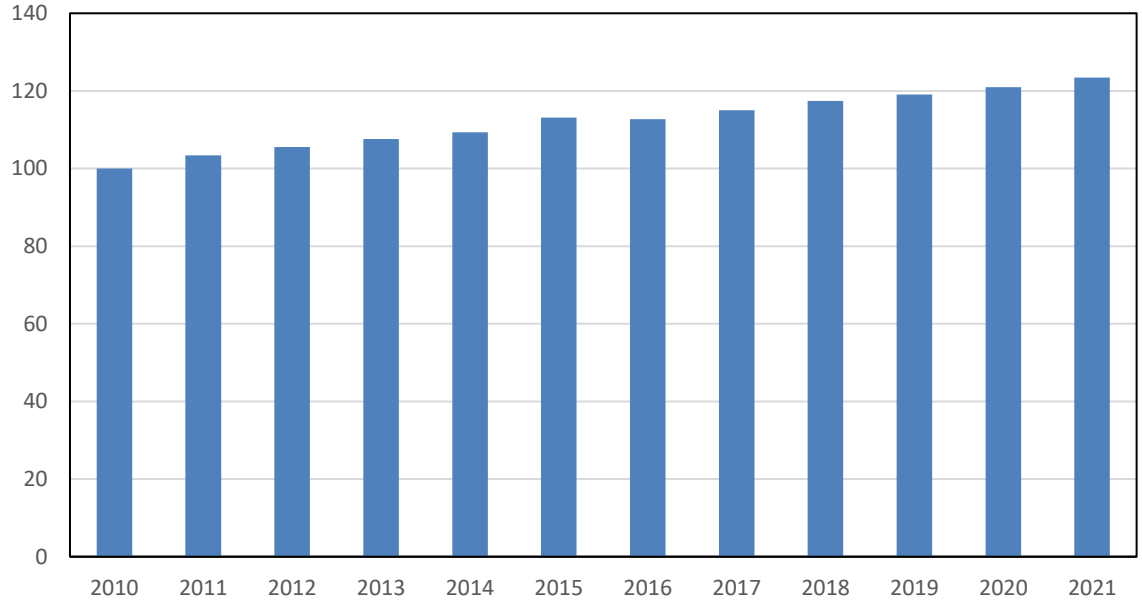

Figure 3-17. Consumer price index (2010=100), Albania, 2010-2021. Source: World Bank.

3.3.12. Balance of payments and trade

Albania is a net-importer of products. The exports were 2 194 million euros and the imports 4 876 million euros in 2020 (see Figure 3-18). The exports and the imports were somewhat fluctuating in the period between 2010 and 2020, but overall, they show

an increasing trend. In 2010, the exports were 1 165 million euros and the imports 3 323 million euros.

Figure 3-18. Import, export and trade balance, in million EUR, Albania, 2010-2020. Source: FAO.

3.4. Agricultural sector

Table 3-4 presents key indicators for the agricultural sector in Albania. The total value added of the sector was about 2.6 billion euros. Agriculture is one of the main sectors of the Albanian economy, generating approximately 22% of the country's GDP and providing employment to around 36% of the total employed. The utilised agricultural area (UAA) is 1.17 million hectares (ha), which is about 40% of the total land area of the country. Half of the UAA is arable land, 43% is permanent grassland and 7% is land under permanent crops.

In the past ten years, between 2010 and 2020, the sector's share in the economy was stable. In terms of employment the primary sector is also very important. It provided jobs to 461 thousand people in 2019 and accounted for 36% of the country's total employment. In contrast however to the share in value added, the share in total employment is decreasing.

Although the total agricultural land has not changed much in last decade, the share of production value of crops has increased while the share of livestock production has decreased. This trend is accompanied with a steep increase in the export value. Albania has seen an increase in higher value production and productivity.

Gross Agricultural Output value is not available for Albania. There are no complete numbers on the farm structure. With the number of 352 000 farms in 2015 and 616 000 ha of arable land, the farm size is about 2 ha. According to EC (2022), very limited size of holdings (average of 1.2 ha – compared to 14 ha in the EU) is one of the limiting factors in Albanian agriculture development.

3.4.1. Farm structure, labour

In Albania the very limited size of holdings (average of 1.2 ha – compared to 14 ha in the EU) is one of the limiting factors in the agriculture development. There is insufficient data on number and size of agricultural holdings available to present the farm structure. Older data are available here: https://seerural.org/news/open-access-agricultural-statistics-on-western-balkans-and-turkey/

3.4.2. Production value

The total production value of agriculture in Albania has gradually increased. In 2010, the value was 1 436 million euros. In 2020, the production value of agriculture was 2 233 million euros. In the 2010-2020 period the production value shifted somewhat from livestock to crops. The share of crops in the production value of agriculture increased from 48% to 56%. Obviously, the livestock share of the production value decreased from 52% to 44% (see Table 3-4).

3.4.3. Prices and input costs

Figure 3-19 shows the producer price index of agriculture in Albania whereby 2014-2016 are 100. Between 2010-2013 the producer prices in Albania were below the index, in 2013 the prices increased and as of 2014 show a little fluctuation with slight decrease. For the input costs in agriculture, no developments can be shown due to the lack of data. Inputs costs are not available for Albania.

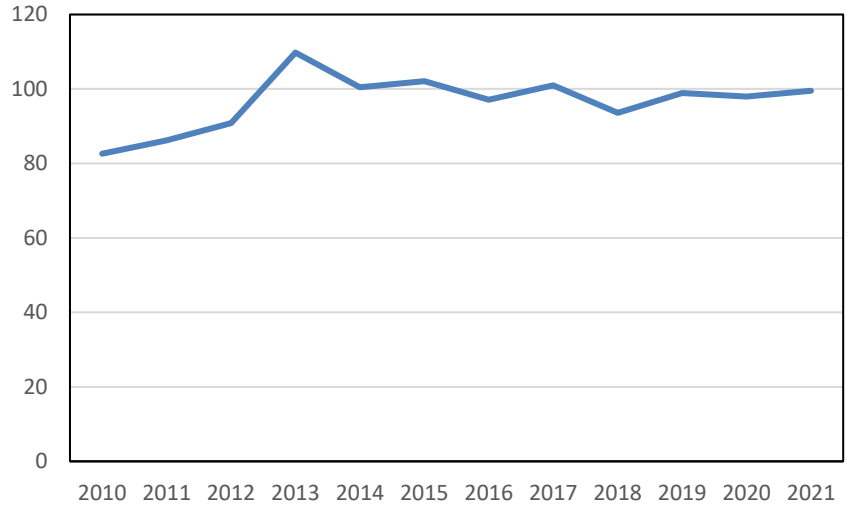

Figure 3-19. Producer price index of Agriculture, 2014-2016 = 100, in 2010-2021. Source: FAO.

Table 3-4. Key agricultural statistics, Albania

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross value added of the agriculture, forestry, hunting and fishery sector (A)	GVA (at current prices)	million EUR	1 615	1 688	1 800	1 882	1 990	2 030	2 127	2 192	2 365	2 530	2 552	2,730
	Share in GVA of all business activities	%	21	21	22	22	23	23	23	22	21	21	22	
	Agriculture, forestry and fishing, Value Added (% of GDP)	%	18	18	19	20	20	20	20	19	18	18	19	18
Employment in the agriculture, forestry, hunting and fishery sector (A)	Number	1 000 persons	496	504	525	501	443	448	466	457	460	461		
	Share in total employment	%	42	45	46	44	42	41	40	38	37	36		
Trade in food and agricultural products	Export of agri-food products	million EUR	46	61	73	83	51	94	124	94	91	135	138	
	Share in export of all products	%	4	4	5	5	3	5	7	5	4	6	6	
	Import of agri-food products	million EUR	609	630	646	635	422	539	585	410	437	741	621	
	Share in import of all products	%	18	16	17	17	11	14	14	9	9	14	13	
	Trade balance in agri-food products	million EUR	-563	-569	-574	-552	-371	-445	-461	-316	-345	-606	-483	
	Export/import rate	%	8	10	11	13	12	17	21	23	21	18	22	
Agricultural land	Total	1 000 ha	1 201	1 201	1 201	1 187	1 174	1 174	1 182	1 174	1 174	1 174	1 166	
	- Arable land	1 000 ha	626	622	619	617	616	615	620	612	611	610	600	
	of which fallow and uncultivated land	1 000 ha												
	- Land under permanent crops	1 000 ha	70	74	77	79	80	81	83	84	85	86		
	of which orchards	1 000 ha												
	other permanent crops	1 000 ha												
	- Permanent grassland	1000 ha	505	505	505	491	478	478	478	478	478	478		

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	of which meadows	1000 ha												
	pastures	1000 ha												
	- Other agricultural land	1000 ha				1	1	1	1	2	2	2		
Farm structure	Number of agricultural holdings	1000 holdings	351	353	351	352	352	352	:	:	:	:		
	Utilised agricultural area (UAA)	1000 ha	:	:	:	:	:	:	:	:	:	:		
	UAA per holding	Ha/holding	:	:	:	:	:	:	:	:	:	:		
Value of production	Total agriculture	million EUR	1 436	1 565	1 712	1 961	1 844	1 957	1 952	2 055	2 084	2 199	2 233	
	- Crops	million EUR	690	735	765	1 131	1 035	1 009	1 067	1 164	1 106	1 266	1 249	
	- Livestock	million EUR	746	830	947	830	809	948	885	891	978	933	985	
Share of crop and livestock output in total Agricultural Goods Output	- Crops	%	48	47	45	58	56	52	55	57	53	58	56	
	- Livestock	%	52	53	55	42	44	48	45	43	47	42	44	

Source: FAO, World Bank, Eurostat.

3.4.4. International trade

Table 3-5 reports total trade in goods and the share of agricultural trade of Albania in 2010-2020. Agricultural products are defined as in the WTO Agreement on Agriculture, including chapters 1 to 24 of the harmonized system, excluding fisheries and fish products, plus several products related to animal and vegetable products like mannitol, sorbitol and essential oils, hides and skins, silk, wool, cotton, flax and hemp.
Albania is a net importer of agricultural products. Between 2010 and 2020, however, agricultural exports have increased 405% while imports have only increased 27% in value (measured in euros). Over the period 2010-2020, the share of agricultural products in total exports has increased from 4% to 11%. At the moment of writing this report, trade data for 2021 were not yet available for Albania.

Table 3-5. Export and import of agricultural products, Albania, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	growth 2010-2020 (%)
Export								
Total trade (million EUR)	1 169	1 739	1 773	2 046	2 435	2 430	2 116	81
Agricultural trade (million EUR)	47	109	132	163	183	219	236	405
Share of agricultural trade in total trade (%)	4	6	7	8	8	9	11	
Import								
Total trade (million EUR)	3 472	3 894	4 218	4 693	5 031	5 289	4 747	37
Agricultural trade (million EUR)	611	653	672	677	768	828	773	27
Share of agricultural trade in total trade (%)	18	17	16	14	15	16	16	

Source: UN Comtrade, calculations WR. Agricultural products aggregate is calculated by WR and is somewhat higher than corresponding data of FAO for Albania, which presumably excludes some unspecified agricultural trade at chapter level.

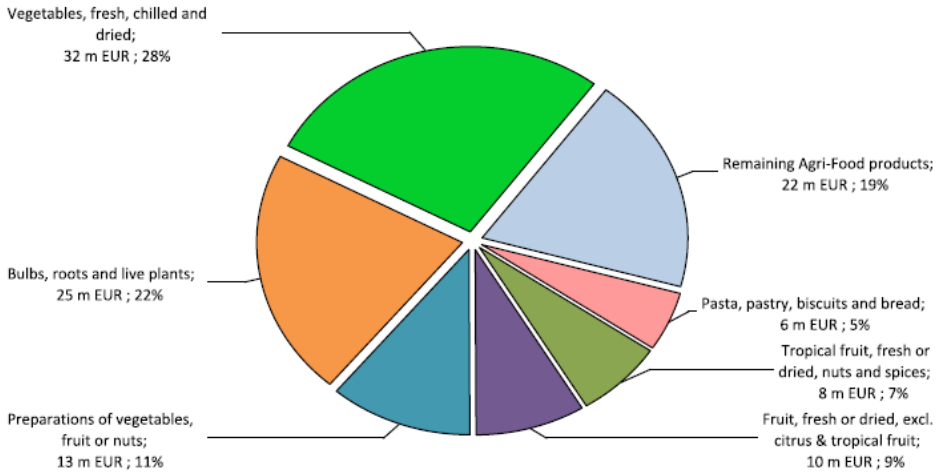

Figure 3-20. Exports from Albania into EU, in 2021, in million euro and %.

Source: EC (2022a).

Figure 3-20 demonstrates that fresh vegetables and their preparations is the major product category (28% and 11% in 2021) of Albanian exports to the EU, followed by bulbs and live plants (22% in 2021) and fresh fruits (9%).

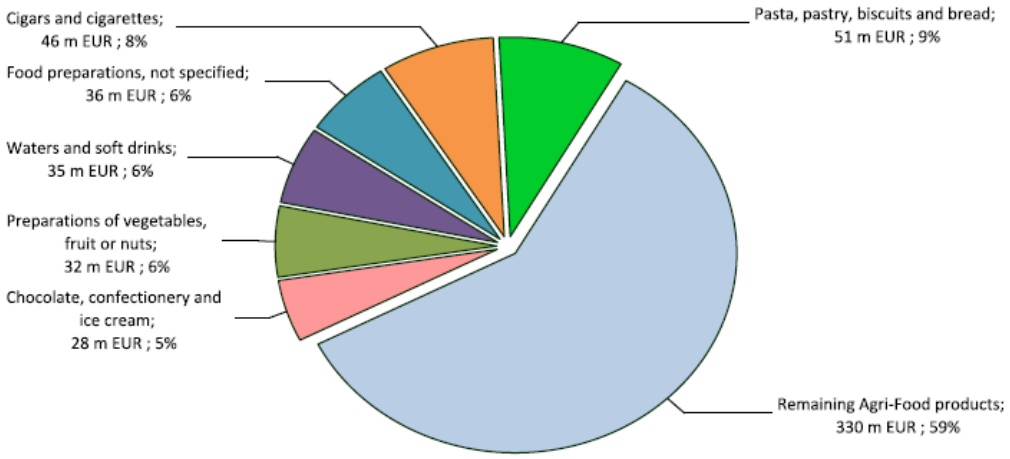

Figure 3-21. Imports to Albania from EU, in 2021, in million euro and %. Source: EC (2022a).

Figure 3-21 shows that imports into Albania from the EU mainly constitute prepared food. The remaining agri-food products are 59% and are composed by categories of smaller shares.

3.5. Dairy sector

3.5.1. Production value and producer prices

Figure 3-22 presents production value and Figure 3-23 presents producer prices for milk in Albania. Production value of total cow milk varied between 361 million euros and 412 million euros in the period 2010 – 2020. Production value and prices showed the same trend with producer prices varying between 338 and 355 EUR/tonne in the 2010 – 2020 period. The physical volume of milk production remained rather stable (see Table 3-7).

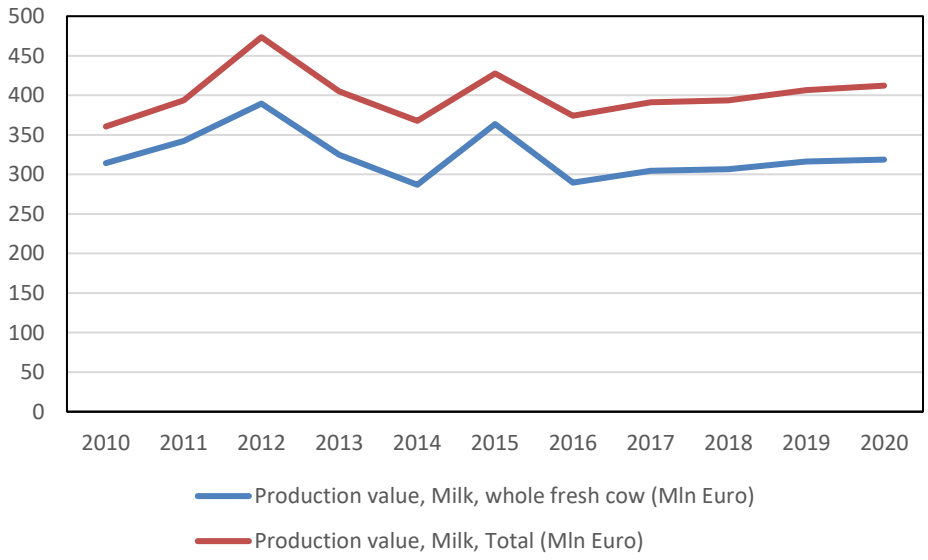

Figure 3-22. Gross Production Value of milk on Albania, current million EUR. Source: FAOSTAT.

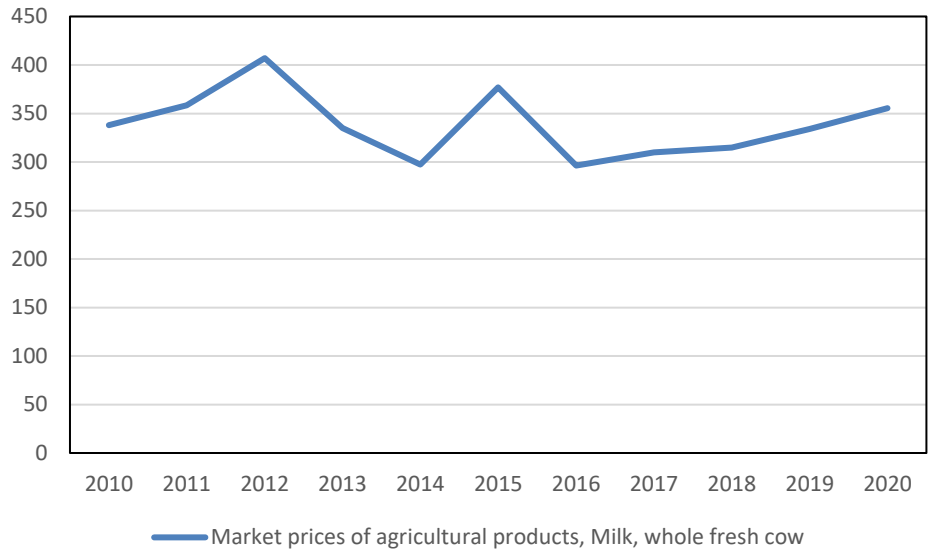

Figure 3-23. Producer prices for milk in Albania (EUR/tonne). Source: FAOSTAT.

3.5.2. Costs and revenues of milk

For milk, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Albania, the National Expert provided estimated costs and revenues of small (10 cows) and large (60 cows) dairy farms. The presented costs and revenues are an average of both farms. Total farm costs include fixed and variable costs. The total production costs per kg of milk are 0.60 euros. These costs are estimated basing on the total farm costs per kg of milk sold. The net revenue per kg of milk is 14% of total revenue per kg of milk, which includes the sales of both meat and milk. The revenue includes the reimbursement for owners and family labour on family farms, if applicable.

In Albania, there is governmental budgetary support of agriculture and rural development, which includes market and direct producer support. At the same time, no estimations of subsidies were provided specifically per kg of milk. Therefore, the subsidies could not be included in the estimation of costs and revenues.

The estimated cost and revenue items for milk are shown in the table below.

Table 3-6. Estimated costs and revenues of milk in Albania, a small and large farm average, 2021

	For Milk, in EUR
Total farm costs, of which:	**88 910**
Total fixed costs	7 864
Total variable costs, e.g.:	81 046
Mechanised works	*1 429*
Labour costs	*9 922*
Inputs	*68 453*
Total farm revenues, including milk and other	**104 635**
Net farm revenues	15 725
Production cost per kg of milk	**0.60**
Average milk price per kg of milk	**0.43**
Net revenue per kg of milk	**0.10 (14%)**

Table 3-7. Production and yield for dairy, Albania

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Milk Animals	Milk, Total	Head	2 268 030	2 415 843	2 499 048	2 473 890	2 408 036	2 244 812	2 085 393
	Milk, whole fresh cow	Head	355 000	357 100	354 872	349 207	342 683	316 426	296 311
Production	Milk, Total	tonnes	1 070 014	1 131 013	1 146 111	1 156 300	1 144 367	1 112 210	1 052 206
	Milk, whole fresh cow	tonnes	930 000	964 000	975 663	982 510	973 526	946 561	897 349
Yield	Milk, Total	hg/An	4 718	4 682	4 586	4 674	4 752	4 955	5 046
	Milk, whole fresh cow	hg/An	26 197	26 995	27 493	28 135	28 409	29 914	30 284

Source: FAOSTAT.

3.5.3. Output, area, animals and yields

According to FAOSTAT (see Table 3-7), the dairy sector in Albania has been rather steady. The number of cattle as well as dairy cows remained without changes in the period up until 2019, showing a slight decline in 2020. Productivity of dairy cows has been slightly growing the whole period. This growth has also ensured for rather stable volume of dairy production at the level of about 1 100 million ton per year.

3.5.4. International trade

Table 3-8 presents trade statistics (imports and exports) of dairy products in Albania. Over the years, especially the import of cheese and curd products has been growing and has more than doubled. Export of dairy products remained stable and low. Cheese and curd are the main import dairy product in Albania. Trade data for 2021 was not yet available.

Table 3-8. Export and import of dairy products, Albania, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	2	2	1	2	2	3	3	0.1	24
Import									
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	15	20	19	23	26	31	27	0.6	77
Of which:									
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	5	5	5	6	6	6	5	0.1	13
Milk and cream; concentrated or containing added sugar or other sweetening matter	2	1	1	0	1	1	1	0.0	n.a.
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	3	2	2	2	2	1	2	0.0	-35
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	1	1	0	0	0	0	0	0.0	n.a.
Butter and other fats and oils derived from milk; dairy spreads	0	0	0	0	0	0	0	0.0	n.a.
Cheese and curd	4	6	7	5	6	8	10	0.2	148

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

3.6. Eggs and honey

3.6.1. Production value and producer prices

Figure 3-24 and Figure 3-25 depict production value and price developments for eggs and honey in Albania for the period 2010-2020. Prices of honey showed an overall increase in the same period, while prices of eggs have been fluctuating up until year 2017 and then got rather stabilized. Table 3-9 indicates the development in production and yield of eggs

and honey in Albania. Remarkable increase in production was achieved for both, eggs and honey.

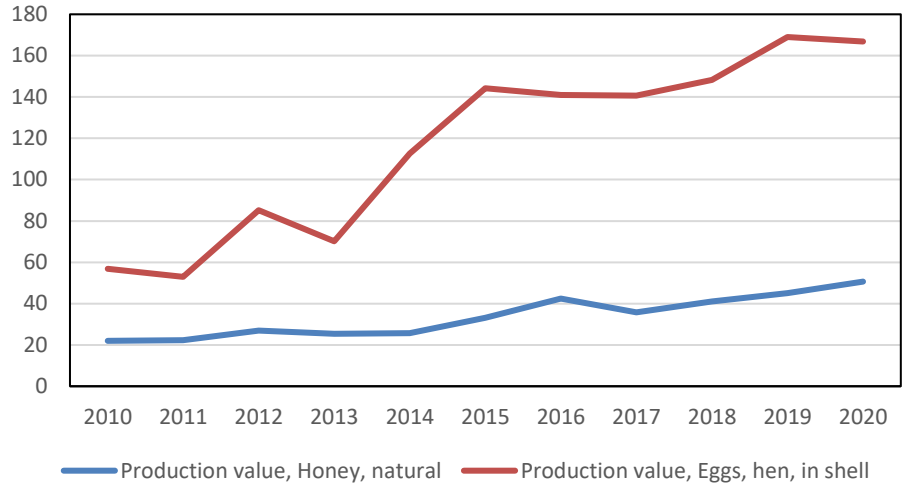

Figure 3-24. Gross Production Value in Albania, current million EUR. Source: FAOSTAT.

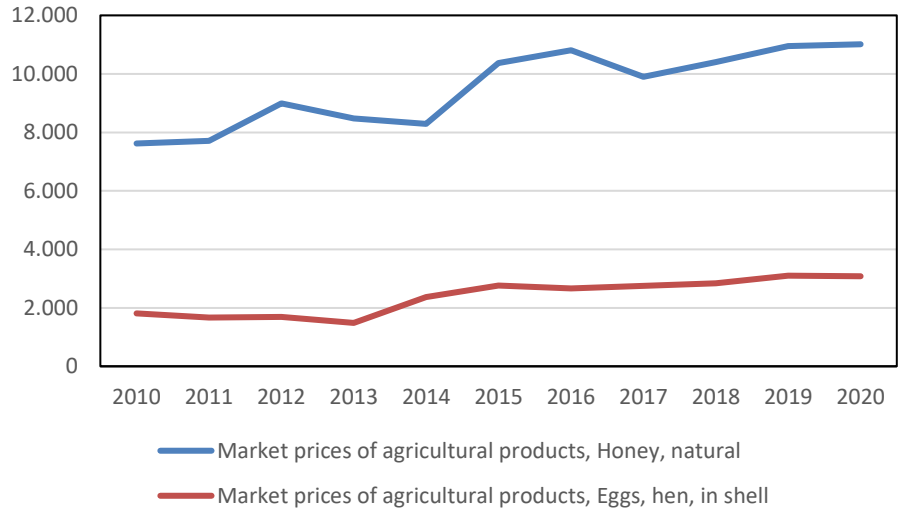

Figure 3-25. Producer prices in Albania (EUR/tonne). Source: FAOSTAT.

3.6.2. Output, area, animals and yields

Table 3-9 indicates production and productivity for eggs and honey in Albania in 2010-2020. The total number of eggs, productivity in eggs per laying hen and the number of laying hens has remained rather stable. The production of honey has increased from 2 886 tonnes to 4 599 tonnes, i.e., by 1.6 times.

Table 3-9. Production and yield for eggs and honey, Albania

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Laying	Eggs, hen, in shell	1000 Head	4 500	4 848	4 790	4 820	4 963	5 004	5 006
Production	Eggs Primary	tonnes	31 500	52 487	53 150	51 299	52 333	54 727	54 444
	Eggs, hen, in shell	1000 No	846 000	830 000	830 005	811 088	827 508	865 510	861 018
		tonnes	31 300	52 290	52 950	51 099	52 133	54 527	54 244
	Honey, natural	tonnes	2 886	3 200	3 923	3 614	3 937	4 116	4 599
Yield	Eggs Primary	100mg/An	70 000	108 265	110 960	106 429	105 446	109 367	108 757
	Eggs, hen, in shell	100mg/An	69 556	107 859	110 543	106 015	105 043	108 967	108 358
		No/An	188	171	173	168	167	173	172

Source: FAOSTAT.

3.6.3. International trade

International trade for products like eggs and honey is negligible for Albania accounting for less than one million euros per year (see Table 3-10). It is about 0.2% of the total agri-food trade of Albania (see also EC, 2022a).

Table 3-10. Export and import of eggs and honey, Albania, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Birds' eggs, in shell; fresh, preserved or cooked	2	1	1	1	0		0	0.0	n.a.
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	0							0.0	n.a.
Honey; natural	0		0				0	0.0	n.a.
Import									n.a.
Birds' eggs, in shell; fresh, preserved or cooked	0					0	0	0.0	n.a.
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	0	0	0			0		0.0	n.a.
Honey; natural	0	0	0	0	0	0	0	0.0	n.a.

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

3.7. Meat sector

3.7.1. Production value and producer prices

Figure 3-26 presents gross production value of various types of meat in Albania. The total production value of meat was slightly varying, but overall showing a positive trend. Meats of various types showed similar dynamics in the past 10 years, with no observable shifts.

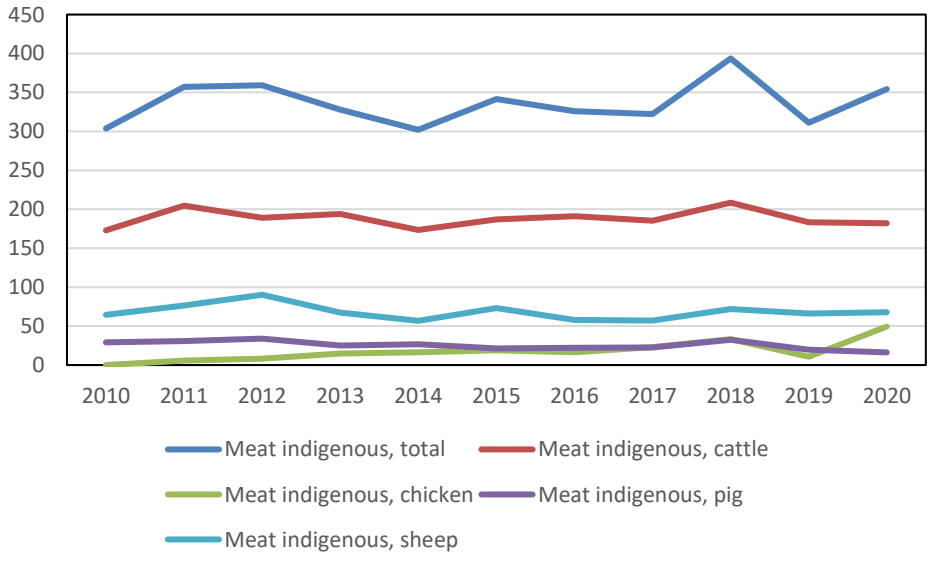

Figure 3-26. Gross Production Value of various types of meat in Albania, current million EUR. Source: FAOSTAT.

Figure 3-27 depicts dynamics of producer prices for different types of meat in Albania in local currency. Pig prices have been growing the most, the price of cattle meat remained more or less the same while prices for chicken and sheep have been rather volatile, exhibiting an overall price decline.

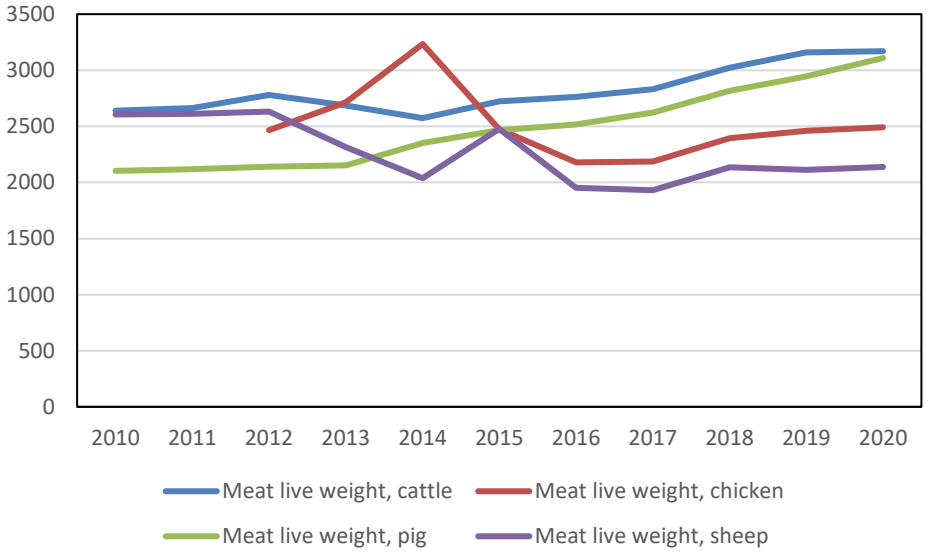

Figure 3-27. Producer prices of various type of meat in Albania (EUR/tonne). Source: FAOSTAT.

3.7.2. Output, area, animals and yields

Table 3-11 shows the production and yield for main meat products in Albania in 2010-2020. Livestock numbers have not changed in the past years except for the growing numbers of poultry. The total meat production declined from 91 440 tonnes to 79 477 tonnes. With the decline observed for all categories of meat except sheep. The productivity of animals shows quite some changes over the years with the major decline of productivity for poultry which perhaps can be explained by a shorter cycle in poultry production that results in slaughtering younger chickens of smaller weight.

Table 3-11. Production and yield for meat, Albania

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Producing Animals/Slaughtered	Meat, chicken	1000 Head	6 889	11 160	11 634	11 826	14 093	10 256	10 785
	Meat, sheep	Head	1 488 900	1 314 544	1 380 104	1 375 356	1 130 828	1 326 594	1 219 264
	Meat, cattle	Head	370 000	332 028	327 272	328 425	257 785	310 796	283 437
	Meat, pig	Head	187 000	194 029	200 597	203 002	231 680	206 967	182 046
Production	Meat, Total	tonnes	91 440	89 289	91 007	91 384	97 520	85 104	79 477
	Meat, chicken	tonnes	17 000	12 905	12 702	12 912	15 587	11 633	12 234
	Meat, sheep	tonnes	13 400	16 538	16 569	16 512	18 817	16 678	15 526
	Meat, cattle	tonnes	40 800	38 556	38 880	39 017	38 544	36 709	32 870
	Meat, pig	tonnes	12 500	11 424	11 424	11 561	10 317	10 232	9 002
Yield/Carcass Weight	Meat, chicken	0.1g/An	24 677	11 564	10 918	10 918	11 060	11 343	11 344
	Meat, sheep	hg/An	90	126	120	120	166	126	127
	Meat, cattle	hg/An	1 103	1 161	1 188	1 188	1 495	1 181	1 160
	Meat, pig	hg/An	668	589	570	570	445	494	494

Source: FAOSTAT.

3.7.3. International trade

While export of meat is negligible in Albania, import of live animals and of meat has been rather stable (Table 3-12). Most of the imported meat was poultry.

Table 3-12. Export and import of meat, Albania, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Animals; live	0	1	1	1	1	0	0	0.0	n.a.
Meat and edible meat offal	1	1	1	2	3	1	1	0.0	n.a.
Import									
Animals; live	26	25	21	30	29	37	23	0.5	-10
Meat and edible meat offal	53	52	35	42	43	47	41	0.9	-23
Of which:									
Meat of bovine animals; fresh or chilled	0	0	0	0		0	0	0.0	n.a.
Meat of bovine animals; frozen	4	2	2	1	0	1	1	0.0	-72
Meat of swine; fresh, chilled or frozen	15	10	9	8	7	5	6	0.1	-60
Meat of sheep or goats; fresh, chilled or frozen	1					0	0	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	5	3	1	0	0	0	1	0.0	-84
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e., fowls of the species Gal	24	26	20	15	9	16	21	0.4	-14
Meat and edible meat offal, n.e.c. in chapter 2; fresh, chilled or frozen	0	0	0	0	0	0	0	0.0	n.a.
Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, fr	3	1	1	0	0	0	0	0.0	n.a.
Meat and edible meat offal; salted, in brine, dried or smoked; edible flours and meals of meat or me	0	0	0	0	1	1	1	0.0	n.a.

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

3.8. Fruit and vegetables

3.8.1. Production value and producer prices

Figure 3-28 and Figure 3-29 demonstrate gross production value for selected fruits and vegetables respectively. Production values have been going up steadily. Across the years the values for grapes and tomatoes have been the most fluctuating.

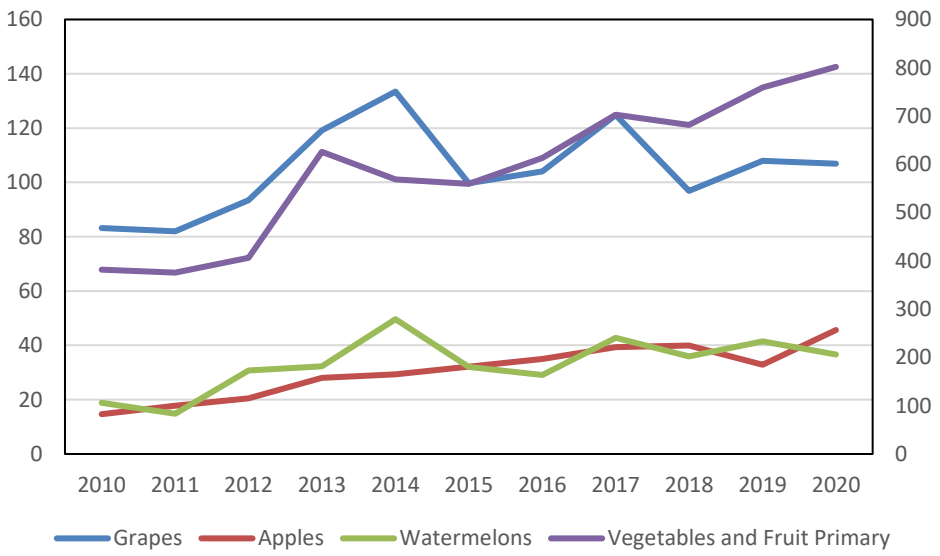

Figure 3-28. Gross Production Value for selected fruits in Albania, current million EUR. Vegetables and Fruit Primary on right axis. Source: FAOSTAT.

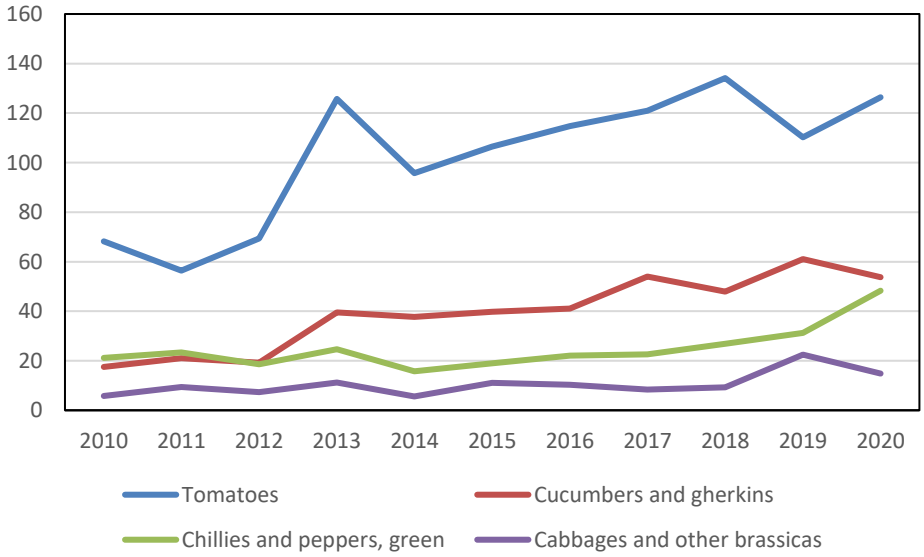

Figure 3-29. Gross Production Value for selected vegetables in Albania, current million EUR. Source: FAOSTAT.

Figure 3-30 and Figure 3-31 demonstrate producer prices in EUR/tone for selected fruits and vegetables in Albania, respectively. Across the years, the producer prices demonstrate high fluctuation.

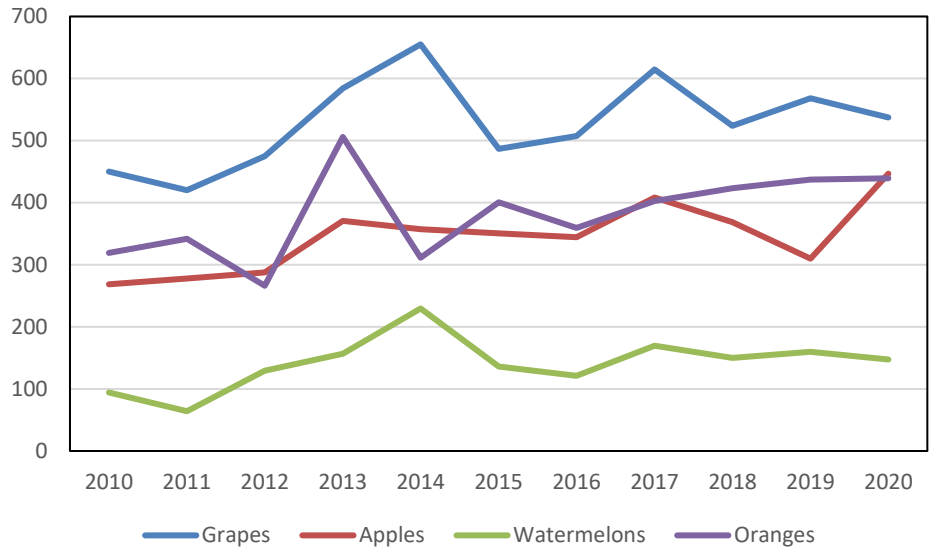

Figure 3-30. Producer prices for selected fruits in Albania (EUR/tonne). Source: FAOSTAT.

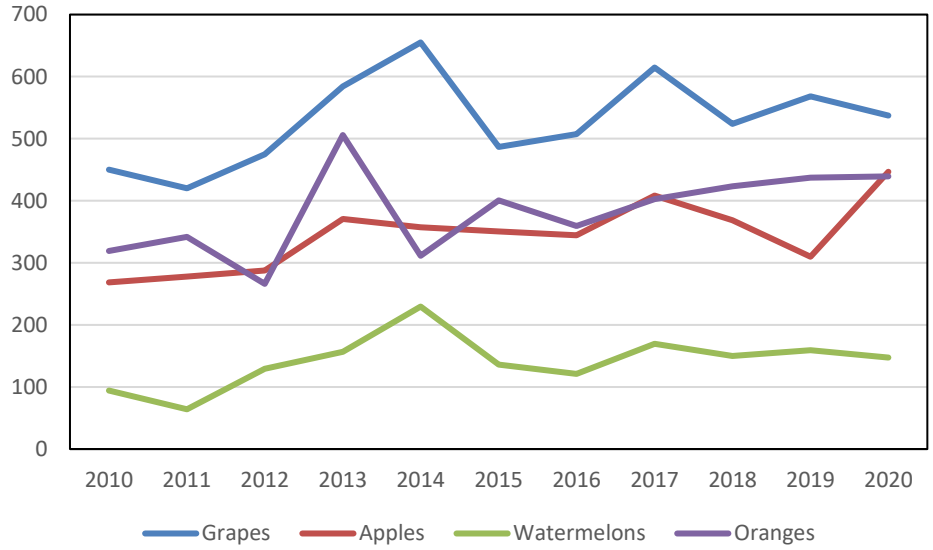

Figure 3-31. Producer prices for selected vegetables in Albania (EUR/tonne). Source: FAOSTAT.

3.8.2. Costs and revenues of apples and tomatoes

For apples and tomatoes, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Albania, the National Expert provided estimated costs and revenues of a smaller and a larger fruit farm for apples, and of a smaller and a larger greenhouse farm for tomatoes.

In Albania, there is governmental budgetary support of agriculture and rural development, which includes market and direct producer support. At the same time, no estimations of subsidies were provided specifically per kg of apples or tomatoes. Therefore, the subsidies could not be included in the estimation of costs and revenues.

The presented costs and revenues are an average of both farms. Total farm costs include fixed and variable costs. The total production costs per kg of apples are 0.12 euros. The net revenues per kg of apples are 14% of the average price per kg. The total production costs per kg of tomatoes are 0.12 euros. The net revenues of kg of tomatoes are 36% of the average price per kg. The revenue includes the reimbursement for owners and family labour on family farms (if applicable). The estimated cost and revenues items for apples and tomatoes in year 2021 are shown in Table 3-13.

Table 3-13. Estimated costs and revenues of apples and tomatoes in Albania, a small and large farm average for each product, 2021

	For Apples, in EUR	For Tomatoes, in EUR
Total farm costs, of which:	**4 754**	**22 635**
Total fixed costs	1 711	777
Total variable costs, e.g.:	3 042	21 858
Mechanised works	*658*	*443*
Labour costs	*919*	*3 101*
Inputs	*1 364*	*18 314*
Total farm revenues	**12 249**	**35 309**
Net farm revenues	7 495	12 674
Production cost per kg of product	**0.12**	**0.28**
Average price per kg of product	**0.31**	**0.43**
Net revenue per kg of product	**0.19 (61%)**	**0.15 (36%)**

3.8.3. Output, area, animals and yields

Table 3-14 shows the production and yield for main fruits and vegetables in Albania in 2010-2020. Areas under fruits and vegetables have slightly increased over the last 10 years. Area under fruits increased from 32 266 to 37 520 ha, while the area under vegetables increased from 29 396 ha to 34 614 ha. Grapes is the major fruit crop in Albania with the area of more than 10 000 ha. The yields of grapes are rather volatile while the yields of other fruits and vegetables have been growing steadily.

Table 3-14. Production and yield for fruits and vegetables, Albania

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Citrus Fruit, Total	ha	781	1 426	1 488	1 597	1 619	1 866	1 914
	Fruit Primary	ha	32 266	35 886	36 192	37 637	36 475	37 256	37 520
	Grapes	ha	8 630	9 892	10 011	10 695	10 179	10 255	10 455
	Apples	ha	3 913	4 008	4 230	4 346	4 294	4 407	4 420
	Watermelons	ha	5 488	5 950	5 376	6 129	5 681	5 809	5 453
	Vegetables Primary	ha	29 396	29 524	30 560	30 493	31 735	33 433	34 614
	Tomatoes	ha	6 161	6 244	6 465	6 464	6 587	6 663	6 859
	Chillies and peppers, green	ha	3 067	2 961	2 940	2 836	2 960	3 055	3 367
	Cucumbers and gherkins	ha	2 159	2 152	2 268	2 443	2 576	2 654	2 499
	Cabbages and other brassicas	ha	1 653	1 455	1 846	1 813	1 733	2 023	1 813
Production	Citrus Fruit, Total	tonnes	13 505	29 999	40 339	41 032	45 500	46 882	49 201
	Fruit Primary	tonnes	634 378	765 329	810 483	805 534	786 761	809 337	818 946
	Grapes	tonnes	184 900	205 000	205 001	202 948	184 832	189 904	199 069
	Apples	tonnes	54 604	91 736	101 532	96 338	108 375	105 933	102 167
	Watermelons	tonnes	199 364	235 630	240 993	252 017	239 533	259 697	248 724
	Vegetables Primary	tonnes	604 559	748 746	833 020	856 499	880 666	951 387	988 507
	Tomatoes	tonnes	199 283	256 518	284 552	286 811	288 626	299 669	313 109
	Chillies and peppers, green	tonnes	65 475	75 598	76 810	75 211	81 317	85 061	103 056
	Cucumbers and gherkins	tonnes	68 959	83 049	94 279	110 210	120 351	126 632	113 685
	Cabbages and other brassicas	tonnes	35 832	38 589	56 655	52 600	52 857	70 411	64 951
Yield	Citrus Fruit, Total	hg/ha	172 919	210 372	271 095	256 932	281 038	251 243	257 059
	Fruit Primary	hg/ha	196 609	213 267	223 940	214 027	215 699	217 237	218 269
	Grapes	hg/ha	214 253	207 238	204 776	189 760	181 582	185 182	190 406
	Apples	hg/ha	139 545	228 882	240 028	221 671	252 387	240 374	231 147
	Watermelons	hg/ha	363 273	396 017	448 276	411 188	421 639	447 060	456 123
	Vegetables Primary	hg/ha	205 660	253 606	272 585	280 884	277 506	284 565	285 580

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
	Tomatoes	hg/ha	323 459	410 823	440 142	443 705	438 175	449 751	456 494
	Chillies and peppers, green	hg/ha	213 482	255 312	261 259	265 201	274 720	278 432	306 077
	Cucumbers and gherkins	hg/ha	319 403	385 915	415 692	451 126	467 201	477 136	454 922
	Cabbages and other brassicas	hg/ha	216 770	265 216	306 907	290 127	305 003	348 052	358 252

Source: FAOSTAT.

3.8.4. International trade

Table 3-15 reports import and export value for fruits and vegetable sin Albania in 2010-2020. Export of fresh fruits and vegetables as well of its preparations has been growing tremendously, making Albania to become net exporting country for these product categories.

Table 3-15. Export and import of fruit and vegetables, Albania, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Vegetables and certain roots and tubers; edible	3	29	39	52	58	64	71	3.4	2,024
Fruit and nuts, edible; peel of citrus fruit or melons	3	14	20	20	16	21	23	1.1	702
Preparations of vegetables, fruit, nuts or other parts of plants	3	6	7	9	15	19	24	1.1	822
Import									
Vegetables and certain roots and tubers; edible	20	14	17	17	19	21	18	0.4	-10
Fruit and nuts, edible; peel of citrus fruit or melons	47	42	49	46	55	56	58	1.2	24
Preparations of vegetables, fruit, nuts or other parts of plants	15	21	26	28	32	37	38	0.8	161

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

3.9. Cereals, potatoes and other crops

3.9.1. Production value and producer prices

Figure 3-32 shows production values and 3-33 shows producer prices for cereals and potatoes in Albania in 2010-2020. Production and prices of potatoes have been fluctuating the most but showed an overall increasing trend. Wheat and maize production values increased up to 2013 and decreased after 2013 with an overall increasing trend for maize and an overall stable trend for wheat.

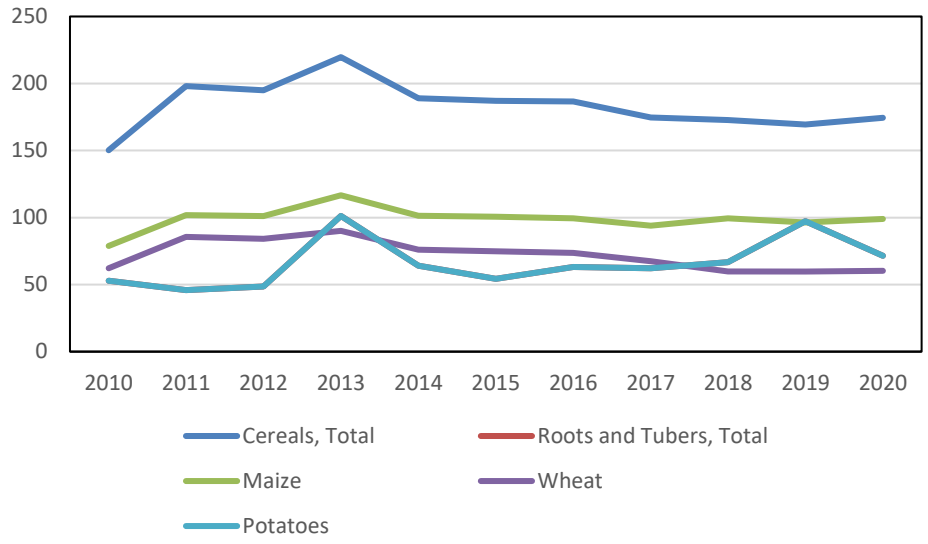

Figure 3-32. Gross Production Value for maize, wheat and potatoes in Albania, current million EUR. Source: FAOSTAT.

Producer prices of potatoes in local currency showed significant fluctuations around 40 thousand Albanian lek in the 2010-2020 period, see Figure 3-33. Producer prices of wheat and maize differed not much and had the same development over time. Up to 2013 the prices of maize and wheat increased, after 2013 they decreased showing an overall stable trend.

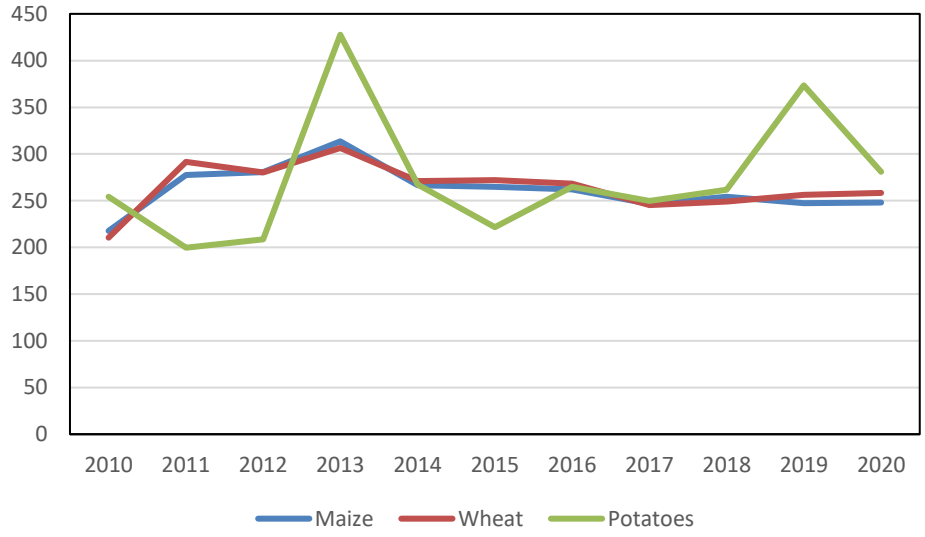

Figure 3-33. Producer prices maize, wheat and potatoes in Albania (EUR/tonne). Source: FAOSTAT.

3.9.2. Output, area, animals and yields

Table 3-16 shows the production and yield numbers for selected cash crops in Albania in 2010-2020. The areas under the cash crops remained rather stables across the years. Yields of sugar beet have grown substantially while the yields of other crops have increased slightly or remained rather stable.

Table 3-16. Production and yield for cereals, potatoes and other crops, Albania

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Cereals, Total	ha	145 700	142 600	148 084	145 799	140 110	132 203	131 310
	Pulses, Total	ha	20 350	22 622	21 465	20 873	21 125	21 321	21 128
	Roots and Tubers, Total	ha	9 000	10 100	9 693	9 948	9 726	10 164	9 701
	Maize	ha	54 200	54 600	58 528	58 060	54 115	55 148	56 727
	Wheat	ha	73 900	69 600	70 512	68 095	65 072	57 330	53 946
	Potatoes	ha	9 000	10 100	9 693	9 948	9 726	10 164	9 701
	Sugar beet	ha	2 000	1 316	1 117	956	702	805	837
Production	Cereals, Total	tonnes	693 800	695 000	698 430	701 734	678 196	666 065	684 023
	Pulses, Total	tonnes	26 600	30 800	27 746	24 056	27 396	27 658	25 819
	Roots and Tubers, Total	tonnes	208 000	245 000	238 345	249 804	254 543	260 661	254 886
	Maize	tonnes	362 000	380 000	379 714	381 059	391 104	388 951	399 125
	Wheat	tonnes	294 900	275 000	275 000	274 877	240 294	233 218	233 430
	Potatoes	tonnes	208 000	245 000	238 345	249 804	254 543	260 661	254 886
	Sugar beet	tonnes	40 000	35 608	33 947	32 470	27 485	30 705	26 964
Yield	Cereals, Total	hg/ha	47 618	48 738	47 164	48 130	48 405	50 382	52 092
	Pulses, Total	hg/ha	13 071	13 615	12 926	11 525	12 969	12 972	12 220
	Roots and Tubers, Total	hg/ha	231 111	242 574	245 894	251 110	261 714	256 455	262 742
	Maize	hg/ha	66 790	69 597	64 877	65 632	72 273	70 529	70 359
	Wheat	hg/ha	39 905	39 511	39 000	40 367	36 927	40 680	43 271
	Potatoes	hg/ha	231 111	242 574	245 894	251 110	261 714	256 455	262 742
	Sugar beet	hg/ha	200 000	270 578	303 912	339 644	391 524	381 429	322 151

Source: FAOSTAT.

3.9.3. International trade

Table 3-17 presents trade statistics (imports and exports) of cereals and other crops in Albania. The country is a net importer of these products in the years mentioned. For all products in this group holds that their import and export values increased in the period 2010-2020. Cereals and preparations of cereals have the largest and second largest import values in this group of products. Over the years, especially the import of oil seeds has been growing the most. Oil seeds have the largest export value and preparations of cereals the second largest exports value. Other products in this group of product have rather in insignificant export value of no higher than 1 million euros.

Table 3-17. Export and import of cereals and other crops, Albania, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Cereals	0	0	0	0	0	0	0	0.0	n.a.
Products of the milling industry; malt, starches, inulin, wheat gluten	0	0	0	0	0	1	1	0.1	n.a.
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	16	29	28	26	32	37	42	2.0	167
Potatoes, fresh or chilled	0	0	0	0	0	0	1		n.a.
Sugars and sugar confectionery	0	0	0	0	0	1	0	0.0	n.a.
Preparations of cereals, flour, starch or milk; pastrycooks' products	0	8	8	8	8	9	8	0.4	n.a.
Import									
Cereals	78	86	68	71	86	87	88	1.9	14
Products of the milling industry; malt, starches, inulin, wheat gluten	13	19	18	18	15	13	13	0.3	-1
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	2	5	12	6	6	10	13	0.3	461
Potatoes, fresh or chilled	4	4	4	4	3	5	5	0.1	9
Sugars and sugar confectionery	29	30	36	41	26	30	33	0.7	15
Preparations of cereals, flour, starch or milk; pastrycooks' products	43	52	64	61	63	69	56	1.2	31

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

Among arable crops, Albania exports mainly oil seeds while it imports various categories of cash crops and their preparations (Table 3-15).

3.10. Showcase product for Albania: watermelon - production and exports growing

3.10.1. Description of watermelon in Albania

Watermelon is a widespread cultivated crop in Albania, mainly produced in coastal areas, in open fields and in covered areas such as greenhouses. Despite that watermelon can be considered a fruit or a vegetable, the study considers it a vegetable since this crop is grown as a vegetable crop using vegetable production systems (see Maynard, 2001). In coastal areas, the process of planting/cultivation can be done only in one season, while the environment of greenhouses offers the farmer the opportunity to start planting from

the beginning of February, giving him the advantage of producing one month earlier than planting in the open field. Harvesting time of watermelon begins in early May and ends in late June, and its production requires high temperatures above 25 degrees Celsius during the day and above 15 degrees Celsius at night, high lighting and air humidity between 60-70% (see ABA Online, 2022). There is a variety of seedlings used in Albania ultimately. In order to provide according to market requirements trials are carried by farms with the inspection of seedling suppliers. Quality is high, although there are concerns for the early period (some farms try to export in April while greenhouse production is emerging ultimately to enable early production).

3.10.2. Watermelon production developments

Production of watermelon in Albania has been growing in the last decade. Data retrieved from FAOSTAT database indicate that the production of watermelon reached about 260,000 tonnes in 2019 (followed by a slight decrease in 2020: the "pandemic year"). The increase of production quantities on country level has been stable as observed from data shown in the following table. As a general trend, the same trend is observed for the land area under watermelon which has been fluctuating between the interval of 5.4 thousand hectares to 6,0 thousand hectares for the period 2010 – 2020. As the improvement in experienced total productivity (yield) concerned, data reveal a slight increase from around 36 ton/ha to 46 ton per ha.

Table 3-18 Production trends of watermelon in Albania

	2010	2014	2015	2016	2017	2018	2019	2020
Production (000 tonnes)	199.4	216.3	235.6	241.0	252.0	239.5	259.7	248.7
Increase in production	2%	5.1%	8.9%	2.3%	4.6%	-5.0%	8.4%	-4.2%
Area (000 hectares)	5.5	5.7	6.0	5.4	6.1	5.7	5.8	5.5
Yield (ton/ha)	36.3	37.6	39.6	44.8	41.1	42.2	44.7	45.6

Source: FAOSTAT (2022) https://www.fao.org/faostat/en/#data/QCL

In terms of regionalization, production of watermelon is highly concentrated in the region of Fier (more than ½ of the production) (INSTAT, 2021). In Divjaka region (part of Fier) most watermelon is under tunnel. About 4/5 of the watermelon production in Divjaka is destined for exports (AGT SpA & DSA (2021).

Albania is one of the leading watermelon producers in the South-eastern European region (Skreli and Imami, 2019). Watermelon production in Albania is relatively higher compared to other countries of the region such as North Macedonia or Serbia (FAOSTAT, 2022) due to agro-climate advantages. There are no data projections available on the expected quantity of exports. Although lately considerable efforts have been made in terms of quality certification, yet market orientation towards Western markets is limited. Improving quality certifications is a factor which can create a moderate increase in terms of exports.

3.10.3. Watermelon supply chain

As shown in the following table most watermelon farms (70%) are small (0.2 hectares to 0.5 hectares), while approximately 17% of farms have a size of 0.6 hectare to 1 hectare. Moreover, there are two major categories of watermelon producers, namely small commercial farmers and larger, commercial farmers (AGT SpA & DSA, 2021; Skreli and Imami, 2019). The first category of growers produces approximately 80% of the total output using relatively low technologies; they usually perform spot market transactions and are largely disorganized (Skreli and Imami, 2019). Commercial growers usually have larger than average areas under production; farmers cultivating above 0.5 hectare of watermelon can be considered as market oriented or commercial ones – there are more than 2 000 commercial farms. About 900 watermelon farms are above 1 hectare, of which about 500 above 2.00 hectare (Table 3-19). Larger farms show a strong market orientation. In some areas, such as Divjaka, watermelon production is dominated by

protected crop technology (greenhouse/tunnel), which has implications in terms of different timing of harvesting and different yields.

Table 3-19 Watermelon farms, for 2020

Size	Approximate number	Percentage
0.20 - 0.50 Ha	4 744	70%
0.60 – 1.00 Ha	1 168	17%
1.10 – 2.00 Ha	409	6%
2.10 – 5.00 Ha	111	2%
Above 5.00 Ha	392	6%
Total	6 824	100%

Source: AGT SpA & DSA (2021)

There is a trend of increasing contract farming and a stronger presence of vertical integration into the supply chain, with seedling suppliers emerging as pivot actors. These actors are also noted as part of the wholesale nodes in the watermelon sector, such as Bruka Seedling, AgroKoni, Biti and Co, Doni Fruits, etc. (Skreli and Imami, 2019). The highest presence of these type of actors and other wholesale facilities can be found in the region of Fier, Divjaka and Lushnje. The wholesale market of Lushnje is one of the main horticulture markets in Albania, next to the private wholesale market in Fier and the wholesale market in Divjaka (AGT SpA & DSA, 2021; Skreli and Imami, 2019).

3.10.4. Watermelon production locations in Albania

Coastal areas of Albania are the most suitable area for fresh melon and watermelon production. As mentioned earlier, Divjaka area is the most productive region of watermelon in Albania (situated in the region of Fier) and represents the most typical area to produce this kind of vegetable in Albania. It is a leading region for the production of export-oriented watermelon (AGT SpA & DSA, 2021).

This important role of Divjaka is due to its very suitable microclimatic conditions, to soil quality suitable to produce open field crops and to the diffused knowledge and tradition in production. This area has been traditionally specialized in production of watermelon and melon as well as other field vegetables, even before 1990 (Skreli and Imami, 2019). In addition, other factors developed after 2000 are the relative vicinity to main urban areas and early availability of good road connections, the return of many former emigrants with capital and know-how, combined with the support of several donor projects, (Skreli and Imami, 2019). The technology development, namely the increase in the quality of the seedling, improvements in the cultivation protocols, the changing patterns in production schedules, establishment of wholesale facilities near the production areas Lushnja, Divjaka and Fier have impacted positively the performance of this sector in these areas (AGT SpA & DSA, 2021). Following AGT SpA & DSA (2021), consumers in Albania show a positive preference for domestic watermelon, thus giving a clear advantage for the watermelon production in the domestic market. However, the preference in the foreign markets is not yet known.

3.10.5. Watermelon trade developments

Exports of watermelon exhibit a growing trend in value terms though oscillations are observed in quantities from year to year; contraction is marked in 2016 after a strong increase in 2015 and in 2018 too, after a significant increase in 2017. More specifically, watermelon exports have increased significantly in the last years, from approx. 2 million euros in 2010 to exceedingly around 8 million euros in 2021.

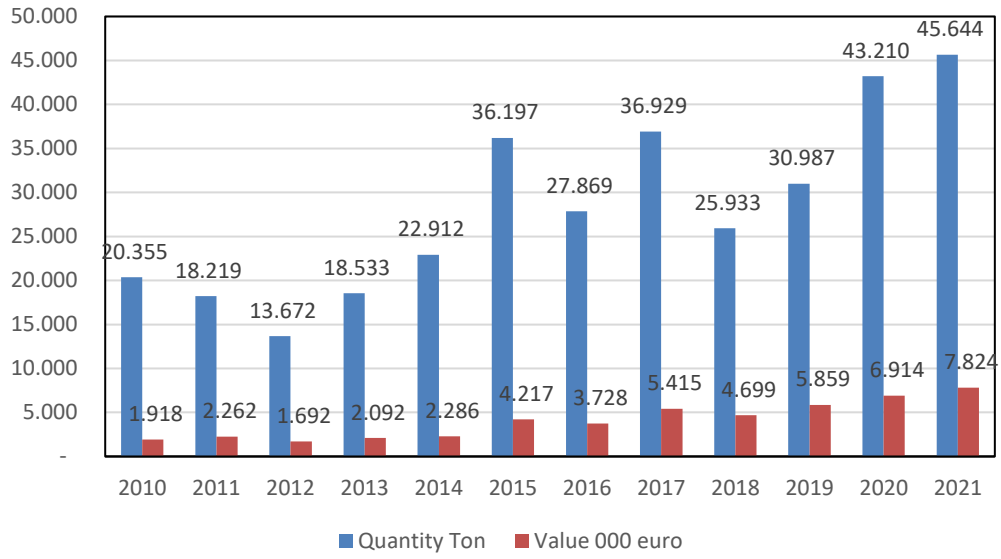

Figure 3-34. Dynamics of the Albanian exports of fresh watermelons. Source: EUROSTAT (2022).

Imported quantities of watermelon have also marked increase during last years (see Figure 3-34 and Table 3-20).

Table 3-20. Exports and import of fresh watermelon, Albania by year

	Exports			Imports			Export growth		Import growth	
	000€	Ton	€/kg	000€	Ton	€/kg	Value	Weight	Value	Weight
2010	1 918	20 355	0.09	24	32	0.75	:	:	:	:
2011	2 262	18 219	0.12	23	23	1.01	18%	-10%	-5%	-29%
2012	1 692	13 672	0.12	24	23	1.03	-25%	-25%	4%	1%
2013	2 092	18 533	0.11	27	25	1.06	24%	36%	14%	11%
2014	2 286	22 912	0.10	54	51	1.06	9%	24%	101%	100%
2015	4 217	36 197	0.12	32	85	0.38	85%	58%	-41%	67%
2016	3 728	27 869	0.13	32	29	1.11	-12%	-23%	1%	-66%
2017	5 415	36 929	0.15	53	145	0.36	45%	33%	62%	397%
2018	4 699	25 933	0.18	50	66	0.76	-13%	-30%	-5%	-54%
2019	5 859	30 987	0.19	80	104	0.77	25%	19%	59%	57%
2020	6 914	43 210	0.16	126	131	0.97	18%	39%	58%	26%
2021	7 824	45 644	0.17	232	263	0.88	13%	6%	84%	102%

Source: EUROSTAT (2022).

Most exports of watermelon take place during June – July and a considerable part in 2021 took place also during August (see Table 3-21. The best window is that of July, especially the earlier parts. Indeed, as it may be shown, the month with highest level of export is July, followed by June, with slightly lower levels. Main exporting partner countries are Kosovo* (41% of total watermelon exported), followed by Bosnia and Herzegovina (BiH) (12%) and Czechia (around 12%).

Table 3-21 Monthly exports of watermelon by partner countries and total (2021)

	Apr.	May	Jun.	Jul.	Aug.	Sep.
Quantity (Ton)	0.4	6	19 194	21 114	5 075	255
Value (000€)	0.2	2	4 036	3 191	567	28
Price (€/kg)	0.50	0.33	0.21	0.15	0.11	0.11
Exports	Apr.	May.	Jun.	Jul.	Aug.	Sep.
Kosovo	0%	0%	18%	62%	20%	1%
Serbia	0%	0%	79%	20%	1%	0%
BiH	0%	0%	72%	24%	3%	0%
Czechia	0%	0%	36%	50%	13%	1%

Source: EUROSTAT (2021).

The marketing methods are still based on procurement planned few months before. Few exporters have the capacity to plan the market sales. Promotion is poor but improving in terms of better packaging and adding a quality certification. An expansion of GlobalGAP certification is a result of a need to improve export market positioning. There are already few cases of watermelon producers who have been certified GlobalGAP – according to interviewed exporters, GlobalGAP represents an advantage to export more attractive EU markets (Skreli and Imami, 2019).

3.10.6. Watermelon price developments

Import prices are higher than export prices (Table 3-21), since part of the watermelon is imported off-season, reaching the Albanian market at significantly higher cost and prices when compared to the price at which Albanian watermelons are exported during the production season. Albania's import price for watermelon in 2016 was 1.11 euros per kg while in 2021 one kilogram of watermelons was 0.88 euros. The prices are higher in May, June and August, because of lower competition (as mentioned above, North Macedonia enters production later).

The export prices of watermelon have gone up. One kilogram of watermelon was going for 0.09 euros in 2010 and 0.10 euros in 2014. In 2019 the export price changed to 0.19 euros per kilo.

The best performing markets in terms of price in 2021 for Albania watermelon per kilogram was Italy (0.35 euros per kilogram), Latvia (0.28 euros per kilogram), Austria and Czechia (0.27 euros per kilogram). Even though in terms of quantities the main partner countries are regional (Kosovo, Serbia, BiH), prices delivered for these quantities remain low when compared to other European countries.

Table 3-22. Export partners of Albania for fresh watermelon (2021)

Export Partner	Quantity ton	Value 1000 Euro	Quantity	Value	Price (Euro/kg)
Kosovo	19 077	2 067	41.80%	26.40%	0.11
Serbia	6 334	1 217	13.90%	15.60%	0.19
BiH	5 075	933	11.10%	11.90%	0.18
Czechia	4 768	1 272	10.40%	16.30%	0.27
Lithuania	3 485	738	7.60%	9.40%	0.21
Croatia	1 961	507	4.30%	6.50%	0.26
North Macedonia	1 206	233	2.60%	3.00%	0.19
Estonia	690	174	1.50%	2.20%	0.25

Export Partner	Quantity ton	Value 1000 Euro	Quantity	Value	Price (Euro/kg)
Montenegro	656	122	1.40%	1.60%	0.19
Hungary	470	126	1.00%	1.60%	0.27
Romania	307	66	0.70%	0.80%	0.22
Ukraine	227	46	0.50%	0.60%	0.2
Poland	218	55	0.50%	0.70%	0.25
Sweden	210	45	0.50%	0.60%	0.22
Netherlands	167	39	0.40%	0.50%	0.23
Switzerland	134	36	0.30%	0.50%	0.27
Italy	124	44	0.30%	0.60%	0.35
Austria	84	23	0.20%	0.30%	0.27
Belgium	83	10	0.20%	0.10%	0.12
Germany	81	21	0.20%	0.30%	0.26
Bulgaria	75	10	0.20%	0.10%	0.13
Slovakia	66	11	0.10%	0.10%	0.16
Slovenia	50	11	0.10%	0.10%	0.21
Moldova	42	5	0.10%	0.10%	0.13
Latvia	39	11	0.10%	0.10%	0.28
Denmark	15	3	0.00%	0.00%	0.2
Total	45 644	7 824	100.0%	100.0%	-

Source: EUROSTAT (2022).

The domestic supply (as proxy for the domestic consumption) is dominated by domestic production in Albania. The share of import to domestic supply or consumption has become very small in the last decade while the share of exports to total production has been slightly increasing from 11% in 2010 to more than 20% in 2020 (see Table 3-22).

Table 3-23. Supply balance of apples in Albania (000 Ton)

Indicator	2010	2014	2015	2016	2017	2018	2019	2020
Production	199	216	236	241	252	240	260	249
Exports	20	23	36	28	37	26	31	43
Imports	0 .03	0 .05	0 .09	0 .03	0 .15	0 .07	0 .10	0 .13
Supply	179	193	199	213	215	214	229	206
Import/supply	0 .0%	0 .0%	0 .0%	0 .0%	0 .1%	0 .0%	0 .0%	0 .1%
Export/production	11%	12%	18%	13%	17%	12%	14%	21%

Source: INSTAT (2021) for production and EUROSTAT (2022) for trade (export and import).

3.10.7. Strengths and weaknesses of watermelons in Albania

For a description of strength and weaknesses compared to other competitors see the following Table 3-24.

Table 3-24 Watermelon: SWOT analysis strategy at farm level

STRENGTHS	WEAKNESSES
Tradition in watermelon production Rather solid production base in specific area, namely Divjaka / Existence of clusters with accumulation of expertise, services etc. Growing number of large farms Consolidating trade channels Fast technology development Presence of contract farming and vertical integration Stable relation between farmers and exporters, who also provide the farmers high quality seedling in line with export market demand. Export-oriented success story, strong features of cluster development, with good factors of competitiveness and growing emphasis on using high quality inputs.	Small farm size and fragmentation of production base Inappropriate cover plastic for low tunnels High losses of production, due to lack of post-harvest infrastructure Insufficient investment in greenhouse industry for watermelon production Insufficient cooling storage rooms for produce, pre-cooling Export is focused on regional countries (Kosovo, Bosnia and Herzegovina) at relatively low reported prices.

Source: Skreli and Imami (2019) and AGT SpA & DSA (2021).

3.11. Rural-urban disparities

In the final part of the country factsheet for Albania, we are describing the differences between rural and urban areas within the country. The agricultural sector is concentrated in rural areas. The development of rural areas is therefore crucial for the advance of agriculture. The focus of the research is on socio-economic disparities between rural and urban areas. In addition, the quality of infrastructure and quality and use of ICT are discussed.

3.11.1. Population

Figure 3-35 shows a gradual shift of the population in Albania, from rural areas to urban areas between 2010 and 2021. In 2021 there were 1.8 million Albanians in urban areas and 1.04 million people in rural areas.

Children and the elderly are more likely to remain in rural areas. At the same time working-age people are more likely to move to urban areas. According to Zhllima et al (2016) the dependency ratio1 has increased in rural areas in comparison to the urban areas.

[1] Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population. https://databank.worldbank.org/metadataglossary/all/series

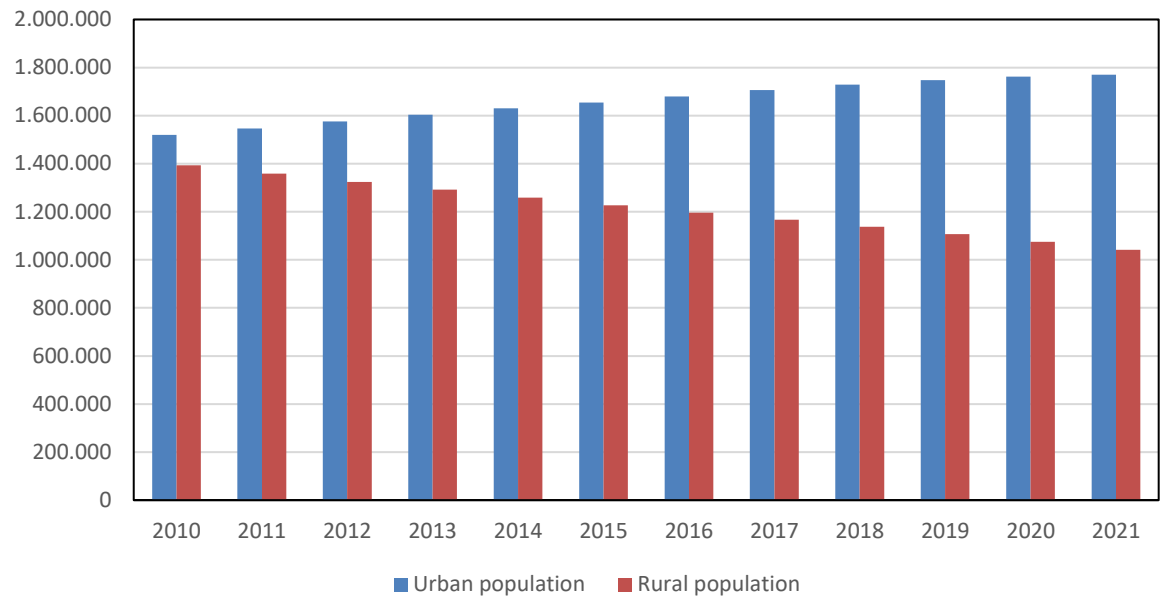

Figure 3-35. Rural and urban population in Albania, number of persons. Source: World Bank.

3.11.2. Education

Another import socio-economic difference between rural and urban areas can be found in the level of education.

According to Table 3-25, the literacy rate was 1.9% higher in the urban areas than in rural areas in 2012. This difference is notable, however, also in comparison to the other countries in this report, not extremely high. Despite the relatively high literacy rates, there are some differences between rural and urban areas. Especially the educational attainment rate of completed upper secondary education, shows a large gap for the latest available year of 2012. The education attainment rate describes the distribution of the population aged 25 years and above according to the highest level of education attained or completed (see Chapter 10 for definitions). In Table 3-25, one can see that in rural areas, in 2012, 27.7% of the population aged 25 and above had attained at least upper secondary education. This rural educational attainment rate of upper secondary education is 31.4 lower than in urban areas. And only 4.8% completed a Bachelor's degree compared to the 19.3% in the urban areas.

This difference is also reflected in the more recently available data on the completion rate of upper secondary education. The completion rate shows the percentage of children that has completed upper secondary education with a timeframe of 3-5 years after the official intended age of graduation (see Annex 1 glossary and http://uis.unesco.org/en/glossary). The data shows that in 2017 the completion rate of upper secondary education in urban areas was almost 13% higher than in rural areas. In rural areas, only 72.5% of the children or young adults completed upper secondary education.

Table 3-25. Rural-urban education statistics, Albania

	2010	2011	2012	2013	2014	2015	2016	2017
Adult literacy rate, population 15+ years, rural, both sexes (%)		96	96					
Adult literacy rate, population 15+ years, urban, both sexes (%)		98	98					
Completion rate, upper secondary education, rural, both sexes (%)								72

	2010	2011	2012	2013	2014	2015	2016	2017
Completion rate, upper secondary education, urban, both sexes (%)								85
Educational attainment rate, completed upper secondary education or higher, population 25+ years, rural, both sexes (%)		58	28					
Educational attainment rate, completed upper secondary education or higher, population 25+ years, urban, both sexes (%)		58	59					
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, rural, both sexes (%)		18	5					
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, urban, both sexes (%)		18	19					

Source: UNESCO.

Data on rural-urban education in Albania is incomplete. Although there have been moderate improvements since 2009, according to the Programme for International Student Assessment (PISA) over 50% of 15-year-old Albanian students rank poorly in reading and mathematics. Quality of education remains a challenge and in particular for schools in rural, mountainous and isolated areas. Attracting qualified staff for these areas is difficult (ETF, 2021).

3.11.3. Employment

In terms of employment, for men there is no substantial difference between rural and urban areas, 55% are employed in urban and 58% rural areas in 2017. Whilst only 28% of women are employed in rural areas, compared to the 43% in urban areas (INSTAT, 2018).

Regarding unemployment, there is only data from 2012 available, the unemployment rate in rural area was 23.1% and 20.6% for urban areas. Unemployment is defined as the percentage of people in the labour force and seeking work that are not employed (https://databank.worldbank.org/metadataglossary/all/series).

In reality, unemployment in rural areas is probably higher. Part of the agricultural workforce's labour capacity is not used. FAO (2019) estimates that there is a hidden unemployment in Albanian agriculture of 25%.

3.11.4. Income

Higher unemployment also translates into lower average income of the population in rural areas. In 2013, according to estimates from the World Bank the percentages of Albanians living in poverty were 15% in urban areas and 25-30% in rural areas. As more Albanians migrate out of rural areas into urban areas, poverty starts to become concentrated in more rural, mountainous areas (Serrano, 2018). More recent data on rural-urban disparities are unavailable. According to the Income and Living Conditions Survey (EU-SILC) from 2018, the rate of people at risk of poverty in Albania was 23.4%, at a threshold of 5.50 US$ per day.

3.11.5. Health

Access to health is an important socio-economic indicator. In 2012 the number of primary health care physicians (per 10 000 population) was 3.9 in urban areas. In the same year the number of primary health care physicians (per 10 000 population) was 3.7 in rural areas. According to Adhami et al (2013), the gap between the number of primary health care physicians in rural and urban areas has narrowed.

After 2012, there is no recent data on the differences in health care quality between rural and urban areas. However, according to INSTAT (2018), women in rural areas have a higher proportion of reporting at least one problem in accessing health care (45%) than women in urban areas (26%) (see INSTAT, 2022). Therefore, we conclude that there is still some difference in health care between rural and urban areas today.

3.11.6. Gender

Gender is also an important socio-economic indicator, since gender inequality plays a huge role in the Albanian rural development. The gender inequalities are multidimensional resulting from limited access to land rights, low access to capital and weak access to societal and economic environment out of the farm (Zhllima et al, 2021).

Both sexes belonging to the age group 15-64 year are mostly employed in the agriculture sector. In 2020, the agricultural sector employed 41.4% women of employees, marking a reduction compared to 2019.

Women's share in ownership of family farms is very small. There are women on farms that are potentially 'hidden farm leaders'. According to official data only 6.5% of the family farms have a female farm head. And even then, in most of these cases, these women came to this position due to their status as a widow or due to the fact that the man of the household is in migration.

According to Zhllima (2021), the findings point to intersectionality issues: where patriarchy is combined with poverty, gender inequality is exacerbated.

3.11.7. Migration

Migration is an import socio-economic indicator for rural development. For Albania there is no data available on the origin of migration and immigration, but as indicated in paragraph 3.2.1, a gradual shift of the population from rural areas to urban areas can be noticed between 2010-2020.

At the beginning of the nineties, up to two third of the population was living in rural Albania, but this figure has strongly decreased at 38% (World Bank, 2022). Figure 3-2 shows that in 2020 the rural population was less than 40 percent.

3.11.8. Infrastructure and ICT

Infrastructure and ICT are important indicators of the development of a country, the mobility and connectiveness of people and goods. Sub-indicators of infrastructure and ICT are roads, access to water supply, access to internet and usage of mobiles.

Roads in Albania provide essential connectivity to freight and personal mobility. In 2018, about 50% of the secondary and local network was still categorized as being in a poor or very poor condition, according to the World Bank.

Regarding water supply fewer than 50% of households have access to safe and clean drinking water. With the territorial reform in 2018, the rural population served by water utility companies has increased significantly, with approximately 52 percent. However, the duration of access to drinking water for these areas is generally low compared with urban areas (Jorgoni, E., 2018). Only 47% of rural households have access to a flush toilet piped into a sewer and not shared with other households, compared to 90% of the urban households.

Internet access in rural areas is limited, only 3.4% of the rural population is connected. In urban areas 75.6% of the population is connected to the internet.

According to Demographic Health Survey Albania (INSTAT, 2018), 97.4% of people in urban areas and 96.2% in rural areas have a mobile. More than 84% of rural women and more than 94% of rural men have a mobile phone.

3.12. Conclusions

From analysis of macro-economic indicators and the agricultural sector it can be concluded that agricultural sector is one of the most important sectors for the economy of Albania generating approximately 22% of the country's GDP (in 2020).

The analysis social and macro-economic developments in Albania show that the total population has been steadily declining over the recent years, from 2.9 million in 2010 to 2.81 million in 2021 An increasing emigration trend in the past years is partly responsible for the decreasing population, where the trend of recent years shows more emigration from Albania than immigration to Albania. At the same time a relative increase in urban population and a decrease in rural population have been noticed indicating a gradual shift of the population from rural areas to urban areas.

The employment and earnings have gradually improved in Albania in the recent years, with the mean nominal monthly earnings of employees increasing from 325 euros in 2014 to 434 euros in 2020. However, in 2020 there seems to be a trend break in the employment development. Meanwhile, the education level index of adult population has increased from 0.5-0.6 in 2010-2021, with adult literacy rate of population older than 15 years of 98.1% in 2018 and the completion rate of upper secondary education in rural areas of 72.5% in 2017.

The analysis of the indictors of infrastructure and ICT show that the overall logistic performance indictor is rated with 2.66 in scale of 0-5, which is relatively low. The lowest rank in this composite indictor is related to the quality of trade and transport-related infrastructure, 2.29. The overall connection to internet in Albania has been improving in the recent years, with improving in percentage of individuals using the internet 45% in 2010 to 71% in 2020.

There has been a trend toward more income distribution inequality in Albania. Yet, according to GINI data for 2020 inequality in terms of income distribution has declined (GINI index is 33.2).

In the recent years, the development of the GDP and added value in Albania showed a positive trend. However, in 2020 there was a trend break with declining numbers. Regarding the trade developments, the exports and the imports were somewhat fluctuating in the period between 2010 and 2020, but overall, they show an increasing trend. Albania is a net-importer of products.

Analysis of agriculture sector data show that agriculture being one of the main sectors of the economy provides employment to around 36% of the total employed. The utilised agricultural area (UAA) is 1.17 million hectares (ha), which is about 40% of the total land area of the country. Half of the UAA is arable land, 43% is permanent grassland and 7% is land under permanent crops. The total production value of agriculture in Albania has gradually increased and has reached to 2 101 million euros. There is no more recent data on production value in Albania after 2018.

While the total imports as well as agricultural products imports have increased respectively by 37% and 27% in the last ten years, the volume of exports has almost doubled. It is worth to note that, the share of agricultural exports in total exports has increased up to 400%. Especially, the export of fresh fruits and vegetables as well of its preparations has been growing tremendously, making Albania to become net exporting country for these product categories. For the import, particularly import of cheese and curd products has been growing and has more than doubled.

The dairy sector in Albania has been rather steady showing a slight decline of cattle and dairy cows in 2020. Productivity of dairy cows has been slightly growing in last 10 years which secures a stable volume of dairy production at the level of about 1 100 million ton per year. A similar stable trend can be seen in the number of eggs produced, productivity

in eggs per laying hen and the number of laying production. In the meat sector, the total meat production declined from 91 440 tonnes to 79 477 tonnes, where the decline is observed for all categories of meat except sheep. On the contrary to these developments in dairy and meat sector, the production of honey has increased by 1.6 times in last 10 years.

The production values for fruits and vegetables have been going up steadily. Across the years the values for grapes and tomatoes have been the most fluctuating. Especially for the grapes, which is, with the area of more than 10 000 ha, the major fruit crop in Albania, the yields were fluctuating over the years, while the yields of other fruits and vegetables have been growing steadily. When it comes to cash crops, the areas under the cash crops remained rather stables across the years, while the yields of sugar beet have grown substantially compared to the yields of other crops, which have increased slightly or remained rather stable.

According to the national expert opinion, watermelon can be a vegetable which offers a competitive advantage for Albania. This is due to several reasons, among others, recent exports trends exhibiting a growing trend in value terms from approx. 2 million euros in 2010 to exceedingly around 8 million euros in 2021.

Analysis of urban-rural disparities revealed the following trends:

- There is a relatively high literacy rate in rural areas, but despite this, there are some differences in education level between rural and urban areas, especially related to the completion rate of upper secondary education, where according to 2017 data in urban areas it was almost 13% higher than in rural areas. In rural areas, only 72% of the children or young adults completed upper secondary education.
- The unemployment rate in rural Albania seems to be higher than in urban areas, but according to FAO there is probably hidden unemployment of 25%. This is because a part of the agricultural workforce labour is not being used. In 2013 poverty rates in rural Albania were twice as high than in urban areas. As more Albanians migrate out of rural areas into urban areas, poverty starts to become concentrated in more rural, mountainous areas.
- The gender inequalities are multidimensional resulting from limited access to land rights, low access to capital and weak access to societal and economic environment out of the farm. According to Zhllima (2021), the findings bring intersectionality issues into high relief: where patriarchy is combined with poverty, gender inequality is exacerbated."
- Infrastructure and ICT: In 2018, about 50% of the secondary and local network was still categorized as being in a poor or very poor condition, according to the World Bank. Internet access in rural areas is limited, only 3.4% of the rural population is connected.

3.13. Data gaps

Looking at the available data for Albania, the data for macro-economic developments are readily available between 2010-2020 for almost all indictors and for some indicators an update for 2021 is also available (see Section 3.2). For the indictor social protection data are available up to 2017. For indictors health expenditures, logistic performance and international trade data available up to 2018. Indictors income distribution, unemployment and logistic performance up 2019 data were found.

For agricultural sector data availability is rather inhomogeneous, where the data such as GVA, Employment in the agriculture, forestry, hunting and fishery sector, Trade in food and agricultural products and Agricultural land are readily available for a period of 2020-2020, while farm structure data are almost all missing, with only some information related to number of agricultural holdings available up to 2015. Information on value of agricultural production is available up to 2018 (see Section 3.3).

For all studied sub sectors, the data on production values and outputs/ yields data are available between 2010-2020. The data on costs and revenues have been separately collected for selected products using expert estimates, interviews, national statistics and literature studies. The estimated data are only for 2021.

Data gaps analysis for rural urban disparities shows that in Albania there are no data available on the origin of migration and immigration. After 2012, there is no recent data on the differences in health care quality between rural and urban areas. Data on educational attainment rates in rural-urban areas are incomplete (see Section 3.10).

4. MONTENEGRO

4.1. Introduction

This chapter describes the key characteristics and developments of Montenegro, with regards to socio-economics, the agricultural sector and rural-urban disparities. The data described in this chapter is used to make cross-country comparisons in the main study report as well as to assess the competitiveness of the agri-food sectors of the various IPARD countries.

4.2. Social and macro-economic developments

4.2.1. Population

Montenegro has a population of about 620 000 inhabitants (see Figure 4-1). According to World Bank statistics (see Figure 4-2), about two thirds of the population is living in urban areas. The share of urban population has shown a slight increase over the recent decade (see Figure 4-1). Until 2017, the population of Montenegro has been steadily growing. After 2017 the population numbers showed a slightly declining trend.

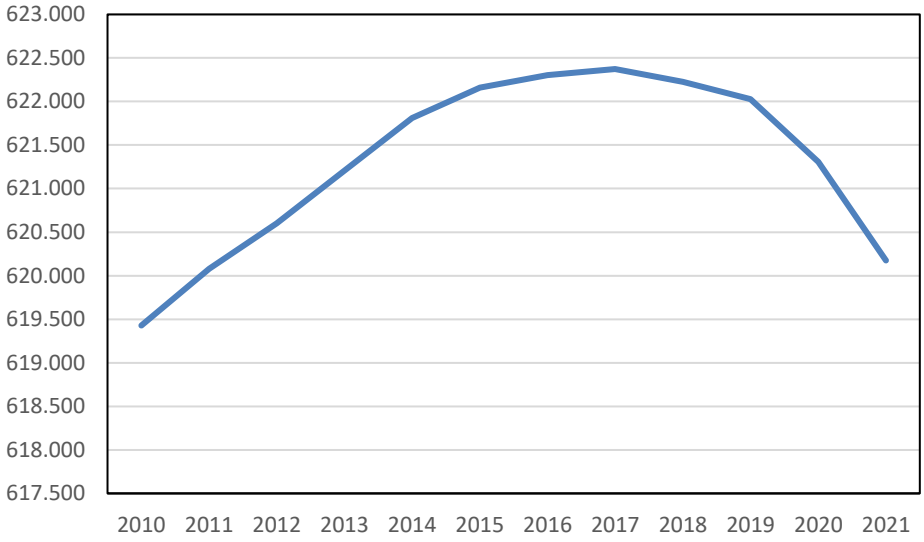

Figure 4-1. Total population in Montenegro in 2010-2021, persons. Source: World Bank.

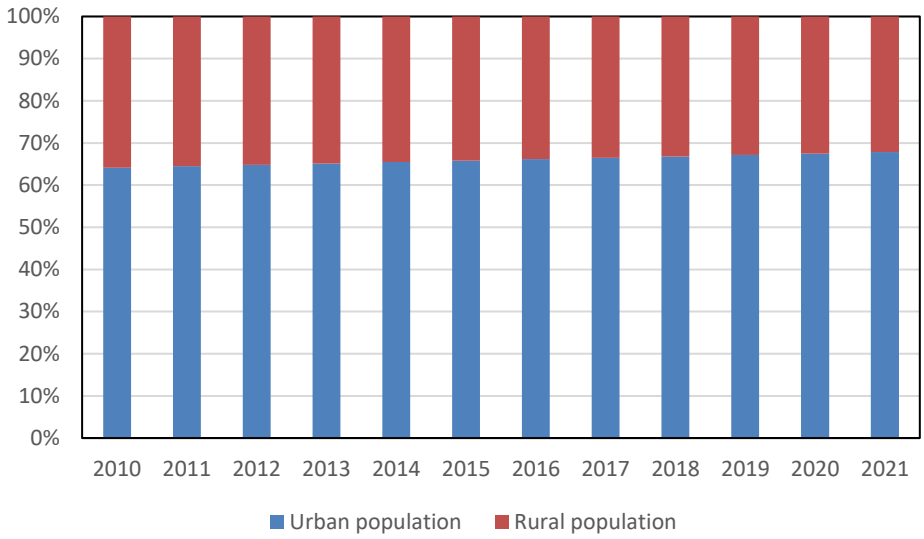

Figure 4-2. Share of urban and rural population in 2010-2021 in Montenegro, % to total, 2010-2021. Source: World Bank.

4.2.2. Migration

Between 2010 and 2015 immigration numbers declined on average. Starting from 2015 there is a growing number of migrants into Montenegro (see Figure 4-3). Consistent data about emigration is not available until 2019; in 2020 official figures state that 28 persons emigrated from Montenegro. World Bank data about the net-migration in 2013-2017 indicates that 2 400 more people left Montenegro than entered the country in that five year period, which would mean an emigration of about 26 600 people in the same five-year period, or on average 5 800 per year. The latest net-migration data for 2018-2022 show a similar net-migration deficit of 2 400 more people leaving than entering. In any case, the data suggests that migration does not contribute to reversing the decline in total population in recent years.

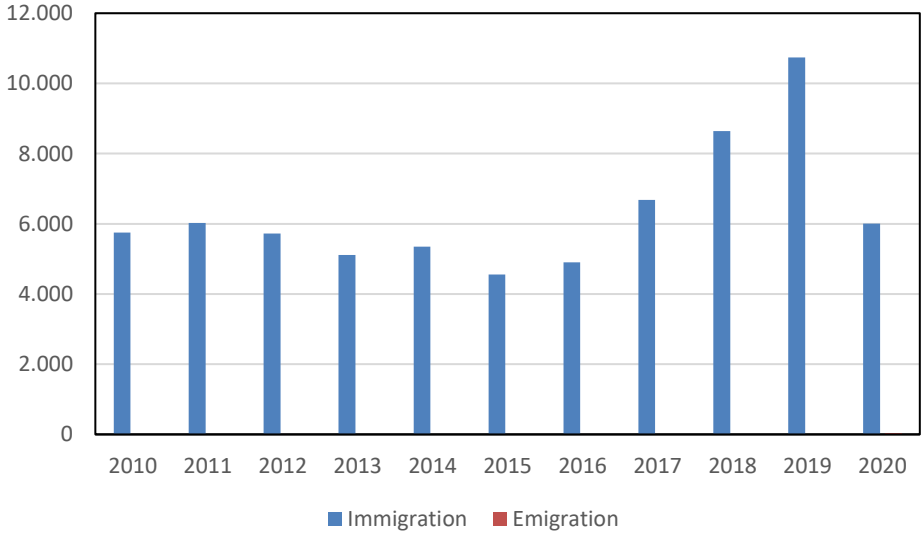

Figure 4-3. Immigration and emigration, to and from Montenegro. Source: Eurostat.

4.2.3. Employment

The employment and earnings have gradually improved in Montenegro in the recent years. However, in 2020, there seems to be a trend break in the employment development. The employment to population ratio varied between 39% and 49% in the 2010-2020 period. Starting from 2011 up to 2019, the employment to population ratio increased gradually from 39.1% to 48.7% (see Figure 4-4). In the same period, the unemployment ratio (percentage of labour force) has been declining (see Figure 4-5), the ratio went down from 19.8% to 15.1%. In 2020, the unemployment ratio increased to 17.9%. In the same year, 44% of people older than 15 years were employed (see Figure 4-4), which means a decrease compared to the previous year. The mean nominal monthly earnings of employees increased from 715 euros in 2010 to 773 euros in 2019 (see Figure 4-6).

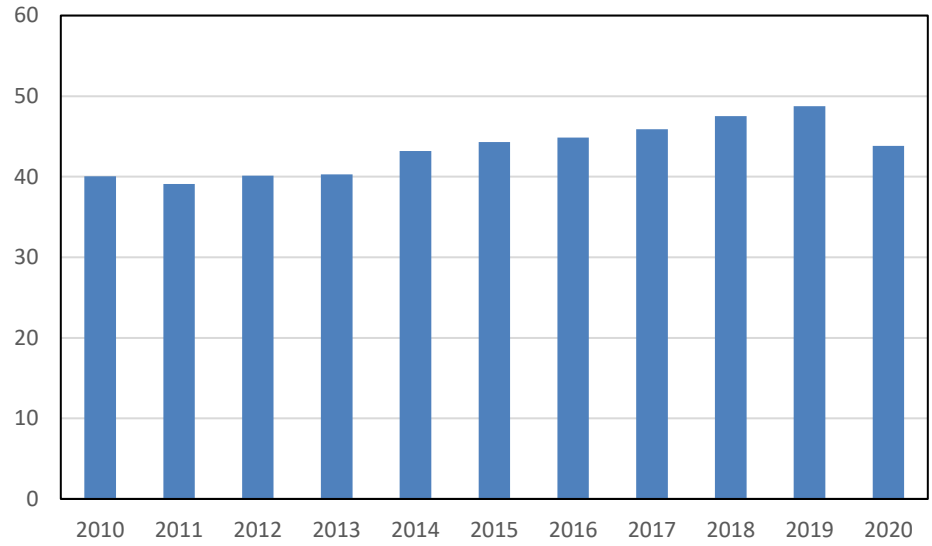

Figure 4-4. Employment to population ratio in Montenegro, 15+, total, %. Source: World Bank.

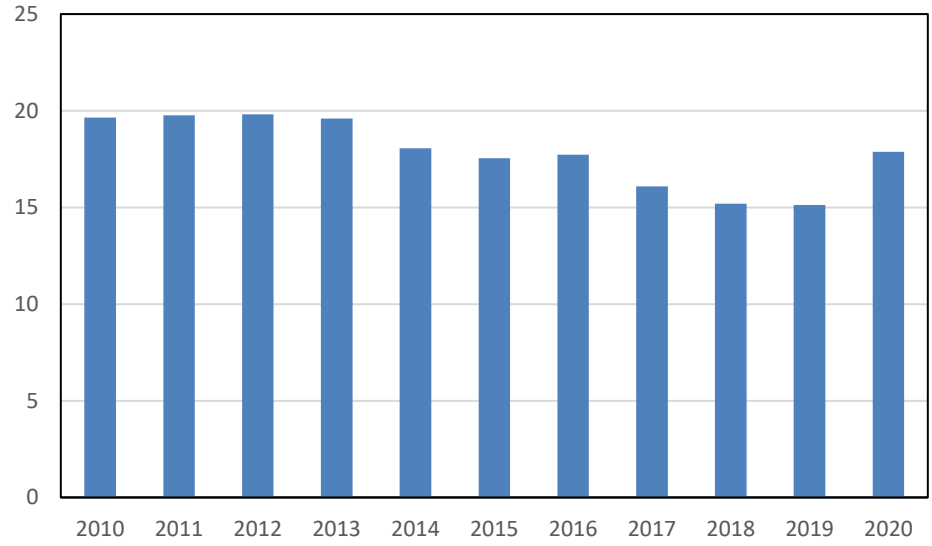

Figure 4-5. Unemployment in Montenegro, % of total labour force. Source: World Bank.

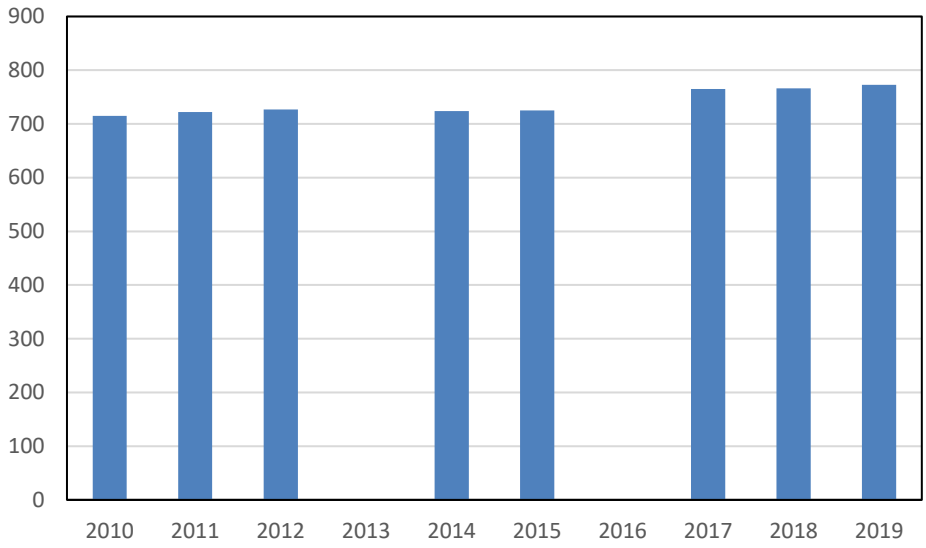

Figure 4-6. Mean nominal monthly earnings of employees in Montenegro, total, in EUR. Source: ILO.

4.2.4. Health

In Montenegro, life expectancy at birth was 76.9 years in 2019 (see Figure 4-7). In the period 2010-2019 this number increased gradually from 75.2 years in 2010 indicating improving health and other human development conditions in Montenegro.

In 2018, Montenegro spent around 8.4% of its GDP on health (see Figure 4-8). There is no data available about the development of health expenditure in the recent years.

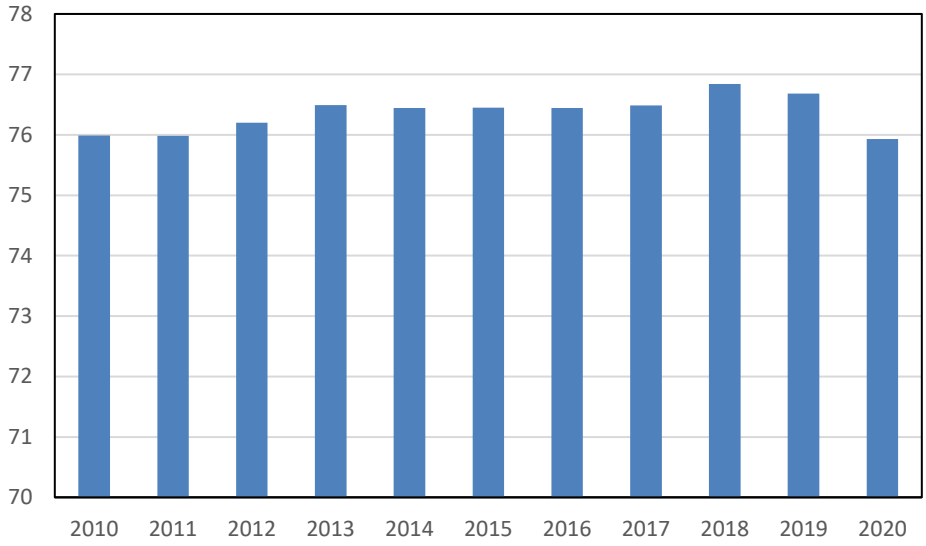

Figure 4-7. Life expectancy at birth in 2010-2020 for Montenegro, total (years). Source: World Bank.

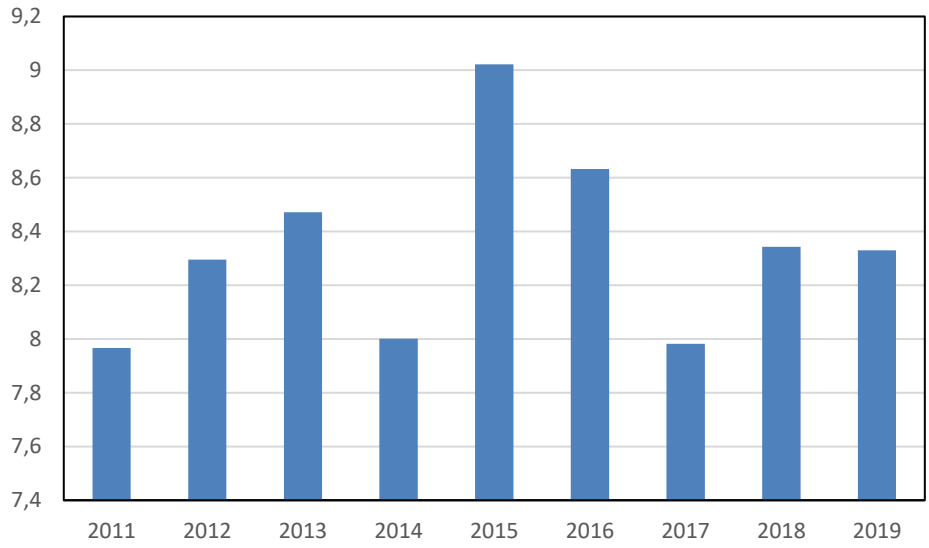

Figure 4-8. Current health expenditures, % of GDP, Montenegro, 2011-2018. Source: World Bank.

4.2.5. Education

Education level of adult population is a composite measure based on, (a) the percentage of the population without any education, (b) the proportion of workers with secondary education, and (c) the proportion of workers with tertiary education. Education level of adult population is an index between 0 and 1, with a higher number indicating a higher performance on education level of adult population (Barro and Lee dataset). In Montenegro this measure was 0.7 in the 2010-2021 period (see Table 4-1). The proportion of 15- to 24-year-olds enrolled in vocational education increased from 21.9% in 2016 to 23.3% in 2020. Adult literacy rate of population older than 15 years increased from 98.4% in 2011 to 98.8% in 2018. The completion rate of upper secondary education in rural areas increased from 75.4% in 2013 to 86.3% in 2018.

Table 4-1. Education statistics, Montenegro

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Education level of adult population	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Proportion of 15- to 24-year-olds enrolled in vocational education, both sexes (%)							22.0	22.0	23.0	23.0	23.0	
Completion rate, upper secondary education, both sexes (%)				84.0					86.0			
Educational attainment rate, completed upper secondary education or higher, population 25+ years, both sexes (%)		73.0										
Educational attainment rate, completed short-cycle tertiary		20.0										

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
education or higher, population 25+ years, both sexes (%)												
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, both sexes (%)												
Adult literacy rate, population 15+ years, both sexes (%)		98.0							99.0			

Source: Legatum, UNESCO, World Bank.

4.2.6. Infrastructure and ICT

The Logistics performance index is a composite measure based on a number of indicators related to the ability of a country in providing good trade logistics infrastructure. The Logistics performance index lays between 0 and 5, with a higher number indicating a higher logistic performance. In Montenegro, the overall logistic performance is rated with 2.75 (see Figure 4-9). The frequency with which shipments reach consignee within scheduled time is ranked highest, 3.3. The lowest rank is for the efficiency of customs clearance process, 2.56.

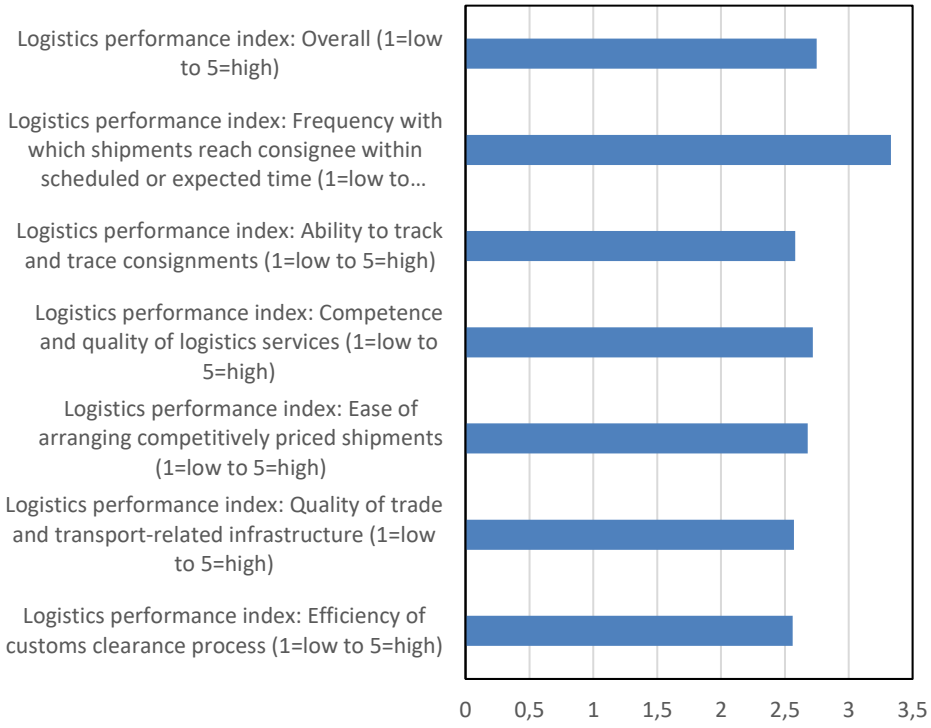

Figure 4-9. Logistics performance index, Montenegro, 2018. Source: World Bank.

The overall connection to internet in Montenegro has been improving in the recent years. According to Figure 4-10, the percentage of individuals using the internet has increased from 38% in 2010 to 81% in 2020. The number of mobile cellular subscriptions (including prepaid) decreased from 187 to 172 per 100 people between 2010 and 2020.

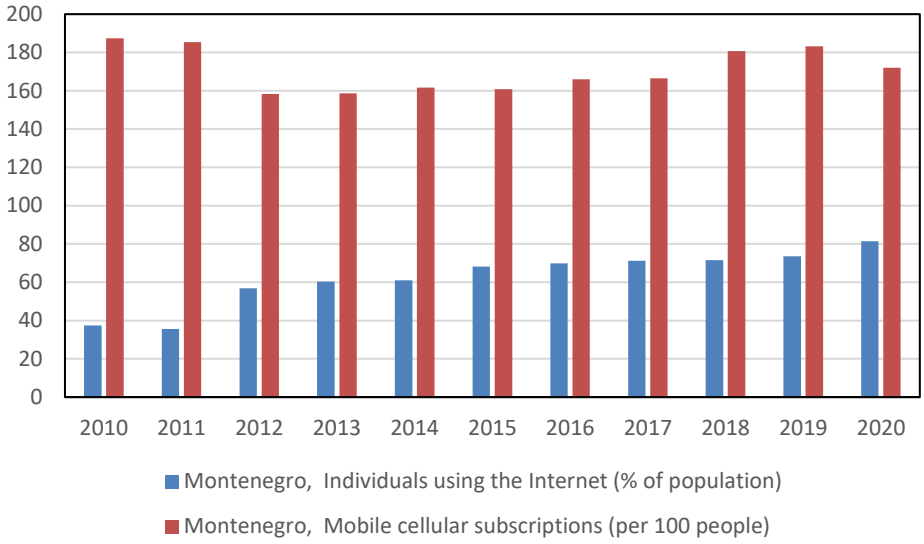

Figure 4-10. Individuals using the internet and mobile cellular subscriptions in Montenegro. Source: World Bank.

4.2.7. Income distribution

There has been a trend toward less income distribution inequality in Montenegro. In 2012, Gini index was 41.2. In the period 2013-2016 the index declined from 39 to 38.5 (see Figure 4-11). No data on income distribution is available for more recent years.

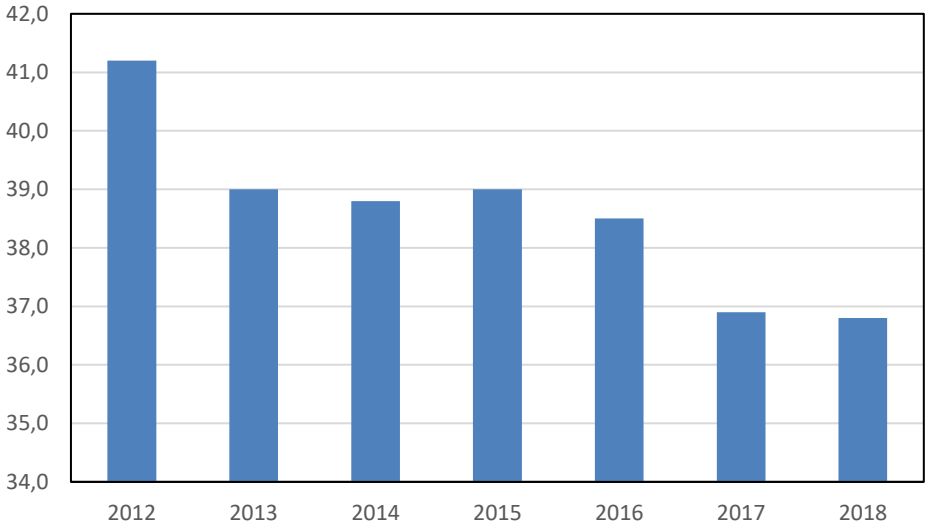

Figure 4-11 Gini Index in 2012-2018 in Montenegro. Source: World Bank.

4.2.8. Social protection

Montenegro has been spending a declining share of the GDP on social protection (see Figure 4-12). In 2016, the share of social protection expenditure in percentage of the

GDP was 18.7%, in 2018 this share was 16.6%. On the other hand, in terms of euro per inhabitant, an increase of the expenditure on social protection is visible (see Figure 4-13). In 2016, the amount of money spent per inhabitant was 1 188 euros, in 2018, this amount increased up to 1 247 euros. No data is available on the social protection expenditures for more recent years.

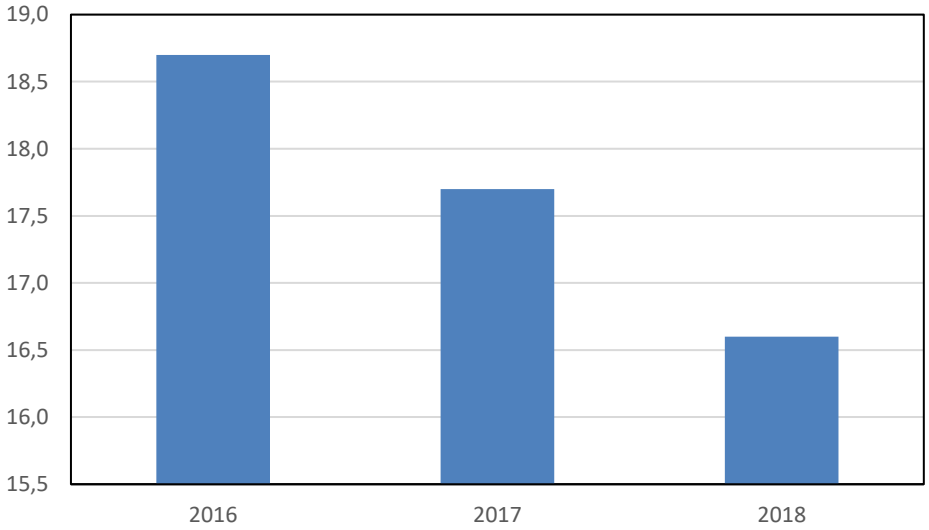

Figure 4-12. Social protection expenditure in Montenegro, % of GDP. Source: Eurostat.

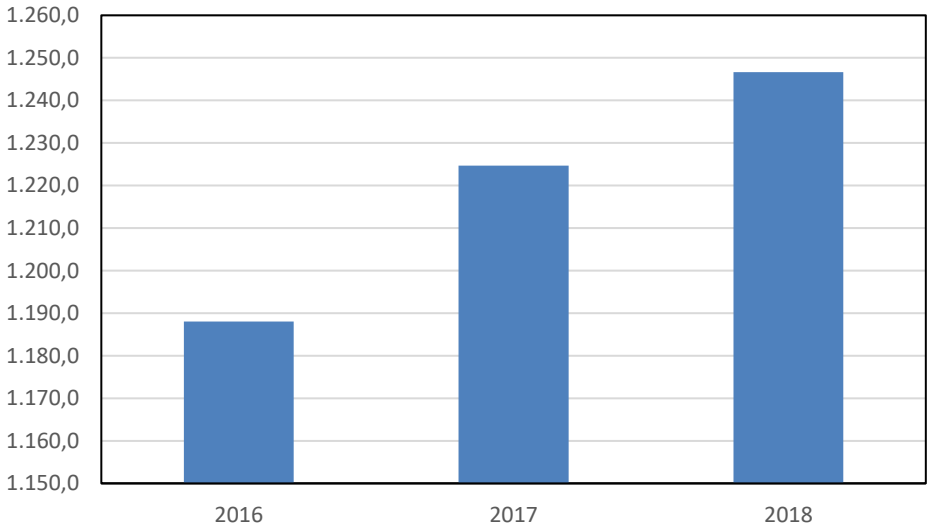

Figure 4-13. Social protection expenditure per inhabitant in Montenegro, in Euros. Source: Eurostat.

4.2.9. National accounts

In recent years, the development of GDP and added value in Montenegro showed a positive trend (Table 4-2). However, in 2020 there was a trend break with declining numbers but 2021 shows an increase again. Between 2010 and 2019, the GDP in market prices increased from 3.1 billion euros to 5.0 billion euros. The real GDP growth varied between 0% and 4% between 2011 and 2019. In 2020, the GDP in market prices decreased to 4.1 billion euros. However, in 2021 the GDP in market prices increased to 4.9 billion euros. The real GDP growth was -15% in 2020 and 12% in 2021. The GDP per capita showed the same trend, increasing from 5 045 euros in 2010 to 7 959 euros in

2019, decreasing to 6 721 euros in 2020 and increasing to 7 920 euros in 2021. The gross value added at basic prices increased from 2.6 billion euros to 4.0 billion euros in the 2010-2019 period. In 2020, the gross value added at basic prices decreased to 3.4 billion euros and increased to 3.9 billion in 2021.

The Gross fixed capital formation in Montenegro was 23% in 2020. In the 2010 – 2020 period this percentage increased from 22%.

Table 4-2. National accounts statistics, Montenegro

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth 2015-last available year
GDP at market prices, current prices (million EUR)	3 125	3 265	3 182	3 363	3 458	3 655	3 954	4 299	4 663	4 951	4 186	4 912	34
Gross value added at basic prices (million current EUR)	2 609	2 735	2 668	2 759	2 799	3 022	3 271	3 519	3 816	4 022	3 468	3 978	32
Real GDP Growth (constant EUR)	3	3	-3	4	2	3	3	5	5	4	-15	12	267
GDP per capita (current EUR)	5 045	5 265	5 127	5 413	5 561	5 874	6 354	6 907	7 494	7 959	6 737	7 920	35
Share of food in total household's expenditures (%)	38	34	32	32		31		30					
Compensation of employees (% of expense)													
Taxes on goods and services (% of revenue)													
Taxes on income, profits and capital gains (% of revenue)													
Taxes on international trade (% of revenue)													
Gross fixed capital formation (% of GDP)	22	20	20	20	19	20	25	27	29	27	28	23	13

Source: World Bank, MONSTAT.

In Montenegro, wholesale and retail trade, transport, accommodation and foodservice activities is the most important sector in terms of the contribution to the GDP (32% in 2021). The second important sector is public sector (public administration, defence, education, human health, social work, etc.) (20%). Agriculture, forestry and fishing is the third large sector in terms of share of the GDP (9%) (Figure 4-14).

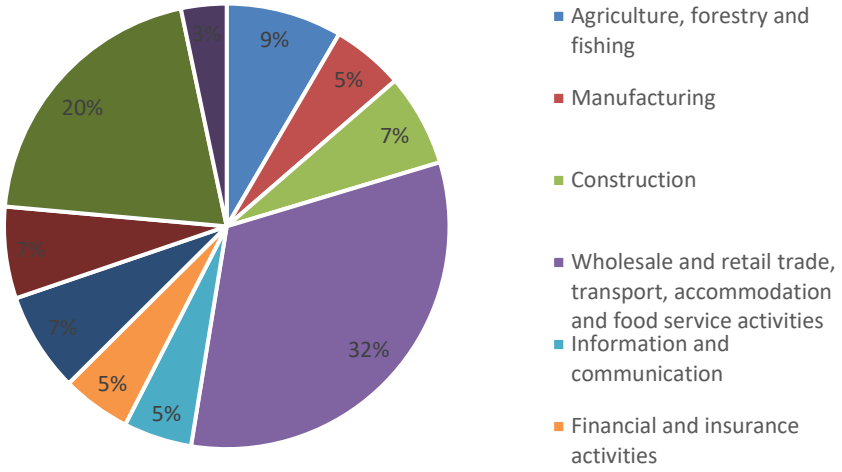

Figure 4-14. Breakdown of GDP of Montenegro by main activities, 2021, % to gross value added. Source: Eurostat.

For the insights in Montenegrin government income in the 2011-2019 period, data on taxes is not available (Table 4-2). Also, the data on compensation of employees is missing. Gross fixed capital formation as a percentage of GDP increased from 22% (2010) to 28% (2020). The share of food in the total household's expenditures was 30% in 2017. More recent data on this share is not available.

4.2.10. Government finances

Table 4-3 shows the government finances of Montenegro between 2015-2021. Recent Data for the central and general government expenditures in agriculture are not available from FAO. From Study 1 however, information about government expenditures on agricultural support measures are available. In 2021, some 31 million euro was spend on the various measures. General government final consumption expenditure is between 18-23% of GDP for the years 2015-2021. The General government debt has increased with 38% between 2015 and 2020. In 2020, the general government debt was 107% of GDP.

Table 4-3. Montenegro: Total general debt, general government expenditure, in % of GDP; and government expenditure on Agriculture, forestry, fishing, in % of total expenditure

	2015	2016	2017	2018	2019	2020	2021
General government final consumption expenditure (% of GDP) (World Bank)	19	20	18	19	18	23	20
Central Government Expenditure Agriculture, forestry, fishing (% of total expenditure) (FAO)	1						
Total government expenditure on agricultural support measures, in mln EUR (from Study 1)	19	19	24	19	25	32	31
In % of general government final consumption expenditure (from World Bank)	2.7	2.5	3.0	2.2	2.9	3.4	3.1
General Government Debt (Percent of GDP) (IMF)	69	66	66	72	79	107	

Source: FAO, World Bank, IMF.

4.2.11. Exchange rates

Starting from 2002 the Euro has been used as de facto domestic currency in Montenegro.

4.2.12. Interest rates

The interest rates in Montenegro show a long-term decreasing trend. The lending interest rate decreased from 10% in 2010 to 6% in 2021. The deposit interest rate decreased from 4% in 2010 to 0% in 2021 (see Figure 4-15).

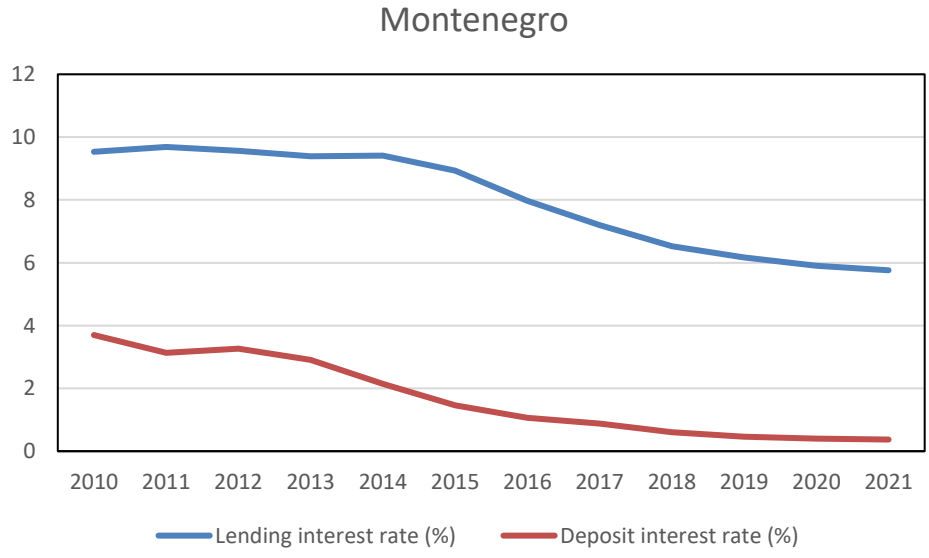

Figure 4-15. Interest rates in Montenegro, 2010-2021. Source: IMF.

4.2.13. Prices

The prices of consumer goods in Montenegro show a gradually increasing trend in the long-term. The consumer price index went up from 100 in 2010 (2010 = 100) to 119 in 2021 (see Figure 4-16).

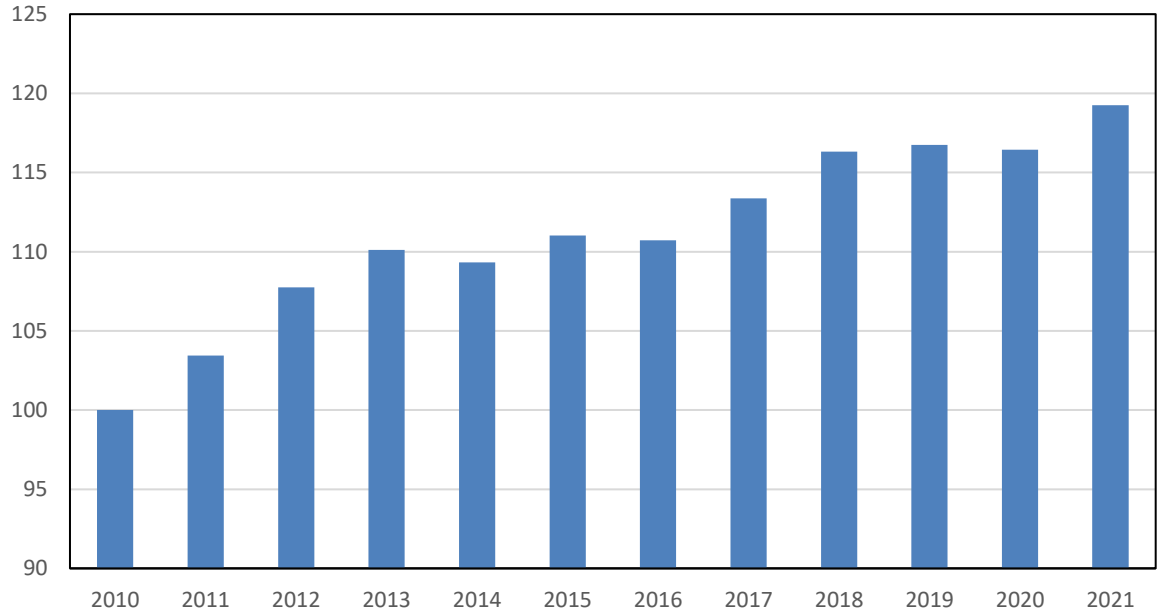

Figure 4-16. Consumer price index in 2010-2021 in Montenegro, 2010=100. Source: World Bank.

4.2.14. Balance of payments and trade

Montenegro is a net-importer of products. The exports were 367 million euros and the imports 2 103 million euros in 2020 (see Figure 4-17). The exports and the imports were somewhat fluctuating in the period between 2010 and 2020, but overall, they show an increasing trend. However, the exports are not able to keep up with the imports in the same pace. In 2010, the exports were 329 million euros and the imports 1 646 million euros.

Figure 4-17. Import, export and trade balance, in million EUR, Montenegro, 2010-2020. Source: FAO.

4.3. Agricultural sector

Table 4-4 presents key indicators for the agricultural sector in Montenegro. The gross value added of the agricultural, forestry and fishing sector in Montenegro was 310 million euros in 2021. Value added has been growing although growth slowed down in recent years and decreased in 2021. The sector's share in the economy was about 9% and has been quite stable. The number of persons employed grew from 13 thousand in 2010 to 17 thousand in 2019. Exports of agri-food products have been fluctuating around 50 million euros, with no significant long-term increase or decrease. The same holds for imports, which fluctuated between 400 and 500 million euros. Overall, Montenegro is a net-importer of agri-food products. The area under agricultural land has reduced drastically from 512 000 ha in 2010 to 258 000 ha in 2020. This can be explained by change in classification of land use. FAOSTAT classifies 260 000 ha as other land (item 6 670) in 2020 for Montenegro, which explains the significant decrease in agricultural land shown in Table 4-4. Other land is not included in Table 4-4.

Judging from the division of land use, most of the agricultural sector consists of permanent grassland and dairy farming. Data on output value of crops and livestock products are not available for Montenegro (from FAOSTAT). The latest census data reveal that there were about 44 thousand farm holding in 2016, with an average of about 5.8 hectares of UAA per holding.[2] It is important to underline that 72% of agricultural holdings are 2 ha in size or less (see EC, 2022). The farm structure is dominated by small family farms, which produce mainly for their own consumption. Agriculture is by far the largest activity of the rural population – more than 60 000 households obtain their income partly or entirely from agriculture. Covering a relatively small area and benefiting from a Mediterranean climate, Montenegro's agriculture is quite diversified – from growing olives and citrus fruits in the coastal region, to early seasonal vegetables and tobacco in the central areas and extensive sheep breeding in the north.

[2] IPARD III Programme Montenegro 2022 reports agricultural and non-agricultural activities of 11 860 registered farms in the Register of Agricultural Holdings kept by the Ministry of Agriculture, Forestry and Water Management.

Table 4-4. Key agricultural statistics, Montenegro

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross value added of the agriculture, forestry, hunting and fishery sector (A)	GVA (at current prices)	million EUR	240	264	237	270	280	295	295	295	314	317	316	310
	Share in GVA of all business activities	%	9	10	9	10	10	10	9	8	8	8	9	
	Agriculture, forestry and fishing, Value Added (% of GDP)	%	8	8	7	8	8	8	7	7	7	6	8	6
Employment in the agriculture, forestry, hunting and fishery sector (A)	Number	1000 persons	13	11	11	9	12	17	17	18	20	17		
	Share in total employment	%	6	5	5	5	6	8	8	8	8	7		
Trade in food and agricultural products	Export of agri-food products	million EUR	50	57	64	62	98	58	54	52	50	40	51	
	Share in export of all products	%	15	13	17	17	30	18	17	14	12	10	14	
	Import of agri-food products	million EUR	396	428	434	442	466	455	469	511	521	659	464	
	Share in import of all products	%	24	23	24	25	26	25	23	22	20	25	22	
	Trade balance in agri-food products	million EUR	-345	-371	-371	-380	-368	-397	-415	-460	-471	-619	-414	
	Export/import rate	%	13	13	15	14	21	13	11	10	10	6	11	
Agricultural land	Total	1 000 ha	512	513	513	223	230	231	256	256	257	257	258	
	- Arable land	1 000 ha	172	173	172	8	9	9	9	9	9	9	9	
	of which fallow and uncultivated land	1 000 ha												
	- Land under permanent crops	1 000 ha	16	16	17	5	5	5	5	5	5	6		
	of which orchards	1 000 ha												
	vineyards	1 000 ha												
	olive trees	1 000 ha												
	other permanent crops	1 000 ha												
	- Permanent grassland	1 000 ha	324	324	324	211	217	218	241	242	242	243		
	of which meadows	1 000 ha												
	pastures	1 000 ha												
	- Other agricultural land	1 000 ha												

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Farm structure	Number of agricultural holdings	1 000 holdings	49	:	:	:	:	:	44	:	:	:		
	Utilised agricultural area (UAA)	1 000 ha	221	:	:	:	:	:	256	:	:	:		
	UAA per holding	Ha/holding	5	:	:	:	:	:	6	:	:	:		
Value of production	Total agriculture	million EUR												
	- Crops	million EUR												
	- Livestock	million EUR												
Share of crop and livestock output in total Agricultural Goods Output	- Crops	%	:	:	:	:	:	:	:	:	:	:		
	- Livestock	%	:	:	:	:	:	:	:	:	:	:		

4.3.1. Farm structure, labour

In Montenegro in 2020, 11 860 agricultural holdings were registered in the Register, and 1 961 non-agricultural activities, where 89% of agricultural holdings that registered non-agricultural activities were engaged in on-farm processing and rural tourism[3]. Recent data on average farm size for Montenegro is not available, however according to 2006 report[4], Montenegro has similar farm structure as Slovenia and a few of the Mediterranean countries (Greece, Cyprus), with average farm size similar to the farm structure in prevailing part of the countries of South-East Europe.

There is insufficient data on number and size of agricultural holdings available to present the farm structure. Older data are available here: https://seerural.org/news/open-access-agricultural-statistics-on-western-balkans-and-turkey/

4.3.2. Production value

No data is available on the production value of agriculture in Montenegro, but the World Bank reports a total value added in agriculture, forestry and fisheries of about 0.3 billion Euro.

4.3.3. Prices and input costs

FAOSTAT does not provide agricultural sector prices for Montenegro. Also, from national statistics we were unable for find consistent data about input prices and input costs other than prices of electricity in euros for non-household consumers, see Table 4-5. The price of electricity per kWh declined with 8% between 2015 and 2020.

Table 4-5. Electricity prices for non-household consumers 20 MWh < Consumption < 500 MWh EUR per kWh

	2015	2016	2017	2018	2019	2020	2021	growth 2015-2021 (%)
Electricity prices for non-household consumers 20 MWh < Consumption < 500 MWh EUR per kWh	0.106	0.107		0.113	0.124	0.098	0.097	-8

Source: Eurostat, calculations WR

4.3.4. International trade

Table 4-6 reports international trade and the share of agricultural trade of Montenegro in 2010-2021.[5] Total exports of Montenegro have increased between 2010 and 2021 from 329 to 436 million euro. Total imports increased by 51% to 2 490 million euro between 2010 and 2021, but in the last five years since 2017, total imports and exports have not increased much.

[3] IPARD III Programme report- Montenegro 2022

[4] Ministry of Agriculture, Forestry and Water Management, Government of the Republic of Montenegro, 2006. Montenegro's agriculture and European union Agriculture and Rural Development Strategy. https://seerural.org/1documents/Documents/Development_Strategies/Montenegro-National_Strategy_ARD.pdf

Agricultural trade is defined in accordance with the WTO Agreement on Agriculture: https://www.wto.org/english/docs_e/legal_e/14-ag_02_e.htm#annI

Table 4-6 Export and import of agricultural products, Montenegro, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	growth 2010-2021 (%)
Export									
Total trade (million EUR)	329	318	320	373	395	414	359	436	32
Agricultural trade (million EUR)	51	60	56	53	51	53	52	63	24
Share of agricultural trade in total trade (%)	15	19	17	14	13	13	15	14	
Import									
Total trade (million EUR)	1,646	1,848	2,044	2,311	2,543	2,598	2,096	2,490	51
Agricultural trade (million EUR)	394	456	471	513	523	558	466	581	47
Share of agricultural trade in total trade (%)	24	25	23	22	21	22	22	23	

Source: UN Comtrade, calculations WR.

The agricultural sector accounted for a rather stable share of total trade, of about 21-25% of total imports and of 13-19% of total exports. Montenegro is a net importing country of agricultural products.

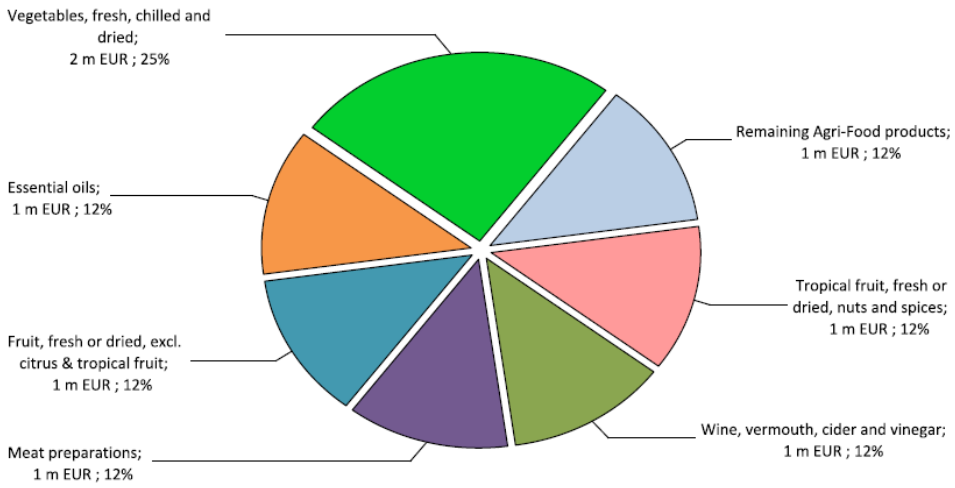

Figure 4-18. Exports from Montenegro into EU, in 2021, in million euro and %.

Source: EC (2022b).

Figure 4-18 demonstrates that fresh vegetables and fruits (incl. tropic fruits fresh and dried) are the major product categories (25%, 12% and 12% in 2021) of Montenegro exports to the EU, followed by essential oils (12% in 2021), wine (12%%) and meat preparations.

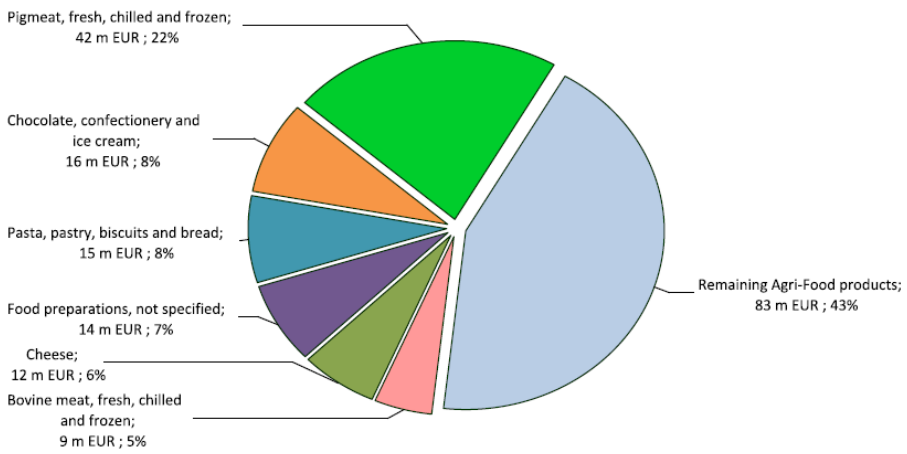

Figure 4-19. Imports to Montenegro from EU, in 2021, in million euro and %.

Source: EC (2022b).

Figure 4-19 shows that imports into Albania from the EU mainly constitute of meat (pig and bovine), followed by prepared food categories (confectionary, pasta, cheese). The remaining agri-food products are 43% and are composed by categories of smaller shares.

4.4. Dairy sector

4.4.1. Production value and producer prices

FAOSTAT does not provide price and production value data for Montenegro. The National Expert estimates the total milk production of about 166 thousand tons in 2020, with an estimated production value of 53 million euros.

4.4.2. Costs and revenues of milk

For milk, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Montenegro, the National Expert provided the estimated overhead and external costs for an average of 14 smaller farms (3-30 cows), the market price per kg of milk and the subsidies per kg of milk. The total average overhead and external farm costs include several cost items like machinery and buildings, energy, contract work and wages paid. The total estimated average overhead and external farm costs per kg of milk are 0.37 euros. Information about whether these costs include (at least some) reimbursement for owners and family labour on family farms, is not available.

The average market price of kg of milk is 0.32 euros. The state subsidies are about 0.09 euros per kg of milk. The specific costs of milk production, like feed, per kg of milk were not provided. The total net farm revenue per kg of milk cannot be estimated. The estimation of available cost and revenue items for milk are shown in the Table 4-7 below.

Table 4-7. Estimated costs and revenues of milk in Montenegro, 2021

	For Milk, in EUR
Total specific costs per kg of milk	**Unknown**
Total overhead and external factor costs per kg of milk, of which:	**0.37**
Machinery and buildings	0.06

	For Milk, in EUR
Energy	0.06
Contract work	0.06
Other direct inputs	0.07
Wages paid	0.09
Depreciation	0.02
Interest paid	0.02
Average milk price per kg of milk	**0.32**
State subsidies per kg of milk	0.09
Net revenue per kg of product	**Unknown**

4.4.3. Output, area, animals and yields

According to FAOSTAT (see Table 4-8), the dairy sector in Montenegro has been changing in the last 10 years. The numbers of livestock heads have substantially dropped. The productivity of cows has increased that enabled the overall dairy production to stay rather stable over the years 2015-2020 at the level of 174-178 thousand tonnes.

Table 4-8. Production and yield for dairy, Montenegro

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Milk Animals	Milk, Total	Head	225 762	164 054	154 826	157 318	156 210	153 080	152 653
	Milk, whole fresh cow	Head	67 259	62 812	59 583	60 042	59 469	56 660	55 841
Production	Milk, Total	tonnes	142 833	178 985	176 260	177 604	177 517	174 329	175 819
	Milk, whole fresh cow	tonnes	135 829	170 701	168 037	169 351	168 233	165 750	167 778
Yield	Milk, Total	hg/An	6 327	10 910	11 384	11 289	11 364	11 388	11 518
	Milk, whole fresh cow	hg/An	20 195	27 176	28 202	28 205	28 289	29 253	30 046

Source: FAOSTAT.

4.4.4. International trade

Table 4-9 shows the developments of international trade of dairy products in Montenegro in 2010-2021. Exports of dairy products from Montenegro are almost non-existent. Imports were about 49 million euro in 2021. Imports of dairy products have been stable and included unconcentrated milk, buttermilk, as well as cheese and some butter and other fats.

Table 4-9. Export and import of dairy products, Montenegro, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Export										
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	0	0	0	0	0	0	0	0	0.0	n.a.
Import										
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	37	43	44	46	46	48	39	49	1.9	31
Of which:										
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	13	13	13	13	13	14	13	14	0.5	4
Milk and cream; concentrated or containing added sugar or other sweetening matter	1	0	0	0	0	0	0	0	0.0	n.a.
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	7	10	11	11	10	11	9	11	0.4	59
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	0	0	0	0	0	0	0	0	0.0	n.a.
Butter and other fats and oils derived from milk; dairy spreads	2	3	3	3	3	4	3	4	0.2	96
Cheese and curd	12	13	15	16	16	16	12	18	0.7	41

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

4.5. Eggs and honey

4.5.1. Production value and producer prices

Data on production value and price for eggs and honey in Montenegro is not available. No data of Montenegro in FAOSTAT on producers' prices and production value available. This information is also not available from national statistics of the country.

4.5.2. Output, area, animals and yields

Table 4-10 indicates production and productivity for eggs and honey in Montenegro in the 2010-2020 period. The number of laying hens has remained rather stable. Both, productivity in eggs per laying hen and the overall production have increased. The production of eggs has doubled. The production of honey has increased from 173 tonnes to 514 tonnes.

Table 4-10. Production and yield for eggs and honey, Montenegro

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Laying	Eggs, hen, in shell	1000 Head	425	542	660	667	568	566	600
Productio n	Eggs, hen, in shell	1000 No	64 198	101 016	118 000	118 214	122 828	123 000	123 000
		tonnes	3 210	5 656	5 900	6 112	6 350	6 359	6 359
	Honey, natural	tonnes	173	489	627	390	688	560	514
Yield	Eggs, hen, in shell	100mg/An	75 529	104 354	89 394	91 634	111 796	112 350	105 983
		No/An	151	186	179	177	216	217	205

Source: FAOSTAT.

4.5.3. International trade

International trade of eggs and honey is negligible for Montenegro. Total imports accounting for around one million euros per year, while exports were even smaller (see Table 4-11).

Table 4-11. Export and import of eggs and honey, Montenegro, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Export										
Birds' eggs, in shell; fresh, preserved or cooked	0	0	0	0	0	0	0	0	0.0	n.a.
Honey; natural	0	0	0	0	0	0	0	0	0.0	n.a.
Import										
Birds' eggs, in shell; fresh, preserved or cooked	1	2	2	2	2	2	1	1	0.1	56
Honey; natural	1	1	1	1	1	1	1	1	0.0	38

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

4.6. Meat sector

4.6.1. Production value and producer prices

No data of production value and prices and production costs of meat is available for Montenegro in FAOSTAT or national statistics of the country.

4.6.2. Output, area, animals and yields

Table 4-12 shows the production and yield for main meat products in Montenegro in 2010-2020. A remarkable growth is observed in the growth in the population of chicken and pigs. Pigs have almost doubled in their numbers, while chicken increased with around 35%. Productivity in pig farming indicates a lower carcass weight per animal what may signal about younger slaughter age of pigs in light of growing production in tonnes and growing number of animals. The total meat production has increased but not much (from 11 077 to 14 137 tonnes). The productivity of sheep and chicken does not show big changes. The major increase in productivity is achieved for cattle meat. Also, the overall product of cattle meat has increased and was 6,010 tonnes in 2020.

Table 4-12. Production and yield for meat, Montenegro

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Producing Animals/Slaughtered	Meat, chicken	1 000 Head	2 400	2 527	2 968	2 806	2 740	2 995	3 255
	Meat, sheep	Head	23 329	23 291	49 797	27 080	24 377	32 352	27 937
	Meat, cattle	Head	27 147	21 462	27 371	18 473	18 115	26 624	18 953
	Meat, pig	Head	16 583	27 612	38 724	32 708	30 444	27 683	31 761
Production	Meat, Total	tonnes	11 077	10 941	14 538	12 604	11 659	13 504	14 137
	Meat, chicken	tonnes	3 500	3 355	3 600	3 650	3 447	3 712	3 940
	Meat, sheep	tonnes	955	970	1 910	1 049	957	1 255	1 084
	Meat, cattle	tonnes	4 727	3 211	5 416	3 875	3 720	5 440	6 010
	Meat, pig	tonnes	1 895	3 308	3 531	3 899	3 436	3 000	3 000
Yield/Carcass Weight	Meat, chicken	0.1g/An	14 583	13 277	12 129	13 008	12 580	12 394	12 104
	Meat, sheep	hg/An	409	416	384	387	393	388	388
	Meat, cattle	hg/An	1 741	1 496	1 979	2 098	2 054	2 043	3 171
	Meat, pig	hg/An	1 143	1 198	912	1 192	1 129	1 084	945

Source: FAOSTAT.

4.6.3. International trade

Table 4-13 presents import and export values of live animals and meat products in Montenegro for 2010-2021. The country is a net importer of these products. Exports of meat products have, however, increased by 254% over the period, mainly consisting of salted, dried or smoked meat products. These exports involved mainly meat of swine and of bovine animals.

Table 4-13. Export and import of meat, Montenegro, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Export										
Animals; live	0	0	0	0	0	0	1	0	0.0	n.a.
Meat and edible meat offal	4	7	8	8	8	9	10	12	2.9	254
Of which:										
Meat and edible meat offal; salted, in brine, dried or smoked; edible flours and meals of meat or me	3	7	7	8	7	9	9	12	2.7	349
Import										
Animals; live	22	24	20	23	24	27	24	31	1.2	43
Meat and edible meat offal	60	69	75	83	86	90	70	80	3.2	34
Of which:										
Meat of bovine animals; fresh or chilled	8	10	13	14	16	14	8	11	0.4	32

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Meat of bovine animals; frozen	0	1	2	3	3	5	2	3	0.1	n.a.
Meat of swine; fresh, chilled or frozen	42	43	47	50	50	52	45	47	1.9	12
Meat of sheep or goats; fresh, chilled or frozen	0	1	1	1	1	1	0	0	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	0	0	0	0	0	1	0	0	0.0	n.a.
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e., fowls of the species Gal	8	12	11	13	14	16	13	17	0.7	115
Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, fr	0	0	0	1	1	1	0	0	0.0	n.a.
Meat and edible meat offal; salted, in brine, dried or smoked; edible flours and meals of meat or me	1	1	1	1	1	1	1	1	0.1	7

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

4.7. Fruit and vegetables

4.7.1. Production value and producer prices

No data on production values of fruit and vegetable is available for Montenegro in FAOSTAT or national statistics of the country. There is also no data available for demonstrating the development of fruit and vegetable prices.

4.7.2. Costs and revenues of apples and tomatoes

For apples and tomatoes, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Montenegro, the National Expert provided the estimated average specific costs of apple production at three representative rather small holdings, and of tomato production at one holding of 2.5 ha size. In addition, the estimated average market prices for apples and tomatoes were provided as well. The total average specific farm costs include several cost items like seeds and plants, and fertilizers. The total estimated average specific farm costs per kg of apples are 0.32 euros. The total estimated average specific farm costs per kg of tomatoes are 0.61 euros. The average market price of kg of apples is estimated at 0.51 euros. The average market price of kg of tomatoes is estimated at 0.69 euros.

In Montenegro, there is governmental budgetary support of agriculture and rural development, which includes market and direct producer support. At the same time, no estimations of subsidies were provided specifically per kg of apples or tomatoes. Therefore, the subsidies could not be included in the estimation of costs and revenues. The overhead and external factor costs of fruit and vegetable production, like machinery, buildings and labour, per kg of products were not provided. The total net farm revenue per kg of product cannot be estimated. The estimation of available cost and revenue items for apples and tomatoes are shown in the Table 4-14 below.

Table 4-14. Estimated costs and revenues of apples and tomatoes in Montenegro, 2021

	For Apples, in EUR	For Tomatoes, in EUR
Total specific costs per kg of product, of which:	0.32	**0.61**
Seeds and plants	0.12	0.1
Fertilizers	0.08	0.22
Crop protection	0.08	0.22
Other specific costs	0.05	0.07
Total overhead and external factor costs per kg of product	**Unknown**	**Unknown**
Average price per kg of product	**0.51**	**0.69**
Net revenue per kg of product	**Unknown**	**Unknown**

4.7.3. Output, area, animals and yields

Table 4-15 shows the production and yield for main fruits and vegetables in Montenegro in 2010-2020. Grapes is the major fruit crop in Montenegro with the area of about 2 300 ha. The yields of primary fruits and citrus fruits are rather volatile while the yields of other fruits and vegetables have been rather stable. Cabbages and brassica crops occupy the largest territory among all fruits and vegetables.

Table 4-15. Production and yield for fruit and vegetables, Montenegro

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Fruit Primary, Total	ha	6 516	7 289	7 372	7 485	7 527	7 592	7 094
	Grapes	ha	2 384	2 708	2 783	2 804	2 790	2 830	2 320
	Apples	ha	100	139	151	209	214	220	263
	Watermelons	ha	230	537	420	421	425	416	406
	Citrus Fruit, Total	ha	999	1 049	1 078	1 058	1 065	1 075	1 069
	Vegetables Primary, Total	ha	1 682	1 573	1 708	1 714	1 725	1 570	1 534
	Tomatoes	ha	196	114	140	144	146	98	82
	Chillies and peppers, green	ha	88	181	230	228	230	191	185
	Cucumbers and gherkins	ha	266	318	380	381	382	327	319
	Cabbages and other brassicas	ha	10 383	11 773	12 202	12 049	12 284	12 639	12 577
Production	Fruit Primary, Total	tonnes	40 804	23 086	28 925	22 202	24 441	20 860	15 386
	Grapes	tonnes	2 116	2 817	1 638	1 347	1 688	1 490	1 714
	Apples	tonnes	9 262	21 563	17 413	17 538	18 107	17 320	16 913
	Watermelons	tonnes	22 940	23 289	26 632	27 036	27 289	23 328	22 564
	Citrus Fruit, Total	tonnes	82 516	80 892	85 008	78 387	85 359	79 140	73 505
	Vegetables Primary, Total	tonnes	7 644	3 936	4 464	4 768	4 866	3 336	2 814
	Tomatoes	tonnes	2 758	4 500	5 644	5 479	5 546	4 616	4 423
	Chillies and peppers, green	tonnes	8 389	10 623	12 258	12 440	12 509	11 074	11 126
	Cucumbers and gherkins	tonnes	103 934	112 231	113 191	113 885	115 343	117 572	117 652
	Cabbages and other brassicas	tonnes	126 636	110 978	115 312	104 725	113 404	104 241	103 616
Yield	Fruit Primary, Total	hg/ha	211 600	202 662	108 477	64 450	78 879	67 727	65 171
	Grapes	hg/ha	402 696	401 546	414 595	416 580	426 047	416 346	416 576
	Apples	hg/ha	136 385	148 055	155 925	157 736	158 197	148 586	147 093
	Watermelons	hg/ha	390 000	345 263	318 857	331 111	333 288	340 408	343 171
	Citrus Fruit, Total	hg/ha	171 158	85 251	103 935	79 180	87 602	73 710	66 319

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
	Vegetables Primary, Total	hg/ha	313 409	248 619	245 391	240 307	241 130	241 675	239 081
	Tomatoes	hg/ha	315 376	334 057	322 579	326 509	327 461	338 654	348 777
	Chillies and peppers, green	hg/ha	999	1 049	1 078	1 058	1 065	1 075	1 069
	Cucumbers and gherkins	hg/ha	6 516	7 289	7 372	7 485	7 527	7 592	7 094
	Cabbages and other brassicas	hg/ha	2 384	2 708	2 783	2 804	2 790	2 830	2 320

Source: FAOSTAT.

4.7.4. International trade

Table 4-16 presents import and export values of fruit and vegetables in Montenegro. The country is a net importer of these products in the years mentioned. Imports of vegetables and of fruit and nuts have increased between 2010 and 2021 by 228% and 179% respectively. Imports of preparations of vegetables and fruit remained rather stable. Exports of vegetables (around 3 million euro in 2021) and fruit and nuts (around 6 million euro in 20201) have not changed much.

Table 4-16. Export and import of fruit and vegetables, Montenegro, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Export										
Vegetables and certain roots and tubers; edible	3	4	5	3	5	3	4	3	0.7	-14
Fruit and nuts, edible; peel of citrus fruit or melons	5	3	2	3	4	4	4	6	1.4	30
Preparations of vegetables, fruit, nuts or other parts of plants	1	0	0	0	0	0	0	0	0.1	n.a.
Import										
Vegetables and certain roots and tubers; edible	6	15	18	19	20	24	19	21	0.8	228
Fruit and nuts, edible; peel of citrus fruit or melons	11	24	29	31	30	32	27	31	1.2	179
Preparations of vegetables, fruit, nuts or other parts of plants	17	16	17	18	19	20	15	20	0.8	19

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

4.8. Cereals, potatoes and other crops

4.8.1. Production value and producer prices

No data on production values of cash crops is available for Montenegro in FAOSTAT or national statistics of the country. There is also no data available for demonstrating the development of cash crops prices.

4.8.2. Output, area, animals and yields

Table 4-17 shows the production and yield numbers for selected cash crops in Montenegro in 2010-2020. The areas under crops like cereals and sugar beet have increased the most, while areas under crops like potatoes, pulses remained rather stables across the years. Yields of all crops except potatoes have increased somewhat. Overall, the production of all cash crops has kept growing through the years with the biggest grows seen for pulses (by 1.3 times).

Table 4-17. Production and yield for cereals, potatoes and other crops, Montenegro

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Cereals, Total	ha	1 142	2 116	2 152	2 195	2 204	2 180	2 125
	Pulses, Total	ha	610	526	521	533	532	532	532
	Roots and Tubers, Total	ha	1 214	1 616	1 613	1 616	1 619	1 620	1 360
	Maize	ha	444	629	628	642	645	640	592
	Wheat	ha	278	736	747	766	769	770	763
	Potatoes	ha	1 214	1 616	1 613	1 616	1 619	1 620	1 360
	Sugar beet	ha	3 793	6 658	7 020	7 216	7 300	6 990	7 094
Production	Cereals, Total	tonnes	1 524	1 618	1 650	1 666	1 688	1 726	1 720
	Pulses, Total	tonnes	17 720	27 193	29 917	27 500	26 098	26 560	23 526
	Roots and Tubers, Total	tonnes	1 685	2 700	2 650	2 708	2 743	2 810	2 687
	Maize	tonnes	946	2 111	2 354	2 463	2 467	2 170	2 339
	Wheat	tonnes	17 720	27 193	29 917	27 500	26 098	26 560	23 526
	Potatoes	tonnes	33 214	31 465	32 621	32 875	33 122	32 064	33 384
	Sugar beet	tonnes	24 984	30 760	31 670	31 257	31 729	32 444	32 331
Yield	Cereals, Total	hg/ha	145 964	168 274	185 474	170 173	161 198	163 951	172 985
	Pulses, Total	hg/ha	37 950	42 925	42 197	42 181	42 527	43 906	45 389
	Roots and Tubers, Total	hg/ha	34 029	28 682	31 513	32 154	32 081	28 182	30 655
	Maize	hg/ha	145 964	168 274	185 474	170 173	161 198	163 951	172 985
	Wheat	hg/ha	1 142	2 116	2 152	2 195	2 204	2 180	2 125
	Potatoes	hg/ha	610	526	521	533	532	532	532
	Sugar beet	hg/ha	1 214	1 616	1 613	1 616	1 619	1 620	1 360

Source: FAOSTAT.

4.8.3. International trade

Table 4-18 presents import and export values of arable products and some derivatives thereof. Montenegro is a net importer of these products. Exports have been negligible. Cereal preparations is the largest product category among imports (49 million euro in 2021), followed by products of the milling industry (21 million euro in 2021). Imports of all product categories have been growing.

Table 4-18. Export and import of cereals and other crops, Montenegro, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Export										
Cereals	0	0	0	0	0	0	0	0	0.0	n.a.
Products of the milling industry; malt, starches, inulin, wheat gluten	1	2	1	1	0	0	0	0	0.0	n.a.
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	0	0	1	0	0	0	1	1	0.2	n.a.
Potatoes, fresh or chilled	0	0	0	0	0	0	0	0	0.0	n.a.
Sugars and sugar confectionery	0	0	0	0	0	0	0	0	0.0	n.a.
Preparations of cereals, flour, starch or milk; pastrycooks' products	2	3	6	6	1	1	0	1	0.2	-49
Import										
Cereals	6	11	10	8	9	9	9	10	0.4	61
Products of the milling industry; malt, starches, inulin, wheat gluten	17	16	14	16	17	20	19	21	0.8	23
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	2	2	3	3	4	4	4	5	0.2	127
Potatoes, fresh or chilled	1	2	2	3	3	3	3	2	0.1	76
Sugars and sugar confectionery	9	9	10	11	10	10	9	11	0.4	19
Preparations of cereals, flour, starch or milk; pastrycooks' products	26	35	37	40	43	46	39	49	1.9	85

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

4.9. Showcase product for Montenegro: Lamb meat

The showcase product for Montenegro is Lamb meat – one of the most recognisable Montenegrin products.

4.9.1. Description of lamb meat in Montenegro

Based on relevant data from different sources (Statistical office of Montenegro – MONSTAT; Ministry of Agriculture, Forestry and Water Management - two Meat sector studies, first done in 2010 by ADT and the second done in 2021 by SEEDEV) and the expert knowledge of the National Expert gathered during more than 30 years of professional experience, lamb meat is one of the most important products of Montenegrin agriculture.

The sheep sector is mainly based on rearing local breeds, extensively reared during grazing season on pasture and during winter on hay – without concentrate feedings. In its essence majority of lamb meat production is pure organic, however not certified in accordance with the Law on organic agriculture from 2013. Spring / summer lambs have a typical Live Weight of about 28 – 35 kg and autumn lambs with a live weight of about 35 – 50 kg.

4.9.2. Lamb meat production developments

Lamb meat is a very important product for Montenegro because:

- Sheep rearing in Montenegro was the most important branch of animal husbandry in the past, sheep population reached 600 000 heads during the sixties of 20th century, three times more than today (population of 176 000 heads)
- Rearing of cattle and sheep dominate in the Montenegrin livestock sector due to the extremely high percentage of permanent grasslands in the total agricultural area (94%, MONSTAT, 2021), which is a unique characteristic of Montenegrin agriculture.

4.9.3. Lamb meat supply chain

The number of agriculture holdings with flocks of more than 20 sheep is about 2 270 with 63 head in average, while around 5 000 families rear sheep. In terms of economic importance, the sheep sector came immediately after cattle rearing (Markovic et al., 2018). Lamb meat is by far the main product of the sheep sector – the annual volume of output is about 3 600 tons of meat (2 800 tons of lamb meat, or 78% of the total meat output) and 7 000 tons of milk.

4.9.4. Lamb meat trade developments

The Montenegrin self-sufficiency in lamb meat is close to 100%. During autumn of 2021, significant number of lambs exported to Albania (according to personal communication with the National Advisory service for animal production, several thousand of lambs). According to the Strategy of agriculture and rural development from 2006, lamb meat was one of the best competitive Montenegrin products.

4.9.5. Lamb meat price developments

Spring / summer lambs have a typical live weight (LW) of about 28 – 35 kg and autumn lambs have a live weight of about 35 – 50 kg. The price of light lambs was about 3.0 euros per kilogram LW in the last five years, this in 2022 the price increased and reached 3.5 euros. The price of lambs 35 – 50 kg LW was 2.20 – 2.60 euros/kg of LW in the last five years hence it is realistic to expect increase in LW price of heavier lambs (up to 3 euros/kg of LW, personal communication), which are sold in September and October.

4.9.6. Strengths and weaknesses of lamb meat in Montenegro

The main strengths of this sector are many pasture and meadows available for fodder production, long tradition with livestock-oriented family farming, increasing tourism demand is a main driving force for this sector, in addition local consumers prefer local lambs, and export market for Montenegrin lamb meat is opening.

The main weaknesses are many small semi-subsistence farms, small and fragmented plots, weak networking among farmers, and weaknesses in rural infrastructure in mountain areas of the Northern part of the country where sheep sector is mainly located, insufficient financial support for the sector. The future development of lamb production, as a Montenegrin delicacy, is a promising primarily due to growing tourism demand and reopening of the export market where Montenegrin lamb meat was well accepted by consumers.

4.10. Rural-urban disparities

In the final part of the country factsheet for Montenegro, we are describing the differences between rural and urban areas within the country. The agricultural sector is concentrated in rural areas. The development of rural areas is therefore crucial for the advance of agriculture. The focus of the research is on socio-economic disparities between rural and urban areas. In addition, the quality of infrastructure and quality and use of ICT are discussed.

4.10.1. Population

Figure 4-20 shows a minor shift of the population from rural areas to urban areas between 2010 and 2020.

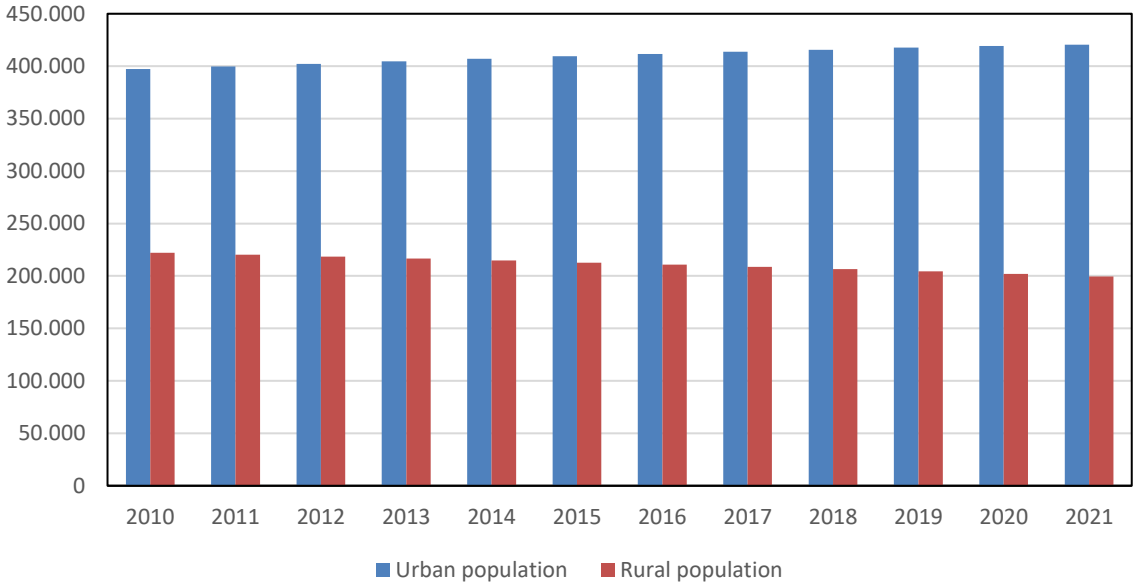

Figure 4-20. Rural and urban population in Montenegro, persons. Source: World Bank

4.10.2. Education

Another import socio-economic difference between rural and urban areas can be found in the level of education. In Table 4-19 data shows that in 2011 the literacy rate was 1.5% higher in the urban areas of Montenegro. In 2018 there was almost no difference in the percentage of persons in rural areas that completed upper secondary education, compared to those in urban areas, only 0.1%. This compared to the 12.6% in 2011 is an improvement. Unfortunately, there is no data available on the educational attainment rate for higher education.

Table 4-19. Rural-urban education statistics, Montenegro

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Adult literacy rate, population 15+ years, rural, both sexes (%)		97							
Adult literacy rate, population 15+ years, urban, both sexes (%)		99							
Completion rate, upper secondary education, rural, both sexes (%)				75					86
Completion rate, upper secondary education, urban, both sexes (%)				88					86
Educational attainment rate, completed upper secondary education or higher, population 25+ years, rural, both sexes (%)		58							
Educational attainment rate, completed upper secondary education or higher, population 25+ years, urban, both sexes (%)		81							

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, rural, both sexes (%)									
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, urban, both sexes (%)									

Source: UNESCO.

4.10.3. Employment

In 2016, there were 43 791 family farms in Montenegro registered. According to MONSTAT, the employment in the agricultural sector increased with 4 persons between 2010-2019. The data of employed has been registered through the tax office, but only business with a revenue of 18 000 EUR or higher are obliged to pay taxes, this means that smaller family farms are not registered in the MONSTAT (Table 4-20).According to the data of Statistical Office of Montenegro (Agricultural Census 2010 and FSS 2016), there were 46 473 annual working units in family agricultural holdings which gives about 25% of total employment in the country (Source: IPARD III Programme).

According to the research ''Informal employment and the grey economy in Montenegro'' (IPSOS, 2014), out of the total number of employed 32.7% are engaged, or informally (22.3%), or part of their salary is paid on hand (10.4%).

Table 4-20. Employment in agricultural sector in Montenegro in 2010-2019

Year	Employed in Agricultural sector Montenegro
2010	13
2011	11
2012	11
2013	9
2014	12
2015	17
2016	17
2017	18
2018	20
2019	17

Source: MONSTAT.

Regarding unemployment rate there is only data from 2020 available, for the rural sector this was 15,16% while in the urban sector 23,3%.

4.10.4. Income

There is no data available about income and wages in Montenegro in rural areas.

4.10.5. Health

According to World Health Organization (WHO, 2017), the people living in the rural (north) area of Montenegro face barriers to health access. Greater distance to adequate health services is a challenge for the rural areas.

4.10.6. Gender

According to the national expert, in rural areas women are rarely the owners of the land, which is rather an exception then rule. The Montenegrin rural society is still very

patriarchal, in which men mainly inherit the land, only in the case that there is no man to inherit then woman inherits land. Situation of gender equality in urban areas has been improving, but not in rural areas although majority of work is done by women.

4.10.7. Migration

Table 4-21 shows that there were two obvious trends in population migration within Montenegro between the last two censuses: the first is migration from the Northern to the Central and the Coastal region; and the second - migration from rural to urban areas.

Both trends are the most expressed in the Northern region, where the total population has constantly been declining. The total population of the Northern region was decreased between the two censuses by 8.74%. The largest decrease was in Šavnik (29.48%), followed by Plužine (24.02%), Kolašin (15.77%), Pljevlja (14.02%). The migration process has continued. These demographic trends are also adversely affecting agriculture, mostly livestock sector (rearing of the cattle, sheep and goats), consequently production of meat and milk, as the major agricultural products in the Northern region.

Table 4-21. Population migration within Montenegro by regions

	Population, Census 2003		Population, Census 2011		Density
	Number	%	Number	%	Inhabit. km2
Coastal region	145 847	23.5	148 683	24.0	93.5
Central region	279 419	45.1	293 509	47.3	59.7
Northern region	194 879	31.4	177 837	28.7	24.3
Andrijevica	5 785	0.9	5 071	0.8	17.9
BijeloPolje	50 284	8.1	46 051	7.4	49.8
Kolašin	9 949	1.6	8 380	1.4	9.3
Mojkovac	10 066	1.6	8 622	1.4	23.5
Pljevlja	35 806	5.8	30 786	5.0	22.9
Plužine	4 272	0.7	3 246	0.5	3.8
Rožaje	22 693	3.6	22 964	3.7	53.2
Šavnik	2 947	0.5	2 070	0.3	3.7
Žabljak	4 204	0.7	3 569	0.6	8.0
MNE, total	620 145	100.0	620 029	100.0	44.9

Source: The expert participation of Milan Markovic in the project ‘’Wool as Outstanding Opportunity for Leverage -WOOL (Local strategy document for the Northern region of Montenegro), this document is not yet publicly available).

4.10.8. Infrastructure and ICT

According to the national expert there are no asphalt roads in many villages and even macadam roads are in bad condition, making regular communication with urban centres more difficult.

Access to water is more an issue in rural areas, there are problems with water supply for watering of the livestock due to the absence of water springs in the karst regions. Regarding mobile network, there is no precise data on the issue. However, there is a real problem in some of the Montenegrin villages, especially in the katuns. People have

to move from the cottages in katuns[6] to the nearby picks in order to establish communication with the family members in the villages or in the urban areas.

According to the Human Development Report for Montenegro 2020 (WAPI, 2021), the digital approach is unevenly distributed between urban and rural areas (80% vs. 63%, respectively). Data of MONSTAT on the level of ICT use in households show that in 2020 the gap between urban and rural areas decreased from 17 to 14%. In urban areas 84.9% and 70.9% of rural areas have internet.

According to the frequent field visits by the national expert to different mountain parts of the country, many of rural areas still suffer from bad internet coverage. One of the social problems in the katuns (settlements in the mountains where families stay 3-5 months during summer grazing season for livestock) is that younger family members are reluctant to stay there due to lack of internet and without possibilities to communicate with their friends of the same generation from the urban areas.

4.11. Conclusions

From analysis of macro-economic and agricultural sector indicators of Montenegro it can be concluded that agricultural sector is the third large sector in the economy of the country with share of the GDP of 9%.

The social and macro-economic developments in Montenegro show that currently with about 620,000 inhabitants, the total population of Montenegro has been steadily growing till 2017 and showed slight declining trend after 2017. About two thirds of the population is living in urban areas. In the recent years the employment and earnings conditions have gradually improved in the country, with the mean nominal monthly earnings of employees up to 773 euros in 2019. The education level index with 0.7 remained unchanged over the years (2010-2021). Montenegro has relatively high adult literacy rate (98.8% in 2018) for population older than 15 years and the completion rate of upper secondary education in rural areas (86.3% in 2018).

In relation to infrastructure and ICT indicators, it was found that the overall logistic performance is relatively low and scores 2.75 in the scale between 0-5, with the lowest score for this composite index received for the efficiency of customs clearance process (2.56). The overall connection to internet in Montenegro has been improving in the recent years, where the percentage of individuals using the internet has increased from 38% in 2010 to 81% in 2020. Regarding the income distribution inequality, there has been a declining trend observed in the period of 2013-2016 (GINI from 39 to 38.5). No data on income distribution is available for more recent years.

In the recent years, the development of the GDP and added value in Montenegro showed a positive trend. However, in 2020 there was a trend break with declining numbers.

When it comes to trade Montenegro is a net-importer of products, with the exports value of 367 million euros and the imports value 2,103 million euros in 2020. Although both exports and imports show increasing trends the exports are not able to keep up with the imports in the same pace. The same holds also for agri-food sector, where Montenegro is net importer of the products.

From the analysis agricultural sector, it can be concluded that the value added of the sector has been growing, although growth slowed down in recent years. The sector's

[6] Katun's are farmer settlements typical for the mountain regions of Montenegro, especially the northern parts. https://www.discover-montenegro.com/montenegro-finest-katuns/

share in the economy is about 9% and has been quite stable. Covering a relatively small area and benefiting from a Mediterranean climate, Montenegro's agriculture is quite diversified – from growing olives and citrus fruits in the coastal region, to early seasonal vegetables and tobacco in the central areas and extensive sheep breeding in the north. The productivity growth of the entire agricultural sector is observed over the years. The dairy sector in Montenegro has been changing in the last 10 years, where the numbers of livestock heads have substantially decreased, while the productivity of cows has increased enabling the overall dairy production to stay rather stable over the years 2015-2020. Montenegro is a net exporting country of dairy products with milk and cheese being the main import categories. Similar trend of increasing productivity is observed for eggs which has doubled in the recent years while the number of laying hens remained stable. The production of honey has increased by 3 times. A remarkable growth is observed in the population of chicken (35%) and pigs (doubled). The total meat production has increased but not much, with a major increase in productivity for cattle meat. For fruits and vegetables sector no data on production is available for Montenegro. From import and export information it can be seen that the country is a net importer of these products, where imports of vegetables and fruit and nuts have increased in the past 10 years while exports of fruits and vegetables preparations have declined. For cereals and cash crops production, the analysis shows that area under crops like cereals and sugar beet have increased the most, while areas under crops like potatoes, pulses remained rather stables across the years. Overall, the production of all cash crops has kept growing through the years with the biggest grows for pulses which was by 1.3 times.

According to national expert opinion, lamb meat is a potential product that can offer a competitive advantage for Montenegro. Lamb meat is a very important product for Montenegro because sheep rearing in Montenegro was the most important branch of animal husbandry in the past and it dominates in the Montenegrin livestock sector due to the extremely high percentage of permanent grasslands in the total agricultural area, which is a unique characteristic of Montenegrin agriculture.

Analysis of urban-rural disparities revealed the following trends:

- There is a minor shift from rural areas to urban areas.
- There are some differences in literacy rate among urban and rural population, where in urban areas it was 1,5%. Despite this fact in 2018 almost no difference was found in the percentage of persons in rural areas that completed upper secondary education, compared to those in urban which compared to 2011 level is an improvement
- People living in the rural (north) area of Montenegro face barriers to health access due to greater distance to adequate health services.
- The Montenegrin rural society is still very patriarchal, in which men mainly inherit the land, only in the case that there is no man to inherit then woman inherits land. Although, the situation of gender equality in urban areas has been improving, in rural areas this is not the case despite the fact that majority of work is done by women.
- Infrastructure and ICT of Montenegro are rather underdeveloped as in 2018, about 50% of the secondary and local network was still categorized as being in a poor or very poor condition, while only 3,4% of the rural population has access to internet.

4.12. Data gaps

For Montenegro, the data for macro-economic developments are readily available between 2010-2020 for few indicators only. Data on population, internet use, consumer price index, trade balance and some national accounts an update for up until 2021 is available (see Section 4.2). The data about emigration is not available or negligible until 2019. Education statistics is rather incomplete. With the exception for the education level of adult population in Montenegro, other indicators on educational attainment rates

(available for year 2011 only), adult literacy rate are poorly available. Mean nominal monthly earnings of employees in Montenegro is not available for all years and the time series ends in 2019. The same applies for income distribution data (Gini-index) that is only available up until 2018. There is no data available about the development of health expenditure after 2019. No data is available on the social protection expenditures except for the years 2016-2018. National accounts statistics are complete for the years 2010-2021 covering GDP, GVA, gross fixed capital formation but are not available on taxes and salaries. There is no data available for government expenditure on agriculture, forestry, and fishing. Shares of food in total households expenditures only available up until 2017 only.

For agricultural sector, the key agricultural statistics (employment in agriculture, area under agricultural land, agricultural trade) for year 2021 are not yet available. No data for indicators like value of production in crop and livestock, number of farm holdings and sub-categories of agricultural land (like fallow land, orchards or area under permanent crops) are not available. For all studied agricultural sectors, data availability for the case of Montenegro is rather disperse. FAO does not provide data for this country. Therefore, data on farm number and labour, as well as process and production by categories of primary agricultural products are not listed.

The data on costs and revenues for milk, for apples and tomatoes have been separately collected using expert estimates, interviews, national statistics and literature studies. The estimated data are provided for one year only (2021). Data on production value and prices for eggs, meat, cereals and potatoes are not available. Data on production and yields for various crops and livestock are rather complete for 2010-2020 but are not update with the data for 2021.

Data gaps analysis for rural urban disparities shows that in Montenegro there is no data available in regard to income and wages or on health expenditures in rural-urban areas. Other data on rural-urban disparities are provided through literature and experts and only for the case of urban-rural population available for the years 2010-2021. Data on educational (educational attainment rates, completion rates for secondary education and adult literacy) in rural-urban areas are greatly incomplete, showing one or two data points in the period 2010-2018.

5. NORTH MACEDONIA

5.1. Introduction

This chapter describes the key characteristics and developments of North Macedonia, with regards to socioeconomics, the agricultural sector and rural-urban disparities. The data described in this chapter is used to make cross-country comparisons in the main study report as well as to assess the competitiveness of the agri-food sectors of the various IPARD countries.

5.2. Social and macro-economic developments

5.2.1. Population

North Macedonia has a population of about 2.1 million inhabitants, with a bit less than half of them living in rural areas (see Figure 5-1 and Figure 5-2). Over 80% of the country consists of mountainous areas, with urbanization and agriculture being concentrated in a limited number of topographically and climatologically favourable regions. Until 2019 the population numbers were steadily increasing. Between 2019 and 2021 the data show a decline (see Figure 5-1).

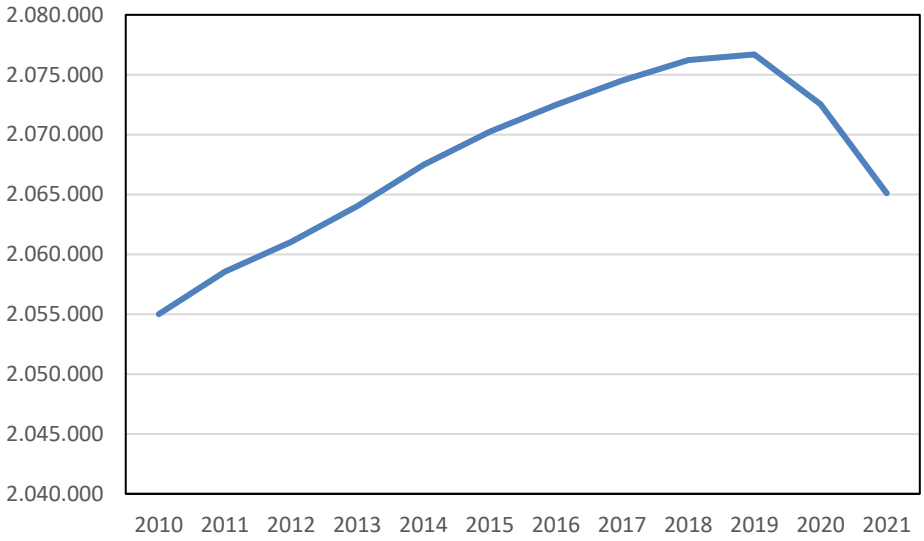

Figure 5-1. Total population in North Macedonia in 2010-2021, persons. Source: World Bank.

The rural population of North Macedonia was about 41% in 2012 and although this is relatively high compared to EU countries, it has slightly decreased over the years (43% in 2010).

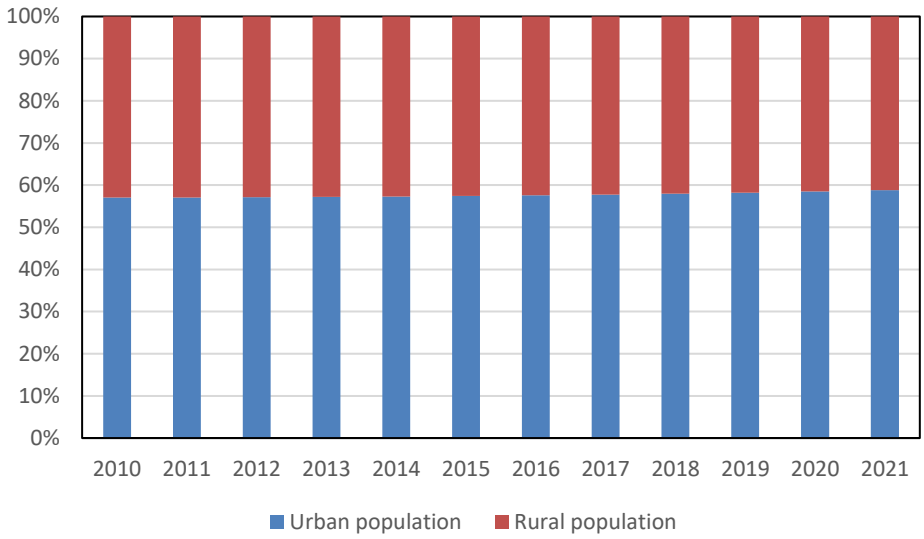

Figure 5-2. Share of urban and rural population in North Macedonia 2010-2021, in % to total. Source: World Bank.

5.2.2. Migration

Migration contributed to a limited extent to the increase of the population in North Macedonia. The migration data for North Macedonia shows an increasingly higher number of people moving into the country and, until 2018, a decreasing number of people moving out of North Macedonia. In 2019 and 2020, emigration numbers increased (see Figure 5-3). On the whole, however, the net-migration surplus was just a fraction of the total population.

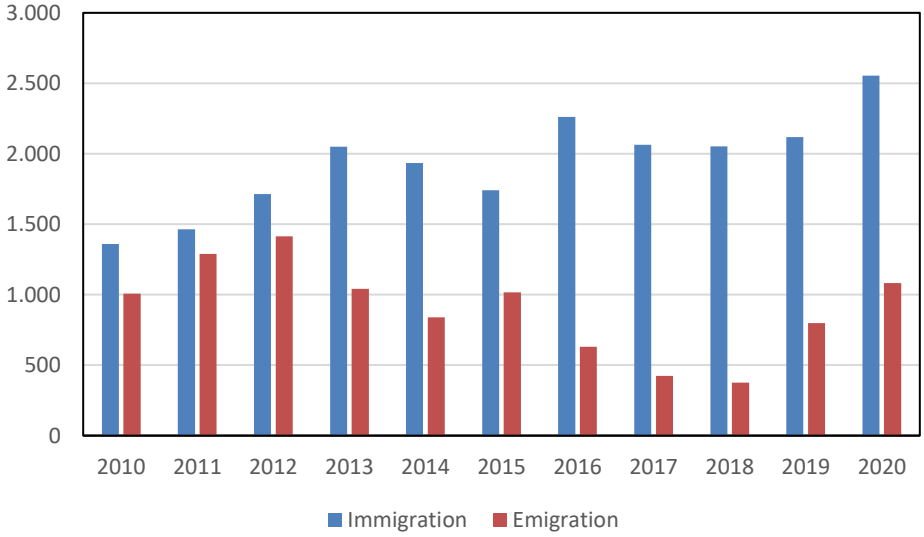

Figure 5-3. Immigration and emigration, to and from North Macedonia. Source: Eurostat.

5.2.3. Employment

The employment and earnings have gradually improved in North Macedonia in the recent years. Starting from 2010 up to 2019, the employment to population ratio increased gradually from 37.8% up to 45.9% (see Figure 5-4). In 2021, the employment ratio slightly decreased to 44.6%. At the same time, during the whole 2010-2021 period, the unemployment ratio (percentage of labour force) has been declining (see Figure 5-5),

the ratio went down from 32.0% to 16.0%. This indicates a decrease in the share of labour force in 2021. The mean nominal monthly earnings of employees increased from 491 euros in 2010 to 696 euros in 2020 (see Figure 5-6).

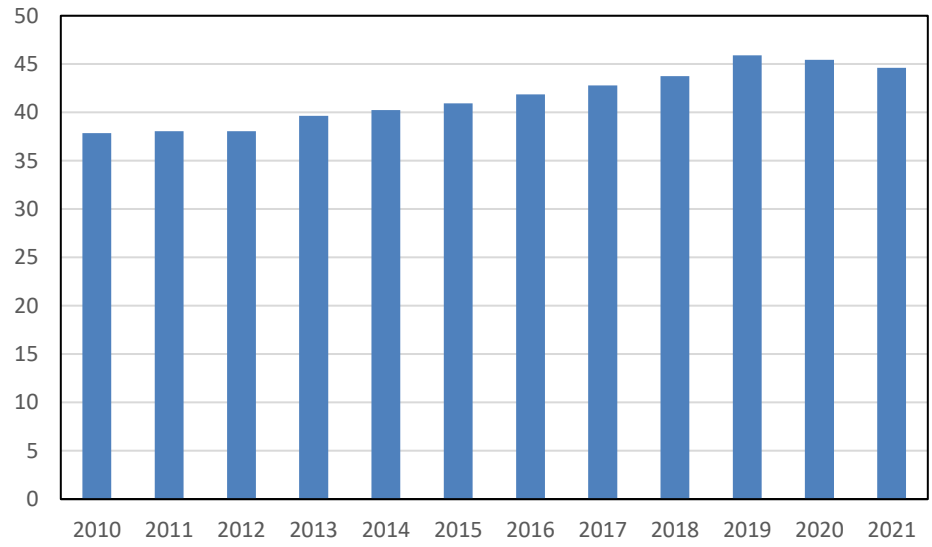

Figure 5-4. Employment to population ratio in North Macedonia, 15+, % to total. Source: World Bank.

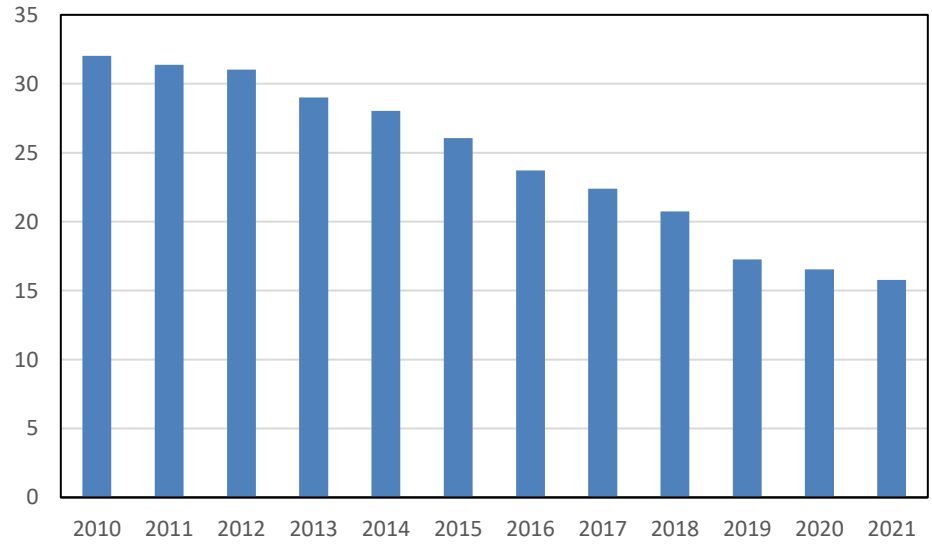

Figure 5-5. Unemployment rate in North Macedonia in 2010-2021, % to total labour force. Source: World Bank.

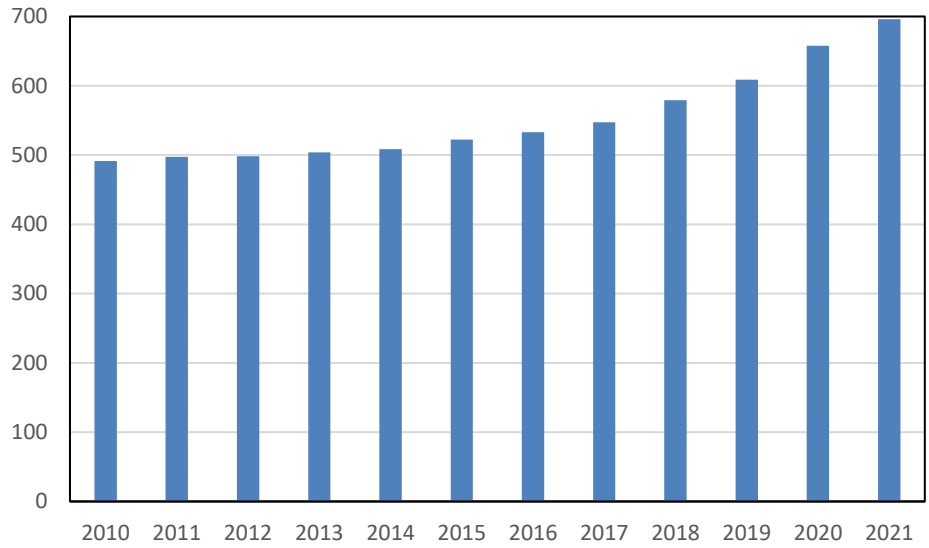

Figure 5-6. Mean nominal monthly earnings of employees in North Macedonia 2010-2021, total, in EUR. Source: SSO, 2022, MakStat Database.

5.2.4. Health

In North Macedonia, life expectancy at birth was 75.7 years in 2020 (see Figure 5-7). In the period 2010-2020, this number slightly increased from 74.9 years in 2010 indicating improving health and other human development conditions in North Macedonia.

In 2020, North Macedonia spent around 7.2% of its GDP on health (see Figure 5-8). According to the world bank, this percentage fluctuates in the period 2010-2020, where between 2010-2013 it was somewhat stable around 6.5% and has decreased between 2014-2018 to be increased afterwards. The budget expenditures on health were lowest in 2010 and highest in 2019.

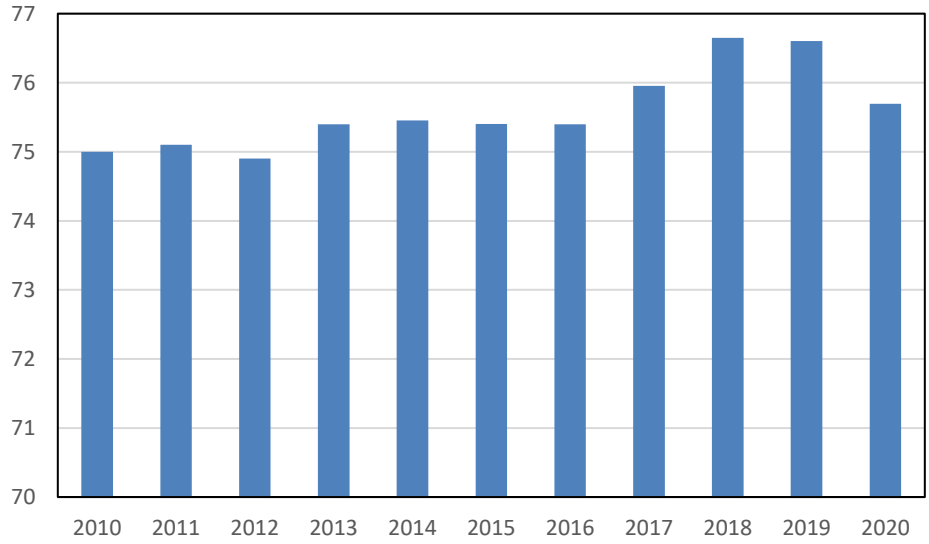

Figure 5-7. Life expectancy at birth in 2010-2020 for North Macedonia, total (years). Source: World Bank.

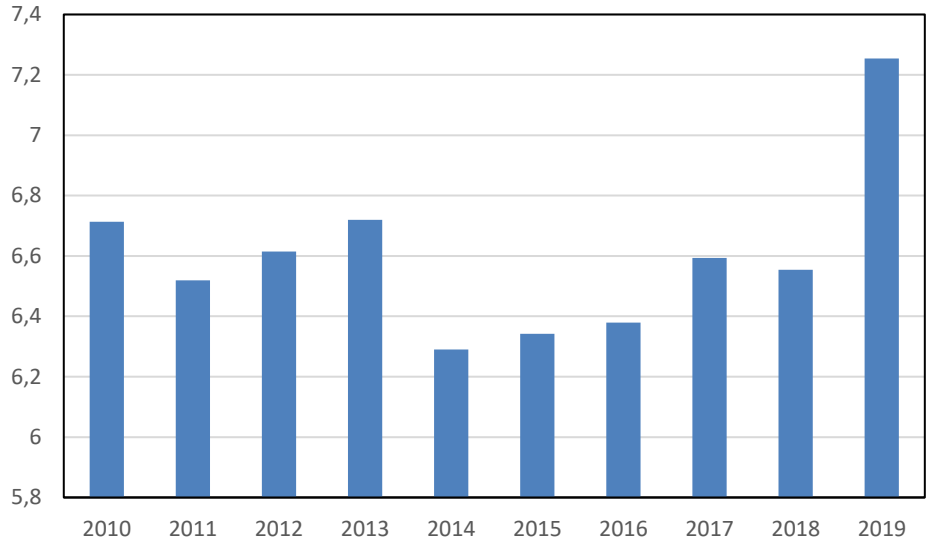

Figure 5-8. Current health expenditures in North Macedonia in 2010-2019, % of GDP. Source: World Bank.

In Table 5-1, the expenditures from the Health Insurance Fund are shown, that covers healthcare activities and insurance. The health activity expenditures are related to health services for the citizens and they mostly cover around 90% of the expenditures.

Table 5-1. Budget expenditures from Health Insurance Fund in North Macedonia in 2010-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Budget expenditures on Health Protection (in mill. EUR)	314	333	340	348	359	384	416	439	471	501	496
Share of GDP (%)	4.4	4.4	4.5	4.3	4.2	4.2	4.3	4.4	4.4	4.4	4.7

Source: Ministry of Finance of North Macedonia, 2020.

5.2.5. Education

Education level of adult population is a composite measure based on, (a) the percentage of the population without any education, (b) the proportion of workers with secondary education, and (c) the proportion of workers with tertiary education. Education level of adult population is an index between 0 and 1, with a higher number indicating a higher performance on education level of adult population (Barro and Lee dataset). In North Macedonia this measure was 0.7 in the 2010-2021 period (see Table 5-2). Adult literacy rate of population older than 15 years increased from 97.8% in 2014 to 98.4% in 2020. The completion rate of upper secondary education in rural areas increased from 60.5% in 2011 to 84.2% in 2019. The education attainment rate of completion of upper secondary education or higher for population older than 25 years was 68.3% in 2020. The data on proportion of 15- to 24-year-olds enrolled in vocational education is not available.

Table 5-2. Education statistics, North Macedonia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Education level of adult population	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Proportion of 15- to 24-year-olds enrolled in									0.2			

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
vocational education, both sexes (%)												
Completion rate, upper secondary education, both sexes (%)		74.0							83.0	83.0		
Educational attainment rate, completed upper secondary education or higher, population 25+ years, both sexes (%)		46.2	47.0	48.4	48.1	47.6	47.6	48.9	49.9	50.3	49.3	
Educational attainment rate, completed short-cycle tertiary education or higher, population 25+ years, both sexes (%)								1.0	1.0	1.0	1.0	
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, both sexes (%)		17.6	17.9	17.2	17.6	18.8	20.7	20.7	20.3	21.3	23.2	
Adult literacy rate, population 15+ years, both sexes (%)					98.0							

Source: Legatum, UNESCO, World Bank.

5.2.6. Infrastructure and ICT

Logistics performance index is a composite measure based on a number of indicators related to the ability of a country in providing good trade logistics infrastructure. Logistics performance index lays between 0 and 5, with a higher number indicating a higher logistic performance. In North Macedonia, the overall logistic performance is rated with 2.7 (see Figure 5-9). The frequency with which shipments reach consignee within scheduled time is ranked highest, 3.0. The lowest rank is for the efficiency of customs clearance process, 2.45.

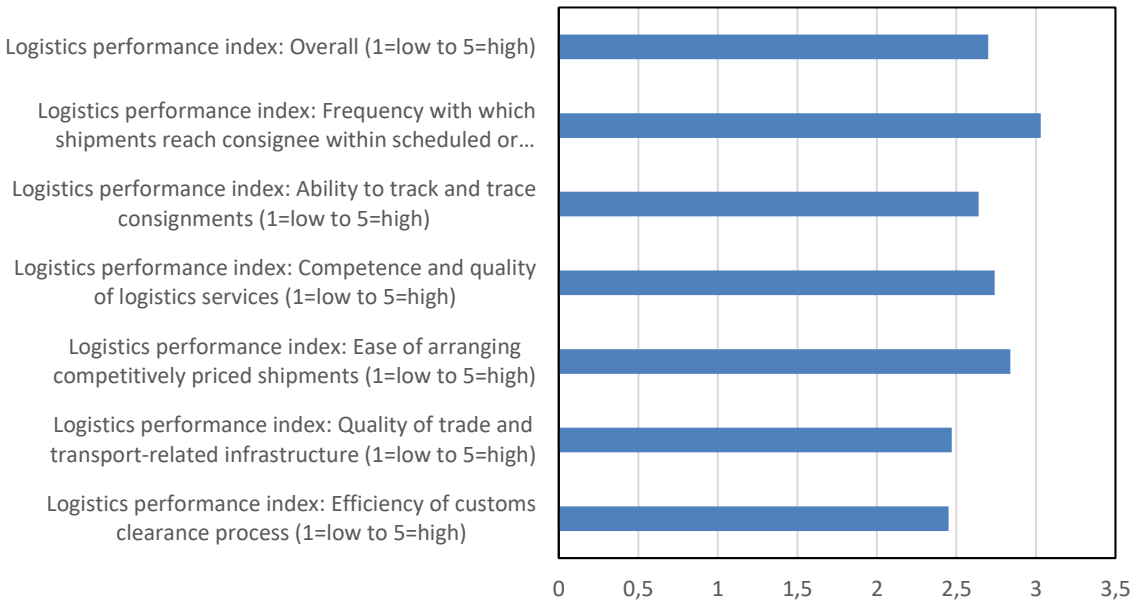

Figure 5-9. Logistics performance index, North Macedonia, 2018. Source: World Bank.

Following Figure 5-10, the overall connection to internet in North Macedonia has been improving in the recent years. The percentage of individuals using the internet has increased from 52% in 2010 to 81% in 2020. The number of mobile cellular subscriptions decreased from 104 to 88 per 100 people between 2010 and 2020.

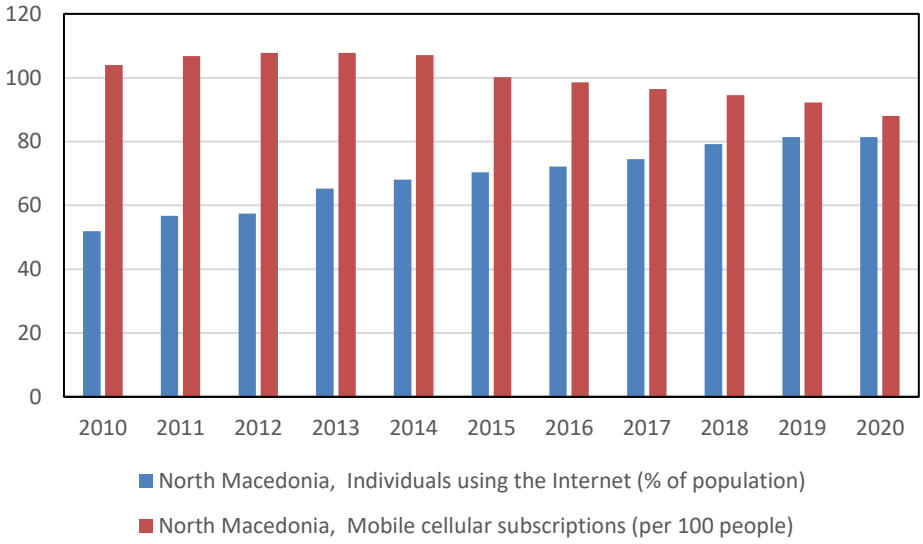

Figure 5-10 Individuals using the internet and mobile cellular subscriptions in North Macedonia. Source: World Bank.

5.2.7. Income distribution

There has been a trend toward less income distribution inequality in North Macedonia. In 2010, Gini index was 40.9. In the years after the index value gradually declined to 31.4 in 2020 (see Figure 5-11). The lowest value of 31.4 has been reaching in 2020.

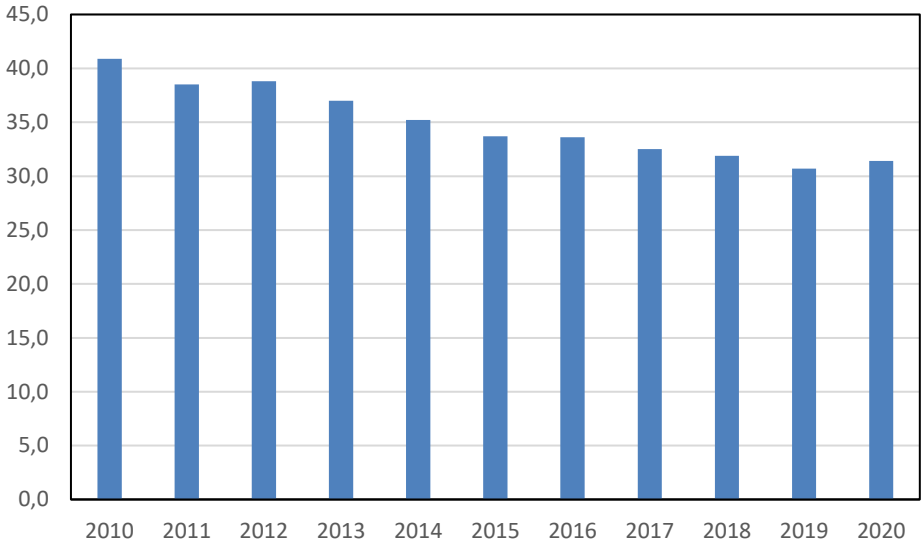

Figure 5-11. Gini Index, North Macedonia. Source: SSO, 2021 (MAKSTAT database).

5.2.8. Social protection

North Macedonia has been spending a slightly increasing share of the GDP on social protection (see Figure 5-12). The lowest share of social protection expenditure in percentage of the GDP was 14.5% in 2011, while this share reached its highest value of 16.3% in 2020.%. Also in terms of euro per inhabitant, an increase of the expenditure on social protection is visible (see Figure 5-13). In 2010, the amount of money spent per inhabitant was around 505 euros, in 2020, this amount increased up to 838 euros.

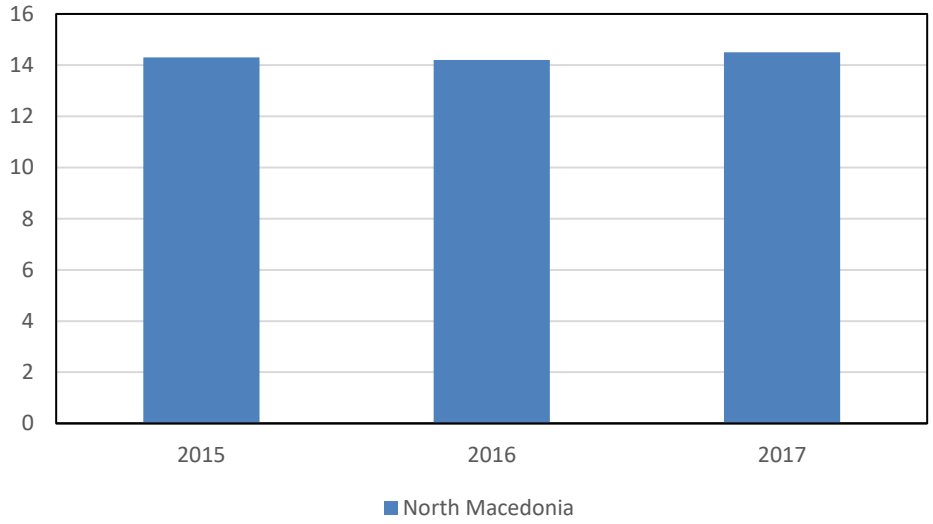

Figure 5-12. Social protection expenditure in North Macedonia, % of GDP. Source: Eurostat. Source. Ministry of Finance, 2021

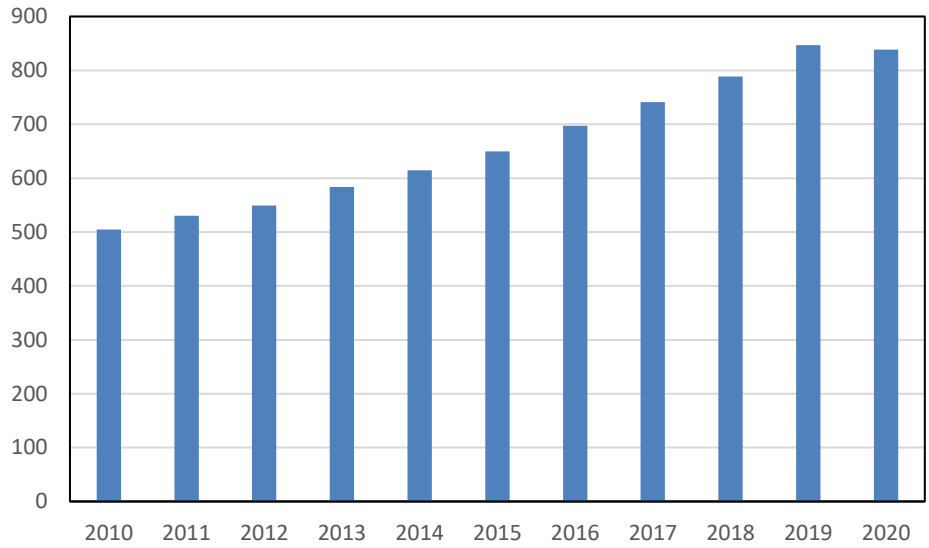

Figure 5-13. Social Protection Expenditure, North Macedonia EUR per inhabitant, 2010-2020. Source. Ministry of Finance, 2021.

5.2.9. National accounts

In the recent years, the development of the GDP and added value in North Macedonia showed a positive trend. However, in 2020 there was a trend break with declining numbers. Between 2010 and 2021, the GDP in market prices increased from 7.1 billion euros to 11.3 billion euros. The real GDP growth varied between 0% and 4% between 2010 and 2021. In 2020, the GDP in market prices decreased to 10.7 billion euros and again increased in 2021 to 11.7 billion. The real GDP growth in 2020 was -6% and 4% in 2021. The GDP per capita showed the same trend, increasing from 3,453 euros in 2010 to 5,422 euros in 2019, decreasing to 5,119 euros in 2020 and again increasing in 2021 to 5,683. The gross value added at basic prices increased from 6.1 billion euros to 9.8 billion euros in the 2010-2019 period. In 2020, the gross value added at basic prices decreased to 9.5 billion euros to increase again in 2021to about 10 billion.

In terms of North Macedonian government income in the 2011-2019 period, taxes on goods and services varied between 41% (2010, 2012, 2015, 2019) and 45% (2016) and declined to 38% in 2020, taxes on income, profits and capital gains varied between 11% (2011) and 18% of the revenue (2018), and taxes on international trade were about 3% of the revenue.

The compensation of employees was between 13% and 17% of expense and showed a slightly declining trend between 2011 and 2020. Gross fixed capital formation as a percentage of GDP declined from 23% (2010) to 21% (2020). The share of food in the total household's expenditures slightly increased from 39% in 2010 to 45% in 2020.

Table 5-3. National accounts statistics, North Macedonia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth 2015-2020
GDP at market prices, current prices (million EUR)	7 096	7 539	7 585	8 145	8 553	9 071	9 642	10 009	10 739	11 261	10 608	11 735	29
Gross value added at basic prices (million current EUR)	6 121	6 487	6 561	7 087	7 426	7 926	8 358	8 675	9 326	9 778	9 295	9 973	26
Real GDP Growth (constant MKD)	0	2	0	3	4	4	3	1	3	4	-6	4	3
GDP per capita (current EUR)	3453	3 662	3 680	3 946	4 137	4 382	4 652	4 825	5 173	5 422	5 119	5 683	30
Share of food in total household's expenditures (%)	39	39	40	43	37	39	41	38	39	43	45		17
Compensation of employees (% of expense)	17	17	17	16	16	16	16	15	15	14	13		-17
Taxes on goods and services (% of revenue)	41	44	41	43	45	41	44	43	43	41	38		-8
Taxes on income, profits and capital gains (% of revenue)	75	11	11	11	13	16	16	16	18	15	15		-4
Taxes on international trade (% of revenue)	4	3	3	3	3	3	3	3	3	3	4		32
Gross fixed capital formation (% of GDP)	23	24	23	24	23	24	24	23	20	21			-12

Source: World Bank, MAKSTAT.

In North Macedonia, in 2021, wholesale and retail trade, transport, accommodation and foodservice activities was the most important sector in terms of the contribution to the GDP (26%). Other important sectors are Manufacturing and Public sector (public administration, defence, education, human health, social work, etc.), both 16% of the GDP. Agriculture, forestry and fishing is the third large sector in terms of share of the GDP (9%).

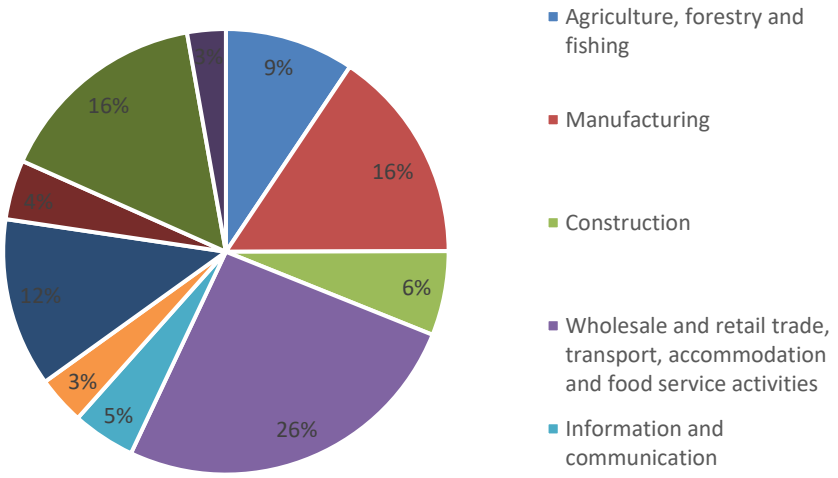

Figure 5-14. Breakdown of GDP by main activities in North Macedonia, 2021, % of gross value added. Source: Eurostat.

5.2.10. Government finances

Table 5-4 shows the government finances of North Macedonia between 2015-2021. Data for the central in agriculture is not available. Data on general government expenditure is only available for the year 2019 and 2020 in which they were 4-5% of the total expenditure.

Table 5-4. North Macedonia: Total general debt, general government expenditure, in % of GDP; and government expenditure on Agriculture, forestry, fishing, in % of total expenditure

	2015	2016	2017	2018	2019	2020	2021
General government final consumption expenditure (% of GDP) (World Bank)	17	15	15	14	14	17	16
Central Government Expenditure Agriculture, forestry, fishing (% of total expenditure) (FAO)							
General Government Expenditure Agriculture, forestry, fishing, % of total expenditure (FAO)					5	4	
General Government Debt (Percent of GDP) (IMF)	38	40	39	40	41	51	

Source: FAO, World Bank, IMF.

5.2.11. Exchange rates

The Macedonian denar (MKD) is the official currency of North Macedonia. The currency is pegged against the euros. In the 2010-2021 period, the exchange rate was around 61.6 MKD/EUR (see Figure 5-15).

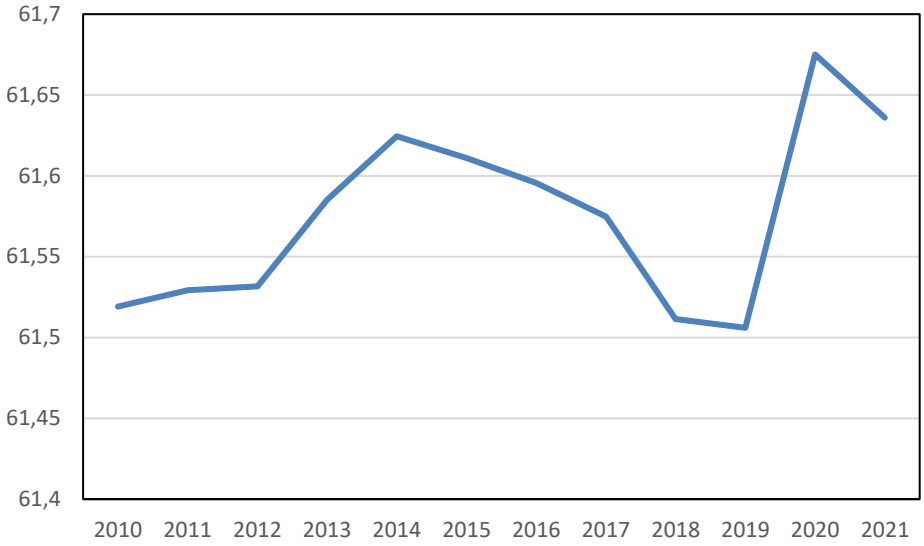

Figure 5-15. Exchange rate of North Macedonian Denar to Euro in 2010-2021 (MKD/EUR). Source: Eurostat.

5.2.12. Interest rates

The interest rates in North Macedonia show a long-term decreasing trend. The lending interest rate decreased from 11% in 2010 to 5% in 2021. The deposit interest rate decreased from 7% in 2010 to 1% in 2021 (see Figure 5-16).

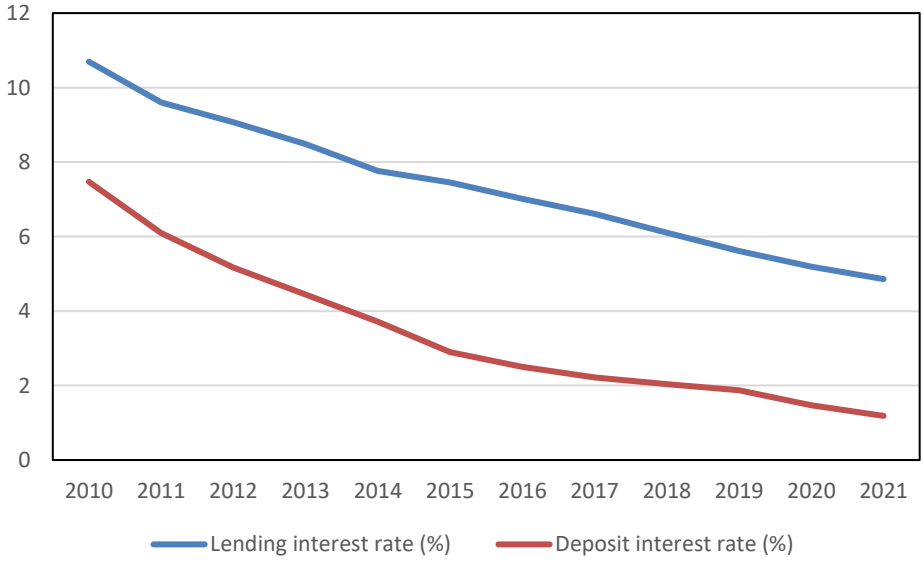

Figure 5-16. Interest rates in North Macedonia, 2010-2021. Source: IMF.

5.2.13. Prices

The prices of consumer goods in North Macedonia show a gradually increasing trend in the long-term. The consumer price index went up from 100 in 2010 (2010 = 100) to 118 in 2021 (see Figure 5-17).

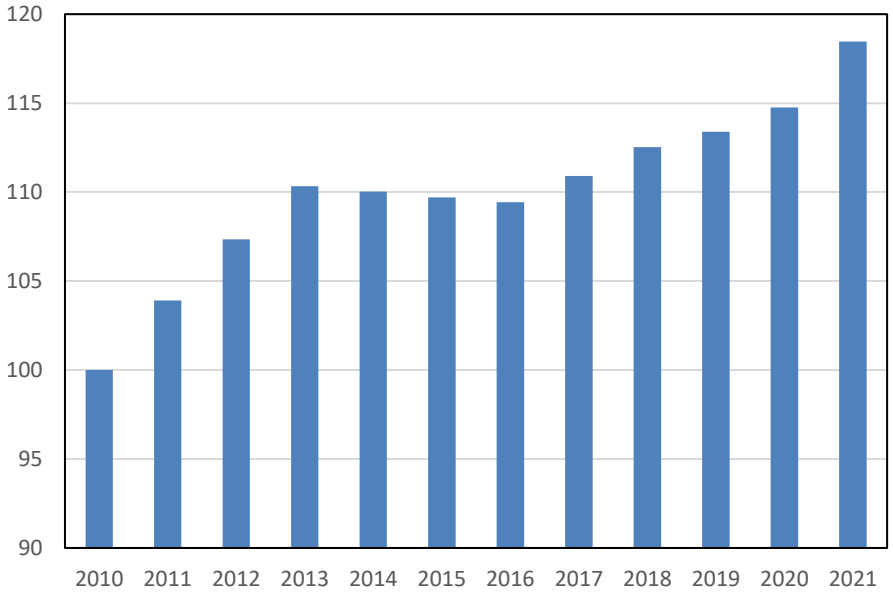

Figure 5-17. Consumer price index (2010=100), North Macedonia, 2010-2021. Source: World Bank.

5.2.14. Balance of payments and trade

North Macedonia is a net-importer of products. The exports were 5 809 million euros and the imports 7 625 million euros in 2020 (see Figure 5-18). The exports and the imports were somewhat fluctuating in the period between 2010 and 2020, but overall they show an increasing trend. In 2010, the exports were 2 528 million euros and the imports 4 130 million euros.

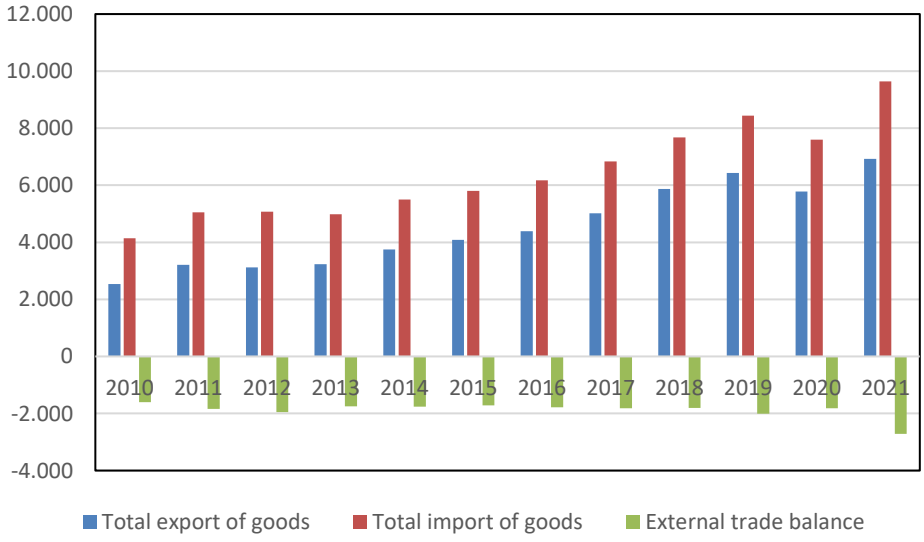

Figure 5-18. Import, export and trade balance in North Macedonia, million EUR, 2010-2020. Source: National Bank of RNM.

5.3. Agricultural sector

North Macedonia is a land-locked country that is very mountainous and intersected by large valleys (see EC, 2022). Hills and mountains account for around 79% of the land area with the balance made up of plains (19%) and natural lakes (2%). The country is largely hilly and mountainous. The combination of continental and sub-Mediterranean climate, characterized by long, warm summers and short, relatively mild winters, along with fertile soil, provide generally excellent conditions for the production of a range of food products.

Following Table 5-5, the agricultural sector makes up about 10% of the economy of North Macedonia, with a total gross value added of 914 million euros in 2020, with slight decrease in 2021 (894 million euros).

Agricultural land of this country of 1.26 million ha makes it about 50% of the total country territory. Following EC (2022), about 44% is occupied under forests; cultivated land represents about 40% of total agricultural land. Of the total cultivated land, 81% is arable land and gardens, 3% is under orchards, and 4% under vineyards, while meadows represent 11%.

5.3.1. Farm structure, labour

In 2016 in North Macedonia there were 178,128 agriculture holdings, with an average size of 1.8 ha, which has decreased with 3% since 2013.[7] The structure of the agricultural sector is characterized by small-sized family farms, owned or leased, and highly fragmented into small parcels (EC, 2022). Employment in agriculture, forestry and fishing was about 120 thousand persons in 2016 and decreased to 95.5 thousand in 2020. Both the share in value added and the share in employment has been gradually decreasing. The latter is decreasing faster than value added, indicating a slight increase in average productivity. Despite this increase in productivity, exports of agri-food products are growing at a slower pace than total exports, and also at a slower pace than imports of agri-food products. This results in a growing trade deficit for agricultural products.

5.3.2. Production value

The total production value of agriculture in North Macedonia increased from 809 million euros to 913 million euros between 2010 and 2020 (see Table 5-5). The vast majority of the gross agricultural output (around 76% in 2020) is generated by crop production, with wheat and vegetables the main contributors (see Section 5.7 and Fruit and vegetables 5.8.) Potatoes, tomatoes and peppers dominate vegetable production and make North Macedonia a net exporter of processed vegetables. Other important agricultural products are fruit, cereals, tobacco and grapes for wine production as well as direct consumption. Livestock output has less importance, with dairy farming and cow milk production dominating this sub sector.

[7] IPARD III Programme report – North Macedonia 2022

Table 5-5. Key agricultural statistics, North Macedonia

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross value added of the agriculture, forestry, hunting and fishery sector (A)	GVA (at current prices)	million EUR	718	705	691	817	870	882	884	788	910	916	914	894
	Share in GVA of all business activities	%	12	11	11	12	12	11	11	9	10	9	10	9.0
	Agriculture, forestry and fishing, Value Added (% of GDP)	%	8	8	7	8	8	8	7	7	7	6	8	6
Employment in the agriculture, forestry, hunting and fishery sector (A)	Number	1000 persons	122	121	113	127	127	126	120	120	119	111	95.5	91.5
	Share in total employment	%	19	19	17	19	18	18	17	16	16	14	12	11.5
Trade in food and agricultural products	Export of agri-food products	million EUR	413	461	472	499	481	484	529	491	491	539	523	
	Share in export of all products	%	16	14	15	16	13	12	12	10	8	8	9	
	Import of agri-food products	million EUR	513	597	658	632	619	669	689	723	750	792	778	
	Share in import of all products	%	12	12	13	13	11	12	11	11	10	9	10	
	Trade balance in agri-food products	million EUR	-100	-136	-185	-133	-138	-185	-160	-232	-259	-254	-255	
	Export/import rate	%	81	77	72	79	78	72	77	68	65	68	67	
Agricultural land	Total	1 000 ha	1 119	1 118	1 267	1 260	1 261	1 262	1 265	1 266	1 264	1 265	1 262	1 260
	- Arable land	1 000 ha	414	414	414	413	412	414	416	417	418	419	416	417
	of which fallow and uncultivated land	1 000 ha												
	- Land under permanent crops	1 000 ha	35	35	36	37	38	39	40	40	41	41	41	41
	of which orchards	1 000 ha	14	14	15	15	15	16	16	16	17	17	17	17
	vineyards	1 000 ha	21	21	21	22	23	23	24	24	24	24	24	24
	olive trees	1 000 ha												
	other permanent crops	1 000 ha												
	- Permanent grassland	1 000 ha	670	669	817	810	811	809	809	808	804	804	804	802
	of which meadows	1 000 ha	59	61	60	59	60	59	59	60	60	60	60	59
	pastures	1 000 ha	611	608	757	751	751	750	750	748	744	744	744	743

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	- Other agricultural land	1 000 ha	1	1	1	1	1	1	1	1	1	1	1	1
Farm structure	Number of agricultural holdings	1 000 holdings	192	:	:	171	:	:	178	:	:	:		
	Utilised agricultural area (UAA)	1 000 ha	283	:	:	316	:	:	321	:	:	:		
	UAA per holding	Ha/holding	1	:	:	2	:	:	2	:	:	:		
Change in volume of Gross Agricultural Output (GAO)	Total agricultural goods	%	7	-1	-6	5	2	6	6	-11	12	-5.8	3.2	
	- Crops	%	9	2	-6	6	3	8	5	-14	18	-4.4	2.3	
	- Livestock	%	1	-9	-5	1	-1	0	8	-2	-4	-10.5	6.5	
Value of production	Total agriculture	million EUR	809	880	821	913	845	867	866	765	909	897	913	
	- Crops	million EUR	605	658	595	680	608	658	647	560	690	681	690	
	- Livestock	million EUR	204	222	227	233	236	209	219	205	219	216	223	
Share of crop and livestock output in total Agricultural Goods Output	- Crops	%	75	75	72	74	72	76	75	73	76	76	76	
	- Livestock	%	25	25	28	26	28	24	25	27	24	24	24	

Source: FAO, World Bank, Eurostat

5.3.3. Prices and input costs

Figure 5-19 shows the producer price index of agriculture in North Macedonia whereby 2014-2016 are 100. North Macedonia's producer price index shows fluctuations between 2010-2014 and as of 2016 a trend of increase up to 2021, with a minor decrease in 2020. Output price indices for crop products and animals and livestock products are shown in Figure 5-19.

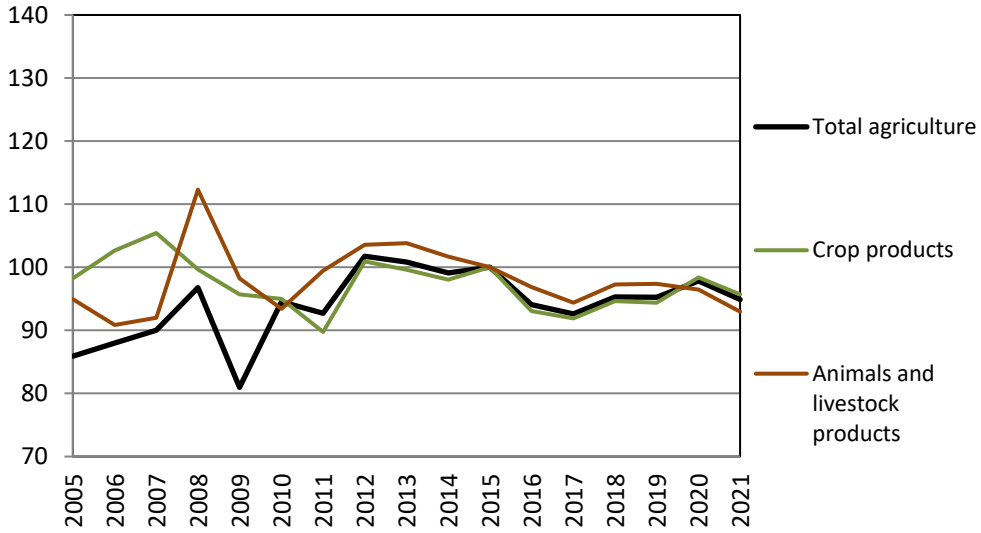

Figure 5-19. Agricultural output price indices, 2015 = 100, in 2010-2021. Source: SSO, 2022, MakStat Database

Concerning the input costs, prices of electricity in euros for non-household consumers, see Table 4-5. The price of electricity per kWh increased with 40% between 2015 and 2020. Price developments of other inputs like fertilisers and feed cannot be shown as the data is not available. The price index of the total inputs is shown in Figure 5-20.

Table 5-6. Electricity prices for non-household consumers 20 MWh < Consumption < 500 MWh EUR per kWh

	2015	2016	2017	2018	2019	2020	2021	growth 2015-2021 (%)
Electricity prices for non-household consumers 20 MWh < Consumption < 500 MWh EUR per kWh	0.139	0.104	0.099	0.103	0.107	0.107	0.194	40

Source: Eurostat, calculations WR

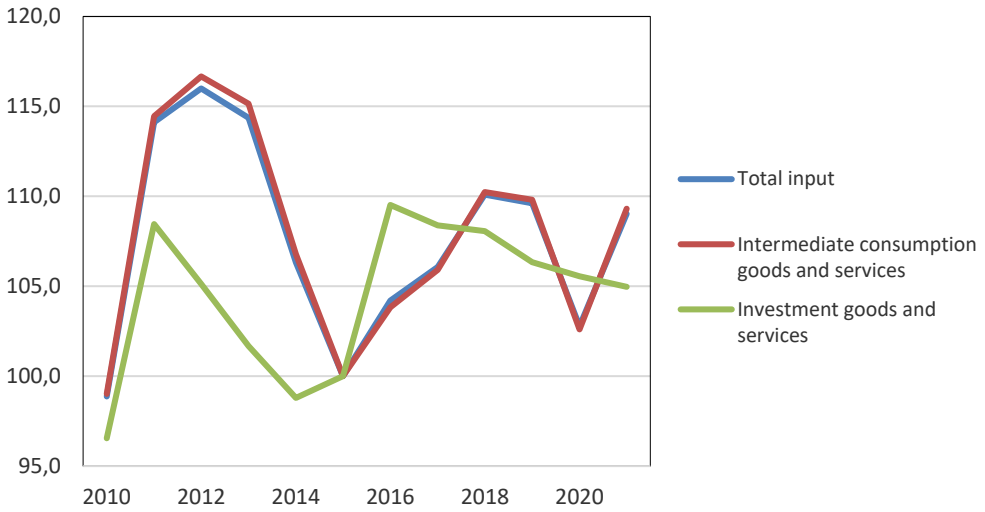

Figure 5-20. Agricultural input price indices, 2015 = 100, in 2010-2021. Source: SSO, 2022, MakStat Database

5.3.4. International trade

Data on international trade of North Macedonia, from UN Comtrade, are available until 2020. In the Table 5-7, total export and import of North Macedonia is reported for the period 2010-2020, as well as export and import of agricultural products. The latter is defined in accordance to the WTO Agreement on Agriculture, hence excluding fisheries products and forestry products.

Table 5-7. Export and import of agricultural products by North Macedonia, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	growth 2010-2020 (%)
Export								
Total trade (million EUR)	2,528	4,047	4,322	5,030	5,848	6,427	5,807	130
Agricultural trade (million EUR)	415	485	530	537	540	619	587	41
Share of agricultural trade in total trade (%)	16	12	12	11	9	10	10	
Import								
Total trade (million EUR)	4,129	5,768	6,104	6,843	7,664	8,438	7,625	85
Agricultural trade (million EUR)	517	679	699	740	768	811	797	54
Share of agricultural trade in total trade (%)	13	12	11	11	10	10	10	

Source: UN Comtrade, calculations WR.

Both, imports and exports have substantially increased in the last 10 years. Total imports have almost doubled totalling to 7,625 million euros and total exports increased up to 5,807 million euros. Agricultural trade has also increased but not that steep. Agricultural sector accounts for about 13-15% in total imports in the last 5 years and about 10-12% in total Exports. Share of agricultural imports and exports has decreased.

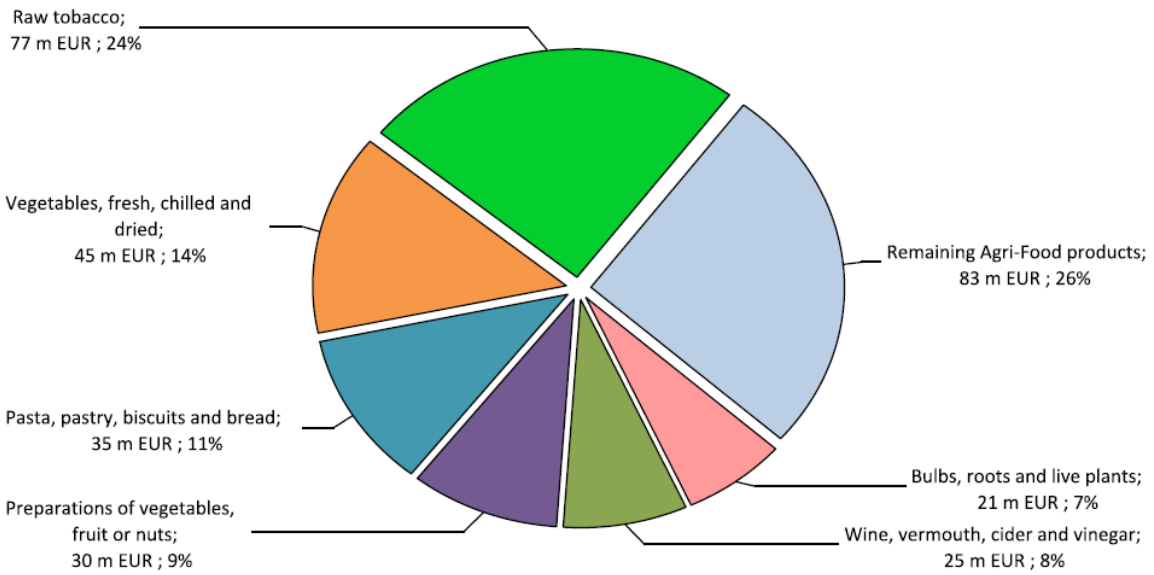

Figure 5-21. Exports from North Macedonia into EU, in 2021, in million euros and %. Source: EC (2022c).

Figure 5-21 demonstrates that raw tobacco is the major (24% in 2021) agri-food category of products exported by North Macedonia to the EU. Other remarkably large categories are vegetables (14% in 2021) and their preparations (9% in 2021), followed by pastry and wine (11% and 8% respectively).

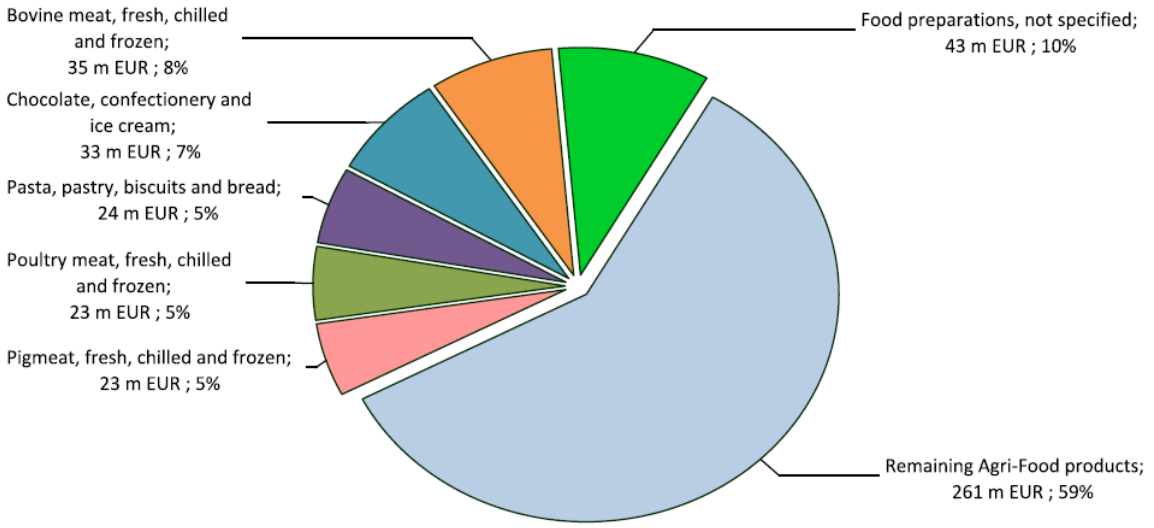

Figure 5-22. Imports to North Macedonia from EU, in 2021, in million euros and %. Source: EC (2022b).

Figure 5-22 shows that imports into North Macedonia from the EU mainly constitute prepared food and meats (bovine, pig, poultry) plus chocolate and pastry. The remaining agri-food products are 59% and are composed by categories of smaller shares.

5.4. Dairy sector

5.4.1. Production value and producer prices

The production value of total milk in North Macedonia increased from 118 million euro to 152 million between 2010 and 2020. The production value of cow milk was 99 million euros in 2010 and 130 million euros in 2020 (see Figure 5-23). The production prices varied in the period 2010-2020. The producer prices for cow milk increased from 275 EUR/tonne in 2010 to 321 EUR/tonne in 2021(see Figure 5-24). The production of cow milk was between 405 thousand tonnes and 460 450 thousand tonnes in the period 2010-2020 (see Table 5-9 in Section 5.4.3).

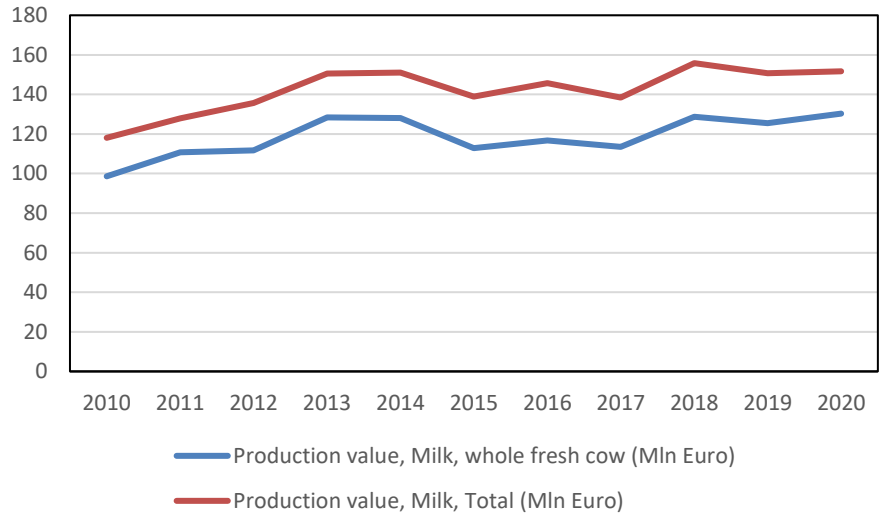

Figure 5-23. Gross Production Value of dairy in North Macedonia, current million EUR. Source: FAOSTAT.

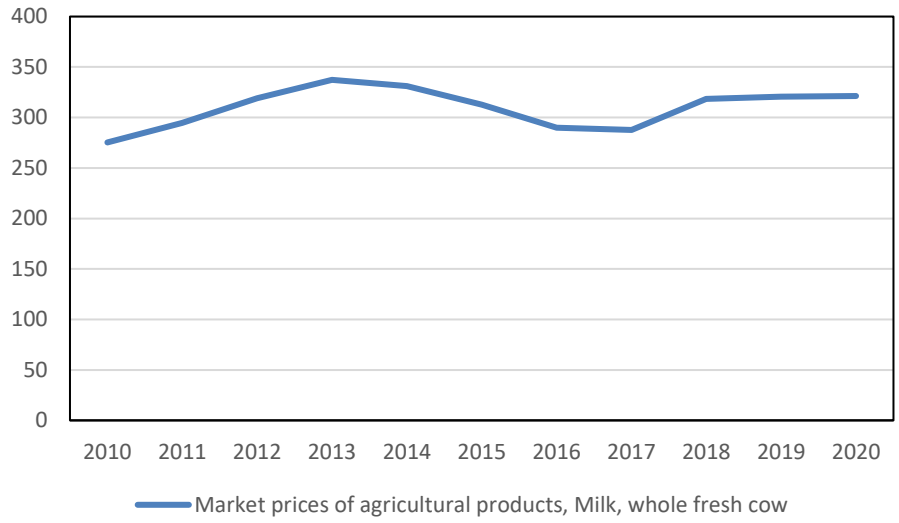

Figure 5-24. Dairy producer prices in North Macedonia, EUR/tonne. Source: FAOSTAT.

5.4.2. Costs and revenues of milk

For cow milk, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For North Macedonia, the National Expert provided estimated costs and revenues based on a FADN structured data sample. The presented costs and revenues are per head for the

sample average. Total farm costs per head include specific and overhead costs. The costs and revenues for milk per kg are presented as well. The total costs and revenues at dairy farms were attributed to milk based on its share in total revenue, including meat.

The total estimated production costs per kg of milk are 0.24 euros. With inclusion of the reimbursement of costs of family labour, these costs are 0.30 euros per kg of milk. The estimated average price of milk is 0.31 euros and the estimated subsidy on milk is 0.03 euros per kg.

The net farm income is estimated with and without including subsidies and farm labour. For example, the farm income without subsidy and without farm labour is 23% of the market price of milk per kg. The farm income with subsidy and with inclusion of the costs of farm labour is 14 % of the total revenue per kg of milk, i.e., the market price plus the subsidies.

The estimated cost and revenue items for milk are shown in the table below.

Table 5-8 Estimated costs and revenues of cow milk in North Macedonia, 2021

	For Milk, in EUR
Total costs per head, of which:	**1414**
Total overhead costs	347 (~25% of total costs)
Total specific costs, e.g.:	1067
Feed	*517*
Lifestock specific costs: veterinary and reproduction costs)	*63*
Total farm revenues per head, of which	**2148**
Milk revenue	1448
Meat and fertilizer revenue	390
Subsidies	309
Production costs of milk per kg	**0.24**
Production costs of milk per kg including family labour	**0.30**
Average milk price per kg of milk	**0.31**
Subsidies per kg of milk	**0.03**
Net farm income (excluding subsidies), excluding family labour, per kg of milk	**0.07 (23%)**
Net farm income (including subsidies), excluding family labour, per kg of milk	**0.11 (31%)**
Net farm income (excluding subsidies), including family labour, per kg of milk	**0.01 (5%)**
Net farm income (including subsidies), including family labour, per kg of milk	**0.05 (14%)**

5.4.3. Output, area, animals and yield

Table 5-9. Production and yield for dairy, North Macedonia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Milk Animals	Milk, Total	Head	716 800	720 745	732 014	724 902	759 523	687 626	632 326
	Milk, whole fresh cow	Head	124 500	127 663	132 332	137 461	131 372	113 709	111 083
Production	Milk, Total	tonnes	405 830	417 388	463 447	448 671	463 635	442 856	447 709
	Milk, whole fresh cow	tonnes	357 900	361 072	403 044	394 140	404 230	390 903	405 217
Yield	Milk, Total	hg/An	5 662	5 791	6 331	6 189	6 104	6 440	7 080
	Milk, whole fresh cow	hg/An	28 747	28 283	30 457	28 673	30 770	34 377	36 479

Source: FAOSTAT.

According to FAOSTAT (see Table 5-9), the dairy sector in North Macedonia did not change a lot in the last 10 years. The numbers of dairy cows have declined slightly and with a good growth in dairy productivity from 5 662 hg/animal to 7 080 hg/animal the overall production of milk in tonnes has remained at the level of 450 thousand tonnes.

5.4.4. International trade

In the period 2010-2020, the imports of dairy products in North Macedonia more than doubled, see Table 5-10. Most imports include cheese and curd, and not concentrated milk and cream. Also, the exports increased with 59% in the same period. Not concentrated milk and cream are the most exported products from North Macedonia.

Table 5-10 Export and import of dairy products, North Macedonia, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	5	9	7	10	10	17	8	0.1	59
Of which:									
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	1	2	3	4	3	5	3	0.1	530
Milk and cream; concentrated or containing added sugar or other sweetening matter		0	0	0	0	0	0	0.0	n.a.
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	0	0	0	1	3	9	1	0.0	n.a.
Whey and products consisting of natural milk constituents; whether or not containing added sugar or		0	0	0	0	0	0	0.0	n.a.
Butter and other fats and oils derived from milk; dairy spreads	1	0	1	1	0	0	0	0.0	n.a.
Cheese and curd	3	6	2	3	1	2	2	0.0	-39
Import									
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	29	41	42	46	54	62	60	0.8	108
Of which:									
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	9	11	11	10	13	19	18	0.2	93
Milk and cream; concentrated or containing added sugar or other sweetening matter	2	4	3	4	5	6	5	0.1	105
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	3	4	4	4	4	5	6	0.1	105
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	1	1	1	2	1	2	1	0.0	n.a.
Butter and other fats and oils derived from milk; dairy spreads	3	3	3	4	4	4	4	0.1	24
Cheese and curd	9	13	16	18	20	23	22	0.3	151

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

5.5. Eggs and honey

5.5.1. Production value and producer prices

The production value for eggs in North Macedonia shows a halving in the period 2010-2020 (see Figure 5-25), with a major decrease in 2019 (9 almost 3 times less compared to 2010). The production value for honey was rather fluctuating in the same period. Prices of honey showed some fluctuation as well in the period 2010-2020, where the highest price was seen in 2010 (4053 EUR/tonne) in 2010 and lowest in 2013 (329 EUR/tonne) and levelling up between 2016-2020 (see Figure 5-26). Prices of eggs per tonne are not available from FAO for the period after 2013, but data from SSO have been obtained in euro per thousand eggs. These data show a significant increase in prices in 2020 (Figure 5-27).

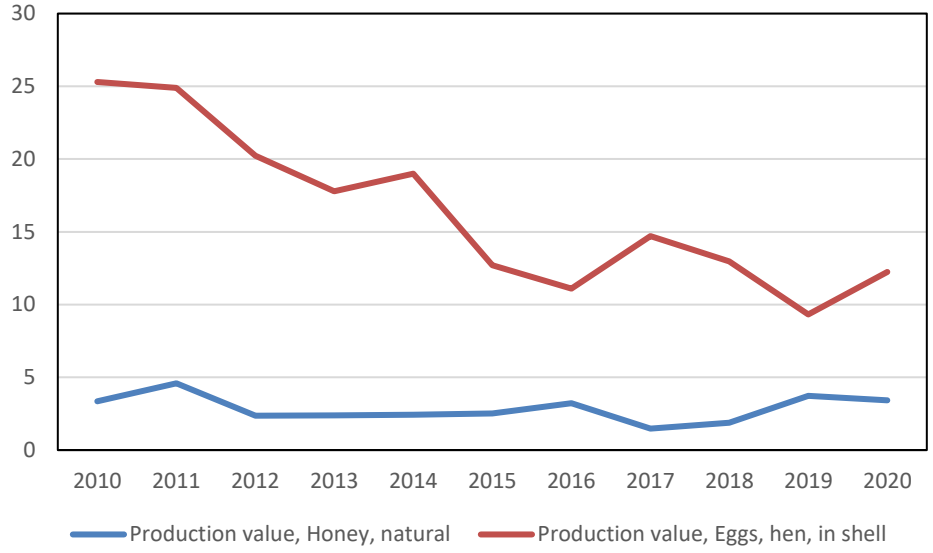

Figure 5-25. Gross Production Value of eggs in shell and honey in North Macedonia, current million EUR. Source: FAOSTAT.

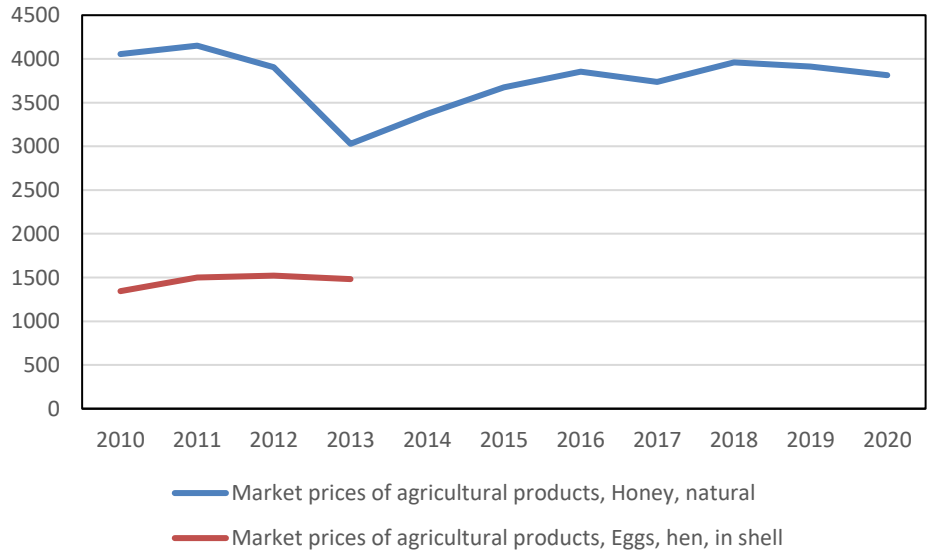

Figure 5-26. Producer prices in North Macedonia (EUR/tonne). Source: FAOSTAT.

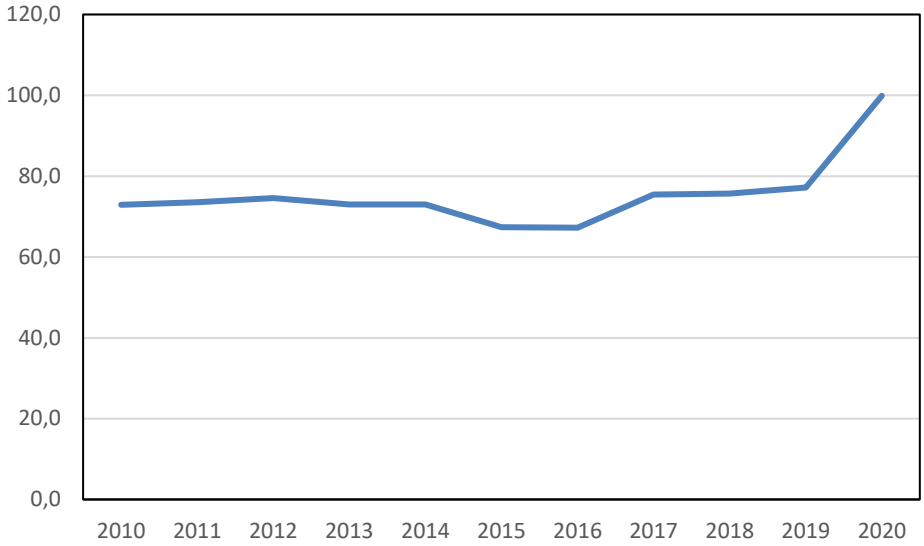

Figure 5-27. Farm gate prices for eggs in North Macedonia (EUR/000 pieces). Source: SSO, 2021.

5.5.2. Output, area, animals and yields

Table 5-11 indicates production and productivity for eggs and honey in North Macedonia in 2010-2020. The figures for eggs indicate an overall decrease: production of eggs, number of animals and the productivity in eggs per animal have declined. The number of laying hens declined by 2020 by about 0.3 million of heads. Production of eggs has declined from 336 million eggs to 183 million eggs in 2020.

Table 5-11. Production and yield for eggs and honey, North Macedonia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Laying	Eggs, hen, in shell	1 000 Head	1 500	1 353	1 353	1 466	1 376	1 025	1 188
Production	Eggs, hen, in shell	1 000 No	336 000	203 383	177 522	224 596	181 783	141 284	183 152
		tonnes	18 820	9 966	8 699	11 005	8 907	6 923	8 974
	Honey, natural	tonnes	825	688	834	395	475	953	899
Yield	Eggs, hen, in shell	100 mg/An	125 467	73 659	64 294	75 068	64 731	67 541	75 539
		No/An	224	150	131	153	132	138	154

Source: FAOSTAT.

5.5.3. International trade

The imports and the exports of eggs and honey show similar figures. Although both are relatively small, i.e. 1-2 million euros, they are growing, see Table 5-12.

Table 5-12 Import and export of eggs and honey, North Macedonia, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010 - 2020 (%)
Export									
Birds' eggs, in shell; fresh, preserved or cooked	0	0	0	1	1	1	1	0.0	n.a.
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,			0				0	0.0	n.a.
Honey; natural	0	1	1	1	1	1	1	0.0	n.a.
Import									n.a.
Birds' eggs, in shell; fresh, preserved or cooked	0	0	1	1	2	1	1	0.0	n.a.
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	1	2	2	2	3	2	2	0.0	n.a.
Honey; natural	0	1	0	1	1	1	1	0.0	n.a.

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

5.6. Meat sector

5.6.1. Production value and producer prices

The total production value of meat in North Macedonia slightly varied in the 2010-2020 period, overall showing some decline, except for pig meat (see Figure 5-28). Meats of various types differed in the growth trends with declining cattle and sheep and increasing pig production values. The production value of chicken meat varied somewhat over the period but remained stable on the whole.

In the 2010-2020 period, prices of sheep have had larger variation, especially between 2015-2017 aand been declining showing an opposite trend compared to other types of meat (see Figure 5-29). Pig meat prices shows also large fluctuation over the years, with the pick price in 2016.

Data on the costs of production of meat in North Macedonia is not available.

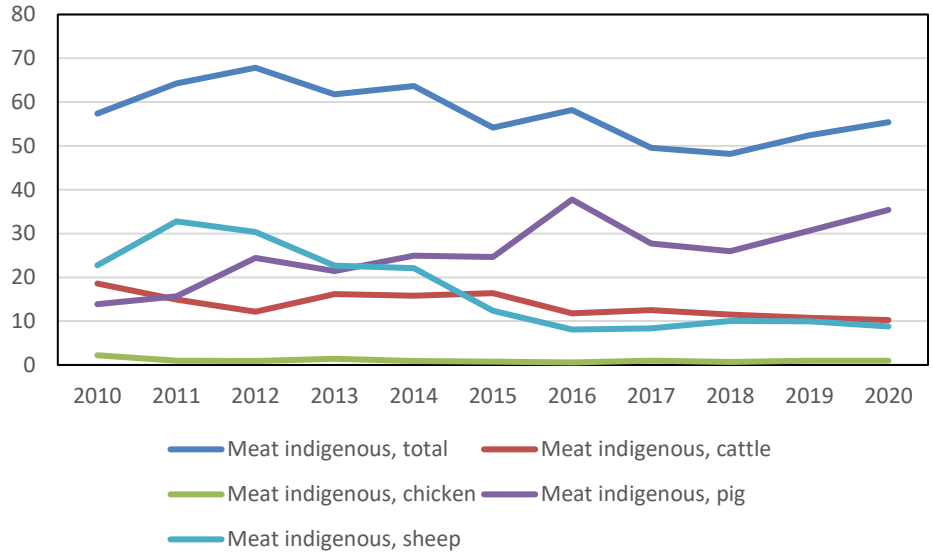

Figure 5-28. Gross Production Value in North Macedonia, current million EUR. Source: FAOSTAT.

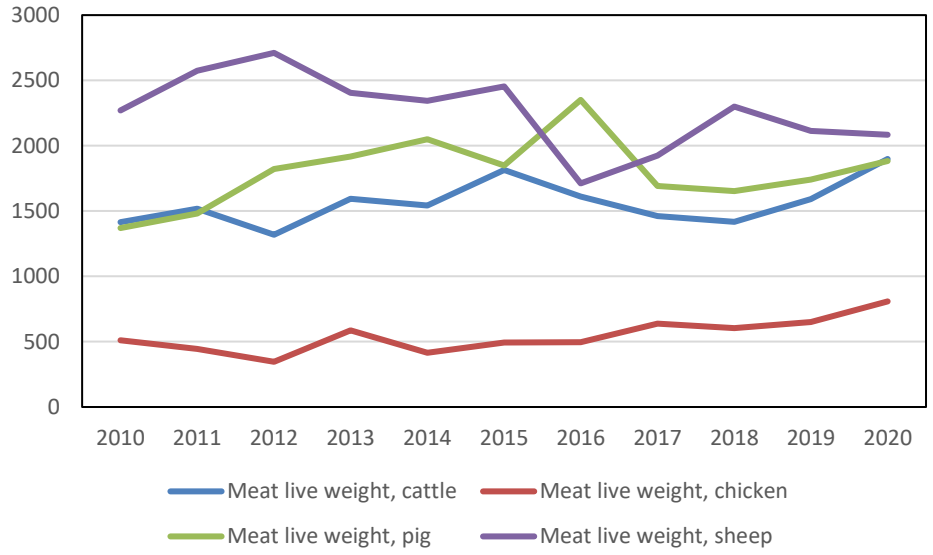

Figure 5-29. Producer prices in North Macedonia (EUR/tonne). Source: FAOSTAT.

5.6.2. Output, area, animals and yields

Table 5-13 shows the production and yield for main meat products in North Macedonia in 2010-2020. The total meat production in terms of volume is relatively stable, although there are some shifts in production of different types of meat. A remarkable growth is observed in the growth in the population of pigs. Pigs have almost doubled in their numbers. Population of other livestock has declined, which is especially drastic for chicken (twice) and cattle (three times). The total meat production has remained rather stable, while meat production per sector has followed the trends observed in the numbers of animals, i.e. production declined for cattle (twice) and chicken (twice) and increased for pigs (also almost twice) in comparison to year 2010.

Table 5-13. Production and yield for meat, North Macedonia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Producing Animals/Slaughtered	Meat, chicken	1000 Head	4,100	2,405	2,551	2,446	2,361	1,959	1,999
	Meat, sheep	Head	294,000	305,000	296,000	165,000	172,000	156,000	127,000
	Meat, cattle	Head	54,600	30,000	32,000	36,000	21,000	20,000	19,000
	Meat, pig	Head	82,500	116,000	123,000	138,000	145,000	149,000	150,000
Production	Meat, Total	tonnes	23,336	21,410	21,994	22,879	22,255	22,349	23,493
	Meat, chicken	tonnes	3,236	1,729	1,509	1,716	1,499	1,490	1,494
	Meat, sheep	tonnes	5,000	3,980	3,737	3,422	3,446	3,392	3,183
	Meat, cattle	tonnes	7,100	4,875	3,962	4,636	4,381	4,083	3,886
	Meat, pig	tonnes	8,000	10,826	12,786	13,105	12,929	13,384	14,930
Yield/Carcass Weight	Meat, chicken	0.1g/An	7,893	7,189	5,915	7,016	6,349	7,606	7,474
	Meat, sheep	hg/An	170	130	126	207	200	217	251
	Meat, cattle	hg/An	1,300	1,625	1,238	1,288	2,086	2,042	2,045
	Meat, pig	hg/An	970	933	1,040	950	892	898	995

Source: FAOSTAT.

5.6.3. International trade

Table 5-14 presents import and export values of meat products in North Macedonia. The country is a net importer of meat in the years mentioned. Especially the import of live animals increased in the last years (by 255%), although this category remained small in comparison to import of meat 3 million euros vs 106 million euros in 2020). Pig meat, bovine meat and poultry meat are the main imported meat categories, with poultry meat having the largest values.

Table 5-14. Export and import of meat, North Macedonia, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Export									
Animals; live	3	2	1	2	2	2	1	0.0	-53
Meat and edible meat offal	17	13	13	11	11	10	10	0.2	-39
Of which:									
Meat of sheep or goats; fresh, chilled or frozen	14	12	12	10	10	10	9	0.2	-34
Import									
Animals; live	1	2	4	3	3	5	3	0.0	255
Meat and edible meat offal	80	100	95	108	112	118	106	1.4	32

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010-2020 (%)
Of which:									
Meat of bovine animals; fresh or chilled	18	20	20	21	23	25	23	0.3	29
Meat of bovine animals; frozen	5	8	8	8	9	11	7	0.1	39
Meat of swine; fresh, chilled or frozen	21	22	23	27	29	27	26	0.3	22
Meat of sheep or goats; fresh, chilled or frozen	0	0	0	0	0	0	0	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	4	1	1	1	1	1	1	0.0	-66
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e. fowls of the species Gal	31	46	40	48	46	49	45	0.6	44
Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, fr	0	0	0	1	0	1	1	0.0	n.a.
Meat and edible meat offal; salted, in brine, dried or smoked; edible flours and meals of meat or me	1	2	2	3	4	4	3	0.0	364

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

5.7. Fruit and vegetables

5.7.1. Production value and producer prices

Figure 5-30 and Figure 5-31 demonstrate gross production value in North Macedonia for selected fruits and vegetables respectively over the period 2010-2020. The production value of fruit and vegetables has been fluctuating showing a somewhat increasing trend. Across the years, the values for grapes and tomatoes have been fluctuating the most.

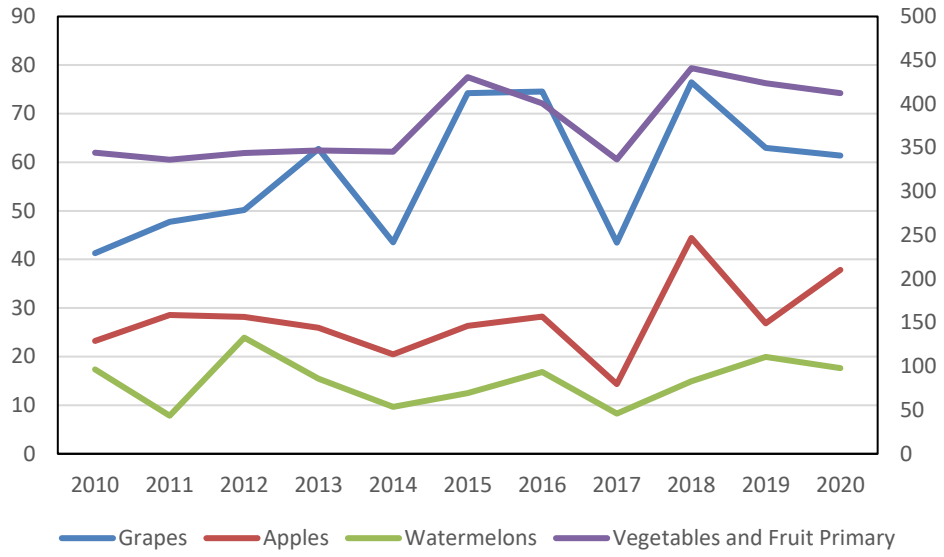

Figure 5-30. Gross Production Value for selected fruit in North Macedonia, current million EUR (Vegetables and Fruit Primary on right axis). Source: FAOSTAT.

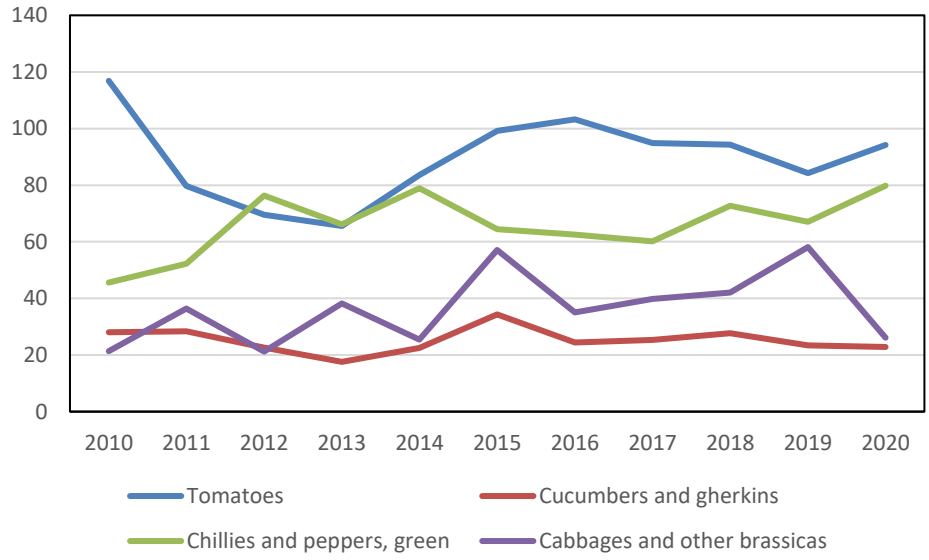

Figure 5-31. Gross Production Value for selected vegetables in North Macedonia, current million EUR. Source: FAOSTAT.

Figure 5-32 and Figure 5-33 demonstrate producer prices in euros for selected fruits and vegetables respectively in North Macedonia. In the years 2010-2020, the producer prices for fruit and vegetables demonstrate high fluctuation with a clear increasing trend for apples.

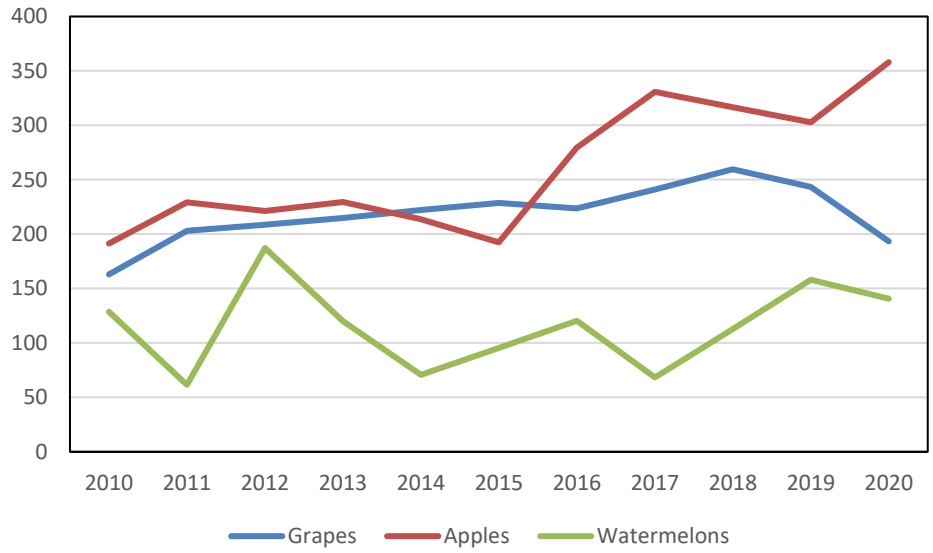

Figure 5-32. Producer prices for selected fruits in North Macedonia (EUR/tonne). Source: FAOSTAT.

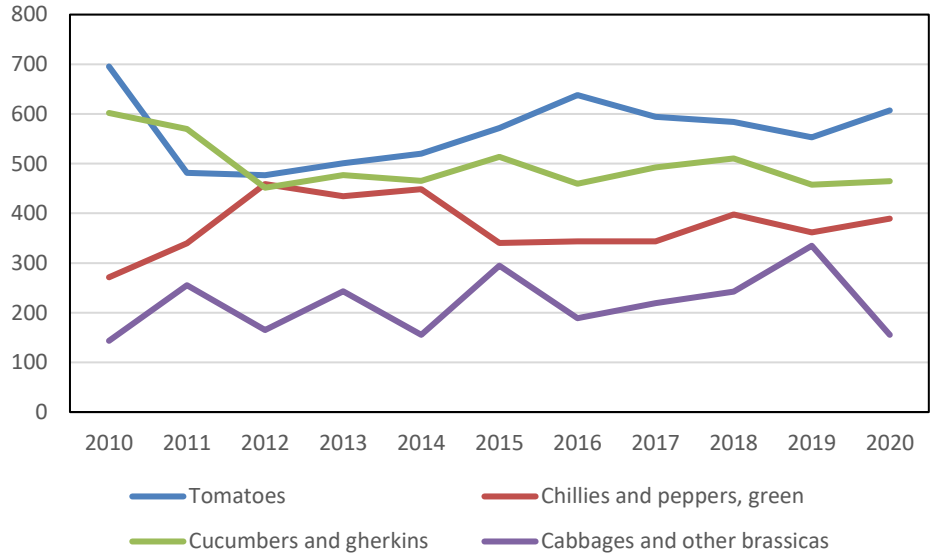

Figure 5-33. Producer prices for selected vegetables in North Macedonia (EUR/tonne). Source: FAOSTAT.

5.7.2. Costs and revenues of apples and tomatoes

For apples and tomatoes, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For North Macedonia, the National Expert provided estimated costs and revenues based on a FADN structured data sample. The presented costs and revenues are per ha for the sample average. Total farm costs per ha include specific and overhead costs. The costs and revenues for apples and tomatoes per kg are presented as well.
The total estimated production costs per kg of apples are 0.11 euros. Per kg of tomatoes these costs are 0.24 euros. With inclusion of the reimbursement of costs of family labour, these costs are 0.11 and 0.29 per kg of apples and tomatoes respectively. The estimated average price of apples is 0.16 per kg and the estimated subsidy on apples is 0.02 per kg. The estimated average price of tomatoes is 0.42 euros per kg and the subsidy is 0.01 euros pr kg.

The net farm income is calculated with and without including of subsidies and farm labour. For example, the farm income without including subsidy in the revenue and without including farm labour in the costs is 33% of the market price of apples and 44% of the market price of tomatoes. The farm income with inclusion of subsidy in the revenue and with inclusion of farm labour in the costs is 39% and 44% of the total revenue, i.e. the market price plus the subsidies, per kg of apples and tomatoes respectively. The estimated cost and revenue items for apples and tomatoes are shown in the table below.

Table 5-15. Estimated costs and revenues of apples and tomatoes in North Macedonia, 2021

	For Apples, in EUR	For Tomatoes, in EUR
Total costs per ha, of which:	**5 317**	**19 363**
Total overhead costs	926	3 227
Total specific costs, e.g.:	4 391	16 136
Seeds and plants		2 833
Fertilizers	*496*	*1 966*
Crop protection	*1 101*	*2340*
Total farm revenues per ha, of which	**9 068**	**34 795**
Product sold	7 900	34 357
Subsidies	1 169	438
Production costs per kg of product	**0.11**	**0.24**
Production costs per kg including family labour	**0.11**	**0.29**
Average price per kg of product	**0.16**	**0.42**
Subsidies per kg of product	**0.02**	**0.01**
Net farm income (excluding subsidies), excluding family labour, per kg of product	**0.05 (33%)**	**0.18 (44%)**
Net farm income (including subsidies), excluding family labour, per kg of product	**0.18 (41%)**	**0.19 (44%)**
Net farm income (excluding subsidies), including family labour, per kg of product	**0.05 (30%)**	**0.13 (31%)**
Net farm income (including subsidies), including family labour, per kg of product	**0.07 (39%)**	**0.19 (44%)**

5.7.3. Output, area, animals and yields

Table 5-16 shows the production and yield for main fruits and vegetables in North Macedonia in 2010-2020. Grapes are the major fruit crop in this country with the area of about 24 000 ha. Chillies and peppers were the largest vegetable crop among the selected products in 2020 in terms of area harvested, only second to green beans.

Table 5-16. Production and yield for fruit and vegetables, North Macedonia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Fruit Primary	ha	58 305	70 716	65 391	50 314	71 683	65 419	68 069
	Grapes	ha	20 033	22 918	23 192	23 398	23 670	23 996	23 709
	Apples	ha	13 650	15 451	11 870	5 032	15 974	10 112	12 066
	Watermelons	ha	5 732	5 509	5 445	5 385	5 281	5 132	5 175
	Vegetables Primary	ha	41 579	43 577	42 977	42 752	42 912	43 003	42 166
	Tomatoes	ha	5 665	5 642	5 604	5 597	5 569	5 497	5 453
	Chillies and peppers, green	ha	8 474	8 617	8 751	8 927	9 179	9 390	9 236
	Cucumbers and gherkins	ha	1 266	1 251	1 048	1 035	1 034	1 036	943
	Cabbages and other brassicas	ha	4 695	6 100	5 792	5 738	5 739	5 902	5 705
Production	Fruit Primary	tonnes	588 448	683 199	654 036	401 774	657 409	557 374	635 961
	Grapes	tonnes	253 372	324 769	333 319	180 349	294 497	258 960	317 550
	Apples	tonnes	121 383	136 931	101 088	43 366	140 296	88 701	105 794
	Watermelons	tonnes	134 885	131 039	139 679	121 168	132 091	126 223	124 972
	Vegetables Primary	tonnes	632 790	740 274	699 021	675 668	687 150	675 276	695 920
	Tomatoes	tonnes	168 010	173 434	161 951	159 721	161 621	152 348	155 131
	Chillies and peppers, green	tonnes	168 150	189 443	181 852	175 100	182 872	185 452	204 919
	Cucumbers and gherkins	tonnes	46 635	66 830	53 265	51 532	54 314	51 019	49 112
	Cabbages and other brassicas	tonnes	149 157	193 796	185 227	181 339	173 141	173 672	168 460
Yield	Fruit Primary	hg/ha	100 926	96 612	100 019	79 853	91 711	85 201	93 429
	Grapes	hg/ha	126 477	141 709	143 722	77 079	124 418	107 918	133 936
	Apples	hg/ha	88 925	88 623	85 163	86 180	87 828	87 719	87 679
	Watermelons	hg/ha	235 319	237 863	256 527	225 010	250 125	245 953	241 492
	Vegetables Primary	hg/ha	152 190	169 877	162 650	158 044	160 130	157 030	165 043
	Tomatoes	hg/ha	296 575	307 398	288 992	285 369	290 215	277 148	284 487

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
	Chillies and peppers, green	hg/ha	198 430	219 848	207 807	196 147	199 229	197 499	221 870
	Cucumbers and gherkins	hg/ha	368 365	534 213	508 254	497 894	525 280	492 461	520 806
	Cabbages and other brassicas	hg/ha	317 693	317 698	319 798	316 032	301 692	294 260	295 285

Source: FAOSTAT.

5.7.4. International trade

Table 5-17 presents import and export values of fruit and vegetables in North Macedonia. The country is a net exporter of these products in the years 2010-2020. Both imports and exports increased in the last years, with exception of exports of fresh vegetables. Of all vegetable groups of products, fresh fruit and nuts are imported the most, i.e. about 48 million euros in 2020. The export values of fresh fruit, fresh vegetables, and preparations of fruit and vegetables are about 60 million euros each.

Table 5-17. Export and import of fruit and vegetables, North Macedonia, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010 - 2020 (%)
Export									
Vegetables and certain roots and tubers; edible	65	66	69	60	56	71	63	1.1	-4
Fruit and nuts, edible; peel of citrus fruit or melons	40	53	56	44	40	51	59	1.0	51
Preparations of vegetables, fruit, nuts or other parts of plants	32	46	46	48	49	53	62	1.1	95
Import									
Vegetables and certain roots and tubers; edible	6	13	13	17	17	19	20	0.3	217
Fruit and nuts, edible; peel of citrus fruit or melons	25	37	40	42	44	44	48	0.6	95
Preparations of vegetables, fruit, nuts or other parts of plants	20	28	29	31	33	34	33	0.4	66

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

5.8. Cereals, potatoes and other crops

5.8.1. Production value and producer prices

Figure 5-34 shows production values and Figure 5-35 shows producer prices for cereals and potatoes in North Macedonia in 2010-2020. Production and prices of potatoes have been fluctuating the most, but showed an overall stable trend. Wheat and maize production values increased up to 2013 and decreased after 2013 with an overall stable trend for both maize and wheat.

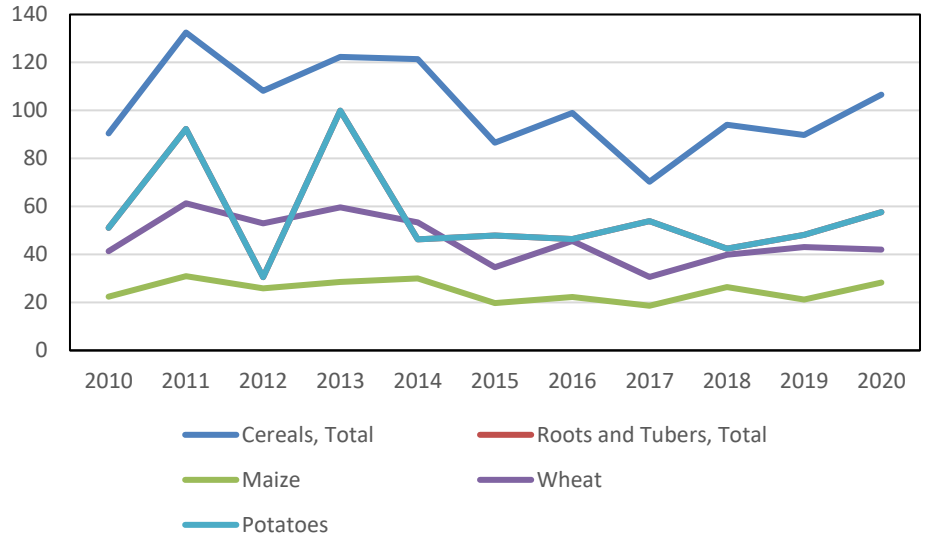

Figure 5-34. Gross Production Value, current million EUR. Source: FAOSTAT.

Until 2014, producer prices of potatoes showed significant fluctuations in the 2010-2020 period. Producer prices of wheat and maize differed not much and had the same development over time. The prices of maize and wheat increased in the first years of the period and decreased after showing an overall stable trend.

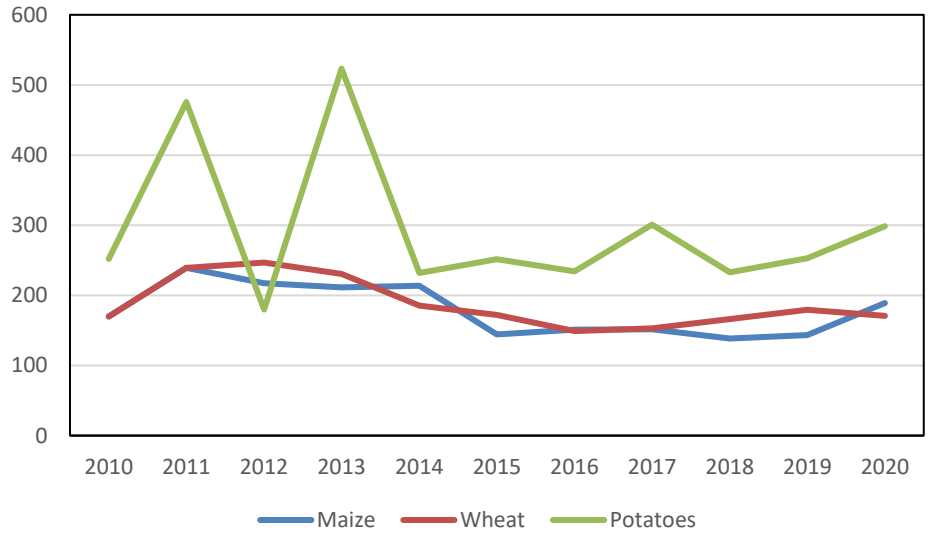

Figure 5-35. Producer prices for selected crops in North Macedonia (EUR/tonne). Source: FAOSTAT.

5.8.2. Output, area, animals and yields

Table 5-18 shows the production and yield numbers for selected cash crops in North Macedonia in 2010-2020. Cereals in this country take the largest share among the cash crops. Its total area was rather stable across the years at the level of about 160 000 ha in 2020. Areas under pulses and roots and tubers are substantially lower (about 10 000-12 000 ha) that have also have not been showing much of the dynamics in the last 10 years. Yields of all crops have also remained relatively stable. somewhat. Overall, the production of all cash crops has kept about the same level through the years.

Table 5-18. Production and yield for cereals, potatoes and other crops, North Macedonia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Cereals, Total	ha	162 651	158 593	166 092	159 492	161 086	158 444	157 972
	Pulses, Total	ha	12 491	11 117	11 105	11 109	11 151	11 049	10 991
	Roots and Tubers, Total	ha	13 044	13 584	13 554	13 436	12 691	13 269	12 911
	Maize	ha	29 480	32 506	31 779	32 004	37 065	34 672	32 555
	Wheat	ha	79 865	73 060	79 832	72 864	70 987	68 847	69 765
	Potatoes	ha	13 044	13 584	13 554	13 436	12 691	13 269	12 911
	Sugar beet	ha	314	106	163	142	137	147	142
Production	Cereals, Total	tonnes	541 567	483 879	640 978	447 778	598 373	563 118	578 836
	Pulses, Total	tonnes	22 696	20 255	20 616	20 494	20 313	20 224	20 139
	Roots and Tubers, Total	tonnes	202 325	190 406	198 529	178 951	181 931	190 527	193 426
	Maize	tonnes	132 006	136 991	147 029	123 014	190 722	148 058	149 685
	Wheat	tonnes	243 137	201 218	306 433	200 112	241 106	239 916	246 031
	Potatoes	tonnes	202 325	190 406	198 529	178 951	181 931	190 527	193 426
	Sugar beet	tonnes	9 112	3 154	4 841	4 219	4 071	4 377	4 222
Yield	Cereals, Total	hg/ha	33 296	30 511	38 592	28 075	37 146	35 541	36 642
	Pulses, Total	hg/ha	18 170	18 220	18 565	18 448	18 216	18 304	18 323
	Roots and Tubers, Total	hg/ha	155 110	140 169	146 473	133 188	143 354	143 588	149 815
	Maize	hg/ha	44 778	42 143	46 266	38 437	51 456	42 702	45 979
	Wheat	hg/ha	30 443	27 541	38 385	27 464	33 965	34 848	35 266
	Potatoes	hg/ha	155 110	140 169	146 473	133 188	143 354	143 588	149 815
	Sugar beet	hg/ha	290 191	297 547	296 994	297 113	297 153	297 755	297 324

Source: FAOSTAT.

5.8.3. International trade

Table 5-19 presents trade statistics (imports and exports) of cereals and other crops in North Macedonia. The country is a net importer of these products in the years mentioned. For most products in this group holds that their import and export values increased in the period 2010-2020. The exceptions are the decreasing imports and exports of sugar and sugar confectionery. Preparations of cereals have the largest import value. Over the years, their import has also been growing the most. Preparations of cereals have also the largest exports value.

Table 5-19. Export and import of cereals, North Macedonia, 2010-2020, in million EUR

	2010	2015	2016	2017	2018	2019	2020	share of total in 2020 (%)	growth 2010 - 2020 (%)
Export									
Cereals	3	4	5	6	9	9	7	0.1	143
Products of the milling industry; malt, starches, inulin, wheat gluten	0	1	1	1	1	3	2	0.0	n.a.
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	4	3	2	4	3	4	5	0.1	20
Potatoes, fresh or chilled	1	1	1	1	1	1	1	0.0	-2
Sugars and sugar confectionery	8	8	8	8	8	8	7	0.1	-8
Preparations of cereals, flour, starch or milk; pastrycooks' products	34	59	62	66	69	70	67	1.2	100
Import									
Cereals	19	31	24	30	28	31	32	0.4	71
Products of the milling industry; malt, starches, inulin, wheat gluten	17	21	21	21	22	24	21	0.3	23
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	14	19	21	18	18	18	19	0.2	33
Potatoes, fresh or chilled	1	1	1	2	2	2	2	0.0	71
Sugars and sugar confectionery	45	37	44	46	37	39	40	0.5	-12
Preparations of cereals, flour, starch or milk; pastrycooks' products	33	42	45	47	52	55	57	0.7	75

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

5.9. Showcase product for North Macedonia: high-quality wine

5.9.1. Description of wine in North Macedonia

The production of wine grapes and the production of wine are one of the key agricultures related economic activities in the Republic of North Macedonia. With its terroir, climate,

soil, terrain and tradition, the country has all the preconditions for production of high-quality wine.

Viticulture together with wine production contributes with about 17% -20% of agricultural GDP in 2020 (MAFWE, 2021), and the area under vineyards is increasing from about 20 thousand ha in 2010 to about 24 thousand ha in 2020 (SSO, 2021). Wine, after tobacco and processed vegetables, is the third most important product in terms of export value of agri-food products.

The wine sector participates in the economy with an annual export of about 50 million Euros and contributes to the livelihood of around 21 400 family agricultural households (individual grape growers), 52 companies (grape growing companies and wineries with own grape area), 12,000 seasonal workers and more than 2 500 full-time employees in 99 registered wineries (MAFWE, 2020).

Republic of North Macedonia has favourable terroir, climatic, soil and terrain condition but also a long tradition for wine grape production, thus fulfilling all preconditions for production of high-quality wines. Namely, this is one of the most important agricultural sub-sectors, contributing with around 20% in the agricultural GDP and with an annual export value of around 50 million euros (MAFWE, 2020).

Although the wine sector still does not have Geographical Indication, there is a system for wine quality as defined by the Law of Wine and the Classification of wines. In this context, according to the wine quality, there are three wine classifications (MAFWE, 2020):

- **regional wines (or table wines with geographical indication – WGO):** referred to a wine produced from grape varieties classified as recommended or approved varieties of wine grapes; with real alcohol strength by volume exceeding 9.0% vol. and total alcohol strength by volume less than 15% vol.; with total acidity content, expressed as tartaric acid, of not less than 3.5 grams per litre or 46.6 milliequivalents per litre. Regional wine (or wine with geographical indication – WGO) is a table wine with a geographical indication, with a precise area of origin and is produced in accordance with the following rules: is produced entirely of grape varieties classified as recommended varieties for the region of origin; has all the characteristics specified by this law; has a minimum natural alcoholic strength of 9.5% vol.; the wine had passed the physicochemical analysis and organoleptic evaluation.
- **wines with controlled origin (WCO):** is a wine with clearly marked delimitation area of origin within the wine region or within a smaller geographical unit and meets the following characteristics: 85% of the grape comes from the region of origin (wine district) whose name the wine bears; is produced entirely of grape varieties classified as recommended varieties for this wine region or a smaller geographical unit; meet the requirements for production of wine with controlled origin described in the law; vinification (wine production) is within the area of origin of grapes (geographical indication) or out of the area of the origin of grapes but within the same region as long as the wine producer through a physicochemical analysis of grapes used proves that by transporting from one to the other area of origin, the wine did not change its characteristics; the minimum natural alcohol strength is 11% vol.; the wine had passed the physicochemical analysis and organoleptic evaluation.
- **wines with controlled and guaranteed origin (WCGO):** is a wine recognized by its specific features and high quality, whose area of origin is clearly delimitated within one or several localities or smaller vineyard units and meets the following minimum characteristics: 100% of the grape comes from the locality or the smaller vineyard units whose name it bears; is produced entirely of grape varieties classified as recommended varieties for this vineyard unit; meets the requirements for production of wine with controlled and guaranteed origin in

accordance with law; the wine processing (vinification) is done within the area of origin or in the immediate vicinity of the locality or the smaller vineyard units where the grapes originated from, but not out of the wine district to which it belongs; the minimum natural alcohol strength is 13% vol.; the wine had passed the physicochemical analysis and organoleptic evaluation.

-

Regarding the vine varieties, Vranec is the leading variety in the Macedonian viticulture with total number of 10 800 ha and representing 38.40% of the total area under vineyards, used for production of both bulk wines and as well as production of commercial bottled wines and high-quality wines. Smederevka is the leading white grape variety, representing 26.57% of the total vineyard area with estimated 7.500 ha and is predominantly used for production of commercial white wines and for distilling into grape brandy, known locally as "rakija". Besides the two main varieties some of the international varieties are also represented: Merlot, Cabernet Sauvignon, Pinot Noir and Chardonnay, Rkacitel" and other local such as Kratoshija, Temjanika, Stanusina (MAFWE, 2020).

5.9.2. Wine production developments

Viticulture together with wine production contributes with about 17%-20% to the agricultural GDP (MAFWE, 2021). The share of vineyards in the total arable land is about 5% in 2020, with a production of grape in an average of around 270 thousand tons per year (Table 5-20). The production of wine grape varieties dominates with 70% of total grape production, out of which red grape varieties capture 60% and the remaining are white grape varieties. The most common red wine varieties are: Vranec, Merlot, Cabernet Sauvignon, Muscat Hamburg, while from the white varieties the following dominate: Smederevka, Riesling, Chardonnay, Rkaciteli, etc.

Table 5-20. Area and production of grapes, 2016-2020

	2016	2017	2018	2019	2020
Total arable land (in 000 ha)	516	517	519	520	517
Vineyards (in 000 ha)	23.19	23.40	24.09	24.47	23.98
Grape production (in tonnes)	333 319	180 349	294 497	258 960	317 550

Source: SSO, 2021

Concerning the buy-out of wine grape (Table 5-21), the total buy-out in 2020 has been around 107 thousand of tones, revealing an increase of about 11% compared to the previous 2019 (MAFWE, 2021).

Table 5-21. Buy-out of wine grape, 2016-2020

	2016	2017	2018	2019	2020
Buy-out of wine grapes (in tonnes)	125 268	55 258	111 588	9 6795	107 370

Source: MAFWE, 2021

In terms of wine production capacities, there are 99 registered wineries, with a total capacity of over two million hectolitres (2 165 447 hl), which is almost twice of the annual wine production. The total capacity for bottling wine is 7 000 000 hl. There is diversified structure of wineries with most of them (90%) with capacity around or under 50 000 hl, 5 of them are between 51 000 hl and 150 000 hl, and 4 of the wineries are with capacity from 151 000 hl to 500 000 hl. The capacity for production of red wine is higher than the white wine capacity (60% of total capacity), due to the fact that significant portion of white grape varieties are commonly used for production of spirit called "rakija". So, for the period 2015-2020, the wine sector produces in an average 95 million litres of wine (Table 5-22).

Table 5-22. Wine production, 2015-2020

	2015	2016	2017	2018	2019	2020
Wine production (in 000 litres)	109 569	105 330	65 723	102 633	90 624	93 589

Source: MAFWE, 2021

Regarding the purchase of wine, it is observed that the purchase of wine capture around 95% of the total purchase of alcoholic beverages in the country (Table 5-23 and Table 5-24).

Table 5-23. Purchase of alcoholic beverages, 2015-2020

	2015	2016	2017	2018	2019	2020
Wine, '000 litres	14 070	15 237	29 001	25 366	17 614	19 286
Brandy, '000 litres	290	20	38	559	1 023	937
Other alcoholic beverages, '000 litres	642	688	885	572	0	0

Source: SSO, 2021

Table 5-24. Purchase of alcoholic beverages from individual producers, 2015-2020

	2015	2016	2017	2018	2019	2020
Wine, '000 litres	-	-	1 572	-	625	-
Brandy, '000 litres	-	-	-	-	-	-
Other alcoholic beverages, '000 litres	-	-	78	-	-	-

Source: SSO, 2021

5.9.3. Wine supply chain

Out of the total number of agricultural households (around 180 000 farms), around 48 000 farms own vineyards, however the viticulture is not a main economic activity for these farms. It is estimated that the basic viticulture production is performed by about 21 400 individual agricultural households, whereas about 30% produce only for their own consumption. Considering the area under vineyards for wine grape production, it is estimated that 70% are cultivated by individual grape growers, while the remaining 30% by grape growing companies (MAFWE, 2020).

Regarding the wine producing companies, the total number of registered wineries in 2020 was 99, with a total capacity of over two million hectolitres. Total grape processing capacity in wine is almost twice the annual wine production. Noteworthy is the overall trend of increasing of the number of wineries in the country, given that in 2003 there were only 28 registered wineries, in 2019 this number increased on 78, while in 2020 the total number of wineries increased by additional 29%, on 98 registered wineries in the country. This trend is mostly observed in the increase of registered small/family wineries and individuals (or 21 in total), especially in the Tikvesh region, known as the largest wine-growing region in the country. The increase is due to the eased conditions for registration of Wine Producers with the adoption of the Law on Amendments to the Law on Wine ("Official Gazette of the Republic of the North Macedonia "no. 235/19). These changes provided a number of benefits that facilitated wine production conditions of small family wineries and individuals wine producers, which is an ongoing trend worldwide, especially in the segment of sale of wine from farm in order to diversify the market supply and development of wine and rural tourism in the country. Moreover,

many of the smaller boutique type of wineries as well as some of the larger wineries invest in sophisticated wine making equipment and technologies, so they can be more competitive on both domestic and foreign markets. These wineries tend to focus their production to high-quality bottled wines, through applying strict control in selection of varietals, advanced vineyard management, proper harvesting, and transport and delivery practices.

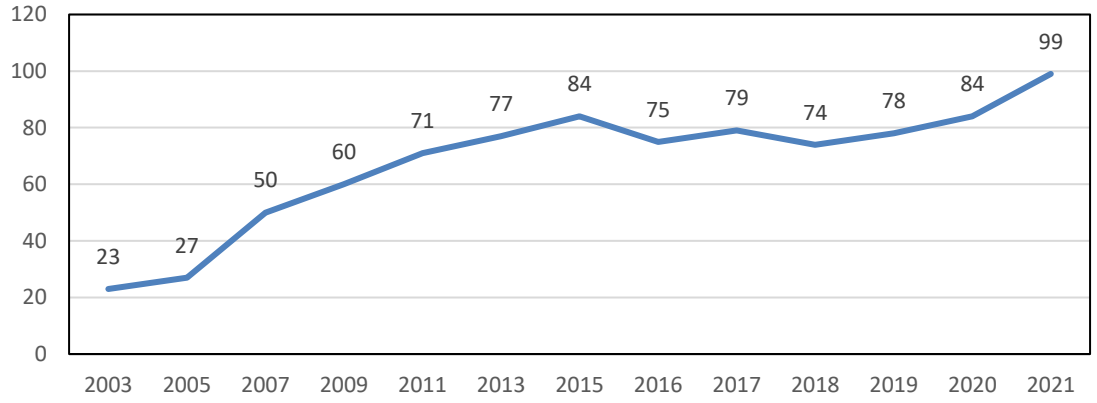

Figure 5-36. Number of registered wineries 2003-2021 (MAFWE, 2021)

Most of the wineries use modern technology and equipment, which enables them to produce, on a large scale, products that are characterized by consistency of quality. Among the biggest producers of bottled wine are "Tikves", "Stobi", "Skovin", "Ezimit", "Imako", "Dalvina", "Bovin", "Popov", "Popova Kula", "Kamnik", "Sopot", "Venec", "Puklavec". Each of these companies varies in size and market approach. Some of the wineries have focused on export.

According to the MAFWE register there are 98 buy-out centers that registered for buy-out of wine grapes. Nevertheless, there are additional 42 buy-out centers within the wineries that have to be also considered, and additional 51 that functions as buy-out centres not only for wine grapes, but also trade with table grapes, fresh fruits and vegetables (MAFWE, 2020).

Regarding the wholesalers, noteworthy is that there are very few specialized wholesalers of wine that sale wine on retail market or in the HoReCa sector.

5.9.4. Wine production locations in North Macedonia

The total territory of the country is divided into 3 wine regions and 16 wine districts (Table 5-25). The major wine production is located in the Central Wine Region, also known as "Vardar River Valley" or "Povardarie", passing through many different terroirs. This wine region covers 87% of the total vineyard area in the country, capturing around 45% of the total territory of the country. This region is also consisted of seven wine districts, where most of the wineries (86 out of 99 wineries) are located. The "Tikveš" wine district is located in this region, and it is the most represented district capturing around 44% of the total vineyard area in the country. Beside the Central Region, the Eastern region or "Pcinja-Osogovo" region covers around 6% and the Western (Pelagonija-Polog) Region around 7% of the total area under vineyards in the country (MAFWE, 2020).

Table 5-25. Area under vineyards per region /ha (2020)

Wine Regions / Wine District	Area under vineyards (ha)
Vardar River Valley Wine Region (Central Region)	
Skopje	1 569
Veles	1 773

Wine Regions / Wine District	Area under vineyards (ha)
Tikves	12 337
Gevgelija-Valandovo	3 055
Strumica Radovis	2 722
Ovce Pole	2 456
Kocani-Vinica	752
Total Central Region (87%)	**24 664**
Pcinja-Osogovo Region (Eastern region)	
Kumanovo	1 439
Kratovo	147
Pijanec	147
Total Eastern Region (6%)	**1 733**
Pelagonija-Polog Wine Region (Western Region)	
Kicevo	10
Tetovo	152
Prilep	163
Bitola	894
Prespa	232
Ohrid	366
Total Western Region (7%)	**1 817**

Source: MAFWE, 2020

5.9.5. Wine trade developments

Considering the domestic market, different wineries have different distribution strategies. Most of the wineries use outsourcing distributors, and the wine is delivered in the central warehouse of the supermarket chain and then distributed through the country. Similar approach is used for the HoReCa distribution. According to the State Statistical Office, the retail trade of alcoholic beverages covers 4% of the total retail trade by product groups; the retail trade of wine participates with 24% in the total retail value by product groups. Additionally, there are very few wholesalers that are focused only on wholesale of wine and spirits.

Considering the low domestic consumption, the majority of the total production of commercial wine is exported, thus making this industry to be export oriented. Wine is also produced on-farm and house wine is widely consumed, which explains the low figures reported officially. Figure 5-37 and Figure 5-38 show the structure of wine export in both volume and value, by total exported wine, bottled, bag-in-box and bulk wine packaging.

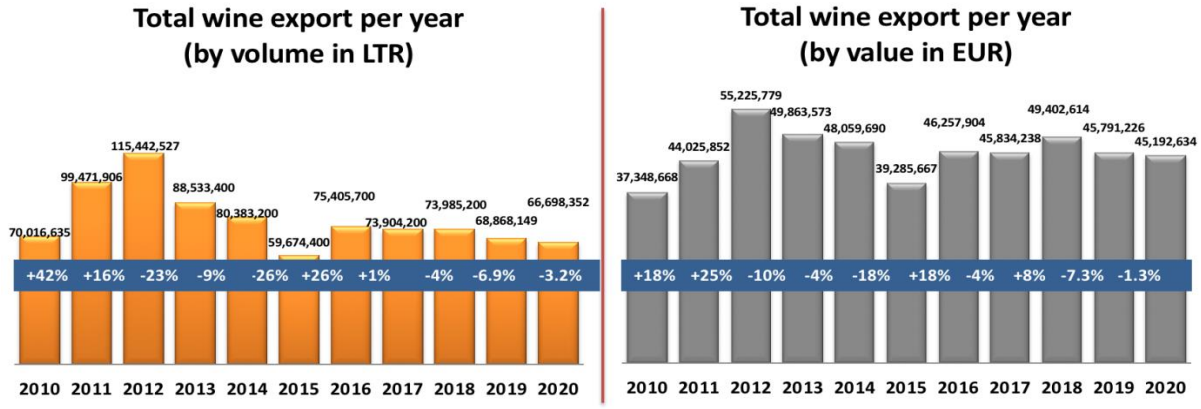

Figure 5-37. Structure of wine export – volume in litres and value in Euros, 2010 – 2020 (Custom Office, 2021; Adopted from Mladenovska Jelenkovikj and Milosevska Jovanovska, 2021)

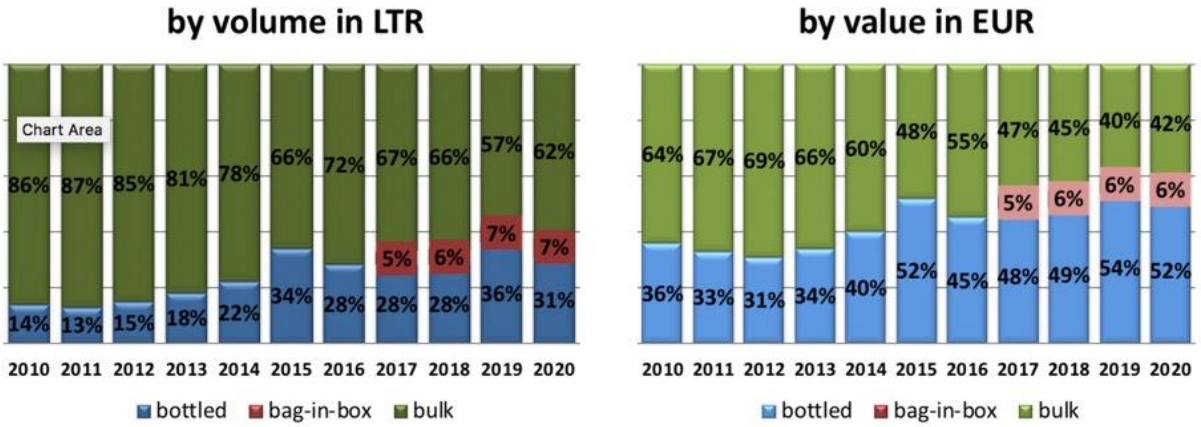

Figure 5-38. Share of wine export, bottled, bag-in-box, bulk wine – volume in litres and value in Euros, 2010 – 2020 (Custom Office, 2021, Adopted from Mladenovska Jelenkovikj and Milosevska Jovanovska, 2021)

The countries in the region remain the largest importers of bottled wine from Republic of North Macedonia, led by Serbia, Croatia, Bosnia and Herzegovina and Slovenia, while Germany remains our largest partner for bulk wine, followed by Serbia and Croatia. So, the Western Balkan countries are the most important destination for almost all wineries due to the historical connection and brand recognition of Macedonian wines. However, EU is the key wine export destination, accounting for 66% of the total export volume and 61% of the total value in 2020, followed by CEFTA countries. Within EU 28, Macedonia exports to 22 EU countries: Austria, Belgium, Bulgaria, Czech Republic, Croatia, Cyprus, Denmark, France, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Malta, Netherlands, Poland, Romania, Slovak Republic, Slovenia, Sweden, UK (Mladenovska Jelenkovikj and Milosevska Jovanovska, 2021).

5.9.6. Wine price developments

Table 5-26. Wine output price indices, 2010-2020 (2015=100)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Wine (Nominal Index)	84.3	100.9	115.9	100.4	100.4	100.0	100.2	104.6	105.1	107.4	110.0
Wine (Real Index)	94.3	111.0	122.7	102.9	100.1	100.0	100.4	103.4	102.3	103.7	105.0

Source: SSO, 2021

Table 5-27. Purchase (farm gate) price for total producers, 2010-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Wine (EUR/ltr)	0.80	0.78	0.83	0.83	1.10	1.33	1.34	1.13	1.25	1.68	1.50

Source: SSO, 2021

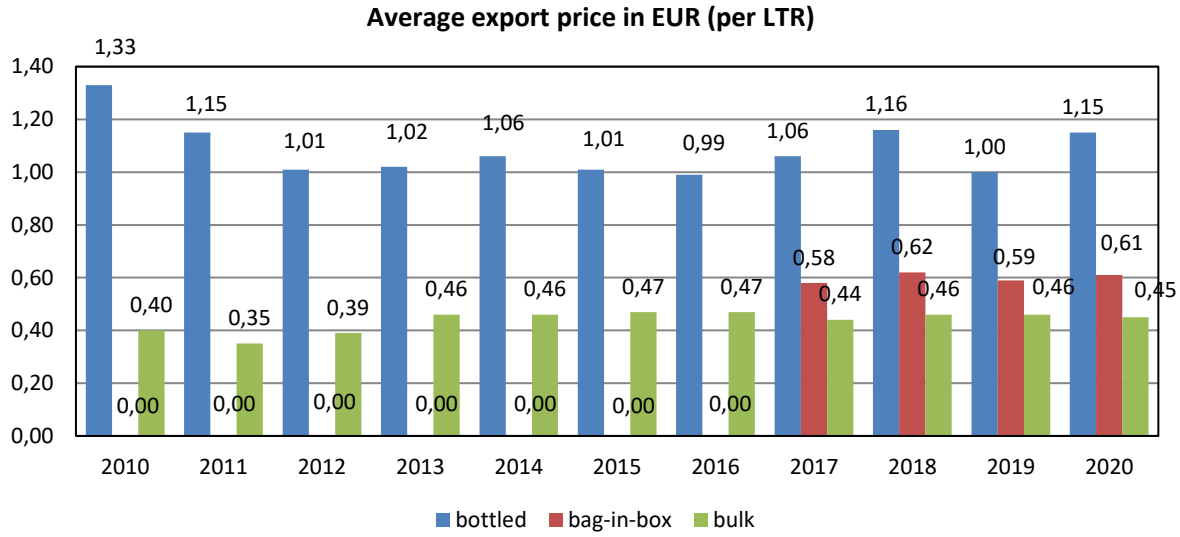

Figure 5-39. Average export price in Eur/ltr for bottled, bag-in-box, bulk wine (MAFWE, 2021, Adopted from Mladenovska Jelenkovikj and Milosevska Jovanovska, 2021)

5.9.7. Strengths and weaknesses of wine in North Macedonia

Strengths

The wine industry is one of the most important strategic sectors in the country and the production of wine together with viticulture contributes with 17% -20% of the gross agricultural product. In addition, wine ranks first in terms of exports of alcoholic beverages, and third after tobacco and processed vegetables in terms of export value of agricultural products.

Wine trade has positive development trend. There is established protocol for wine trade with the European Union that contributes to wine export development in the last years. The number of bottled wine exports versus bulk wine exports is increasing over the years. The country is a member of CEFTA, which amongst all, facilitates wine exports between member states.

Due to the favourable climatic conditions for grape production and considering that there is no heavy industry in the country, there is potential for organic production of wine grape varieties.

Weaknesses

Due to lack of systematic approach in the industry and no GI system defined in the country, the wine growers are focused on quantity over quality, mainly stimulated by the direct support programme. Relatively low technological development within smaller wineries and outdated equipment are some of the weaknesses that hinder the wine production.

5.10. Rural-urban disparities

In the final part of the country factsheet for North Macedonia, we are describing the differences between rural and urban areas within the country. The agricultural sector is concentrated in rural areas. The development of rural areas is therefore crucial for the advance of agriculture. The focus of the research is on socio-economic disparities between rural and urban areas. In addition, the quality of infrastructure and quality and use of ICT are discussed.

5.10.1. Population

Figure 5-40 shows a limited increase in urban population and a limited decrease in rural population in North Macedonia between 2010-2021. Roughly around 2000 persons per year migrate from rural to urban areas, which is 0,1% of the total population.

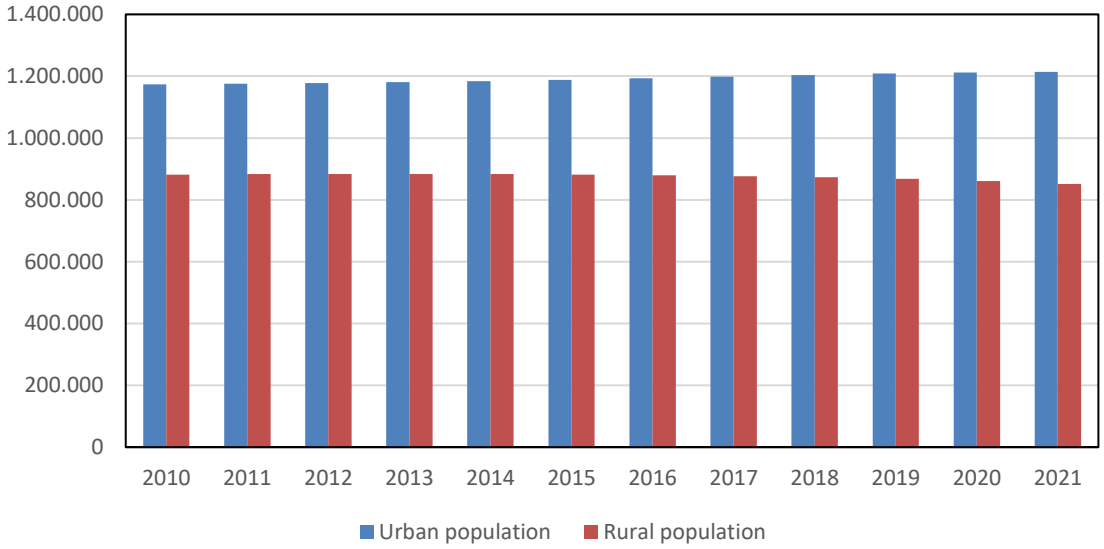

Figure 5-40. Rural and urban population in North Macedonia in 2010-2020, persons. Source: World Bank.

5.10.2. Education

According to Table 5-28, the gap in completion rates between 2011-2020 seems to be narrowed. In 2011 the completion rate in upper secondary education in rural areas was only 60% and in 2019 it went up to 84%. The adult literacy rate for rural areas not available. In rural areas 13% completed a Bachelor's degree compared to the 22% in the urban areas.

Table 5-28. Rural-urban education statistics, North Macedonia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Adult literacy rate, population 15+ years, rural, both sexes (%)											
Adult literacy rate, population 15+ years, urban, both sexes (%)											
Completion rate, upper secondary education, rural, both sexes (%)		60							84	84	
Completion rate, upper secondary education, urban, both sexes (%)		87							82	82	
Educational attainment rate, completed upper secondary education or higher, population 25+ years, rural, both sexes (%)									48	48	48
Educational attainment rate, completed upper secondary education or higher, population 25+ years, urban, both sexes (%)								51	56	51	51
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, rural, both sexes (%)									11	13	13
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, urban, both sexes (%)								21	23	20	22

Source: UNESCO, World Bank.

In 2020, 44% of rural population had high school education and 37% primary education and 12% higher education, see Figure 5-41. According to statistics, the completion rate for upper secondary education in rural areas has drastically increased and was even higher in 2018 and 2019 compared to urban education. The possible explanation provided by the NE of North Macedonia for this is that the internal migration dominates, from rural to urban areas, nowadays many of the rural youth have started with enrolling faculties but still in the official evidence live in the rural areas. This is also one of the reasons why rural youth is reluctant to continue with the family agricultural business leaving a lot of land in the rural areas abundant.

Considering the rural infrastructure, the rural population in general is in a disadvantaged position for access to and quality of education in comparison to urban citizens.

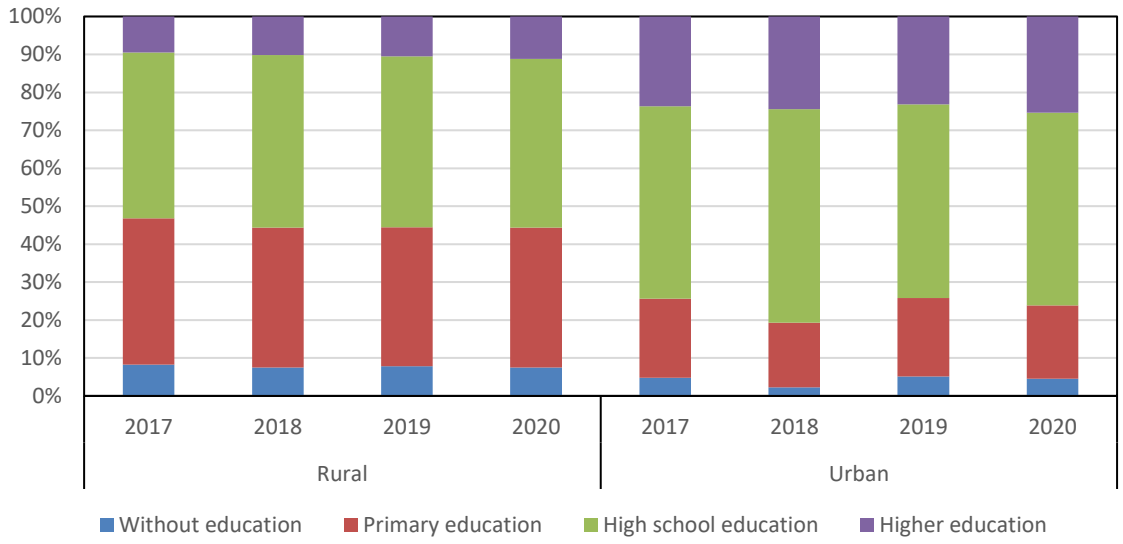

Figure 5-41. Division of rural and urban population in North Macedonia by education, % to total. Source: MAKSTAT, Eurostat.

5.10.3. Employment

The average employment rate for the period 2010-2020 is about 43% in urban areas and 41% in rural areas. According to Figure 5-42 there is a steady decrease in unemployment between 2010-2020.

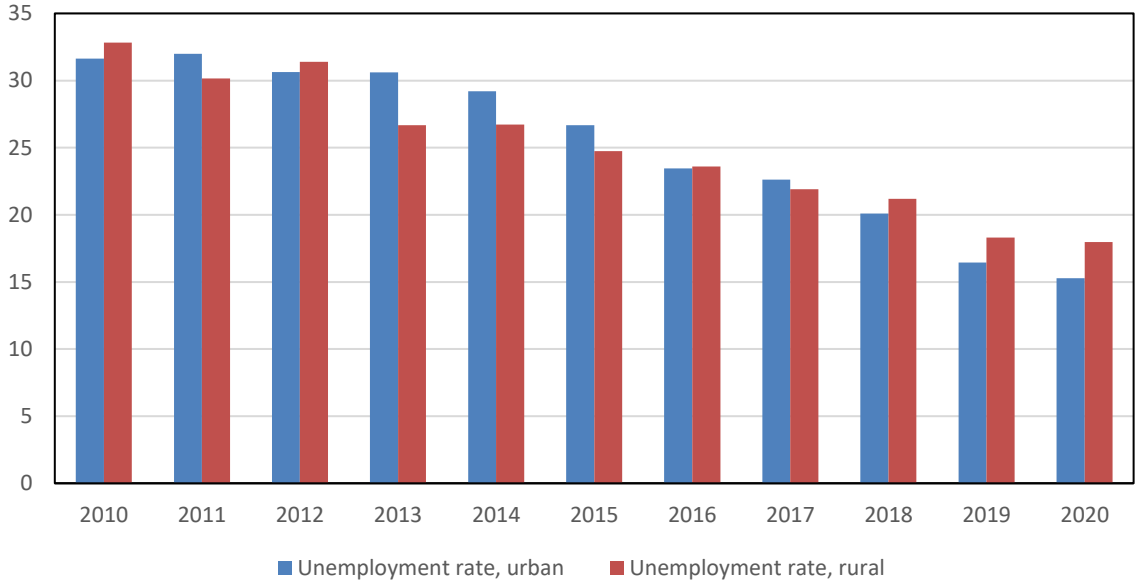

Figure 5-42. Unemployment rate for rural and urban population in North Macedonia in 2010-2020, in %. Source: MakStat Database, 2022.

5.10.4. Income

There is no data available on poverty rates between rural and urban areas. On country level the poverty rate declined from 27% to 21.8% between 2010-2020.

5.10.5. Health

In general, the health situation of North Macedonia is characterized by a high representation of non-communicable diseases in morbidity and mortality, which is typical for developed countries (Mitevska et al, 2016). According to the official statistics 46% of medical doctors work in health institutions in Skopje and 37% in the largest nine towns. Therefore, rural areas, especially remote villages, are dependent on getting primary and specialized healthcare in urban centres.

5.10.6. Gender

Women are the major group in terms of unpaid work and informal workers, engaged mostly as unpaid family workers or seasonal agricultural workers (LFS, 2012). Because of their unfavourable position in the labour force, young women in rural areas are no longer interested in spending their future in farming and are willing to stay in the rural areas only if they are able to get employment other than agriculture (Tuna and Petrovska-Mitrevska, 2017).

In regard to asset ownership, patriarchal structures and traditional social norms are still present and are reflected in the low employment rate of women but also in the minimal share of women in the property ownership structure. This is namely evident in the rural areas.

Inheritance of property in North Macedonia goes mainly to men, particularly in rural areas. Women rarely have property in their name and women that do are mostly widows. Domains that contribute most to the women's disempowerment are: ownership of assets, input in decision making, and control over use of income. A positive impact on the higher empowerment of the households and smaller gender parity gap is when women are responsible for farm accountancy within the household (Dimitrievski et al., 2019).

5.10.7. Migration

According to the national expert most people working in agriculture are in the category 25 to 65 years of age, the average Macedonian farmer being around 58, while very small number of employed are younger than 25 years, this indicates that young people migrate mostly to the urban areas, but also abroad. This situation might provide risk for the rural development and depopulation of the rural areas.

Table 5-29. Internal migration in North Macedonia in 2014-2020, persons

Internal Migration	2014	2015	2016	2017	2018	2019	2020
Total	4 094	4 117	4 565	4 987	4 508	4 806	3 825
Urban to Rural Areas	907	992	1029	1044	922	955	792
Rural to Urban Areas	1 337	1 399	1 597	1 764	1 667	1 744	1 438
Inter-urban areas	350	400	372	403	399	392	334
Inter-rural areas	1 500	1 326	1 567	1 776	1 520	1 715	1 261

Source: SSO (2022). MakStat Database. Skopje: State Statistical Office of the Republic of North Macedonia.

5.10.8. Infrastructure and ICT

As of 2017 the existing transport infrastructure covers 14.410 km public roads, 699 km railway lines and 2 international airports. EC progress report regards the country's ability to assume the obligations of membership, states that the country is moderately

prepared in most areas, including in the areas of competition, transport and energy (GRM 2018[8]).

Regarding the Road quality indicator as one of the components of the Global Competitiveness Index published annually by the World Economic Forum (WEF)[9], the latest value for North Macedonia from 2019 is 3.4 points. The world average in 2019 based on 141 countries is 4.07 points. There is access to water for irrigation in most of the rural areas, however there are some areas with water scarcity. But in general there is water deficiency and therefore many farmers are oriented towards cultivating crops that do not require water. In regard to water quality, there are several problems with the water salinity, physical impurities in water, occurrence of iron in water, low water quality in some areas, etc.

The internet and mobile coverage is more stable in urban than rural areas. The use of internet has become also a practice among the rural population, but both mobile and internet networks are not always stable. Still, there is a part of the rural population that does not use the internet infrastructure at all. And most rural population mostly use the mobile phones just for communication.

5.11. Conclusions

The agri-food processing industry has always played an important role in North Macedonia. Over the last 10 years of privatisation, the industry suffered from political changes and difficulties in adapting to a market economy. The situation has improved in recent years, with a more market-oriented approach taking hold (EC, 2022).From analysis of macro-economic and agricultural sector indicators of North Macedonia it can be concluded that agricultural sector is the third large sector in the economy of the country with share of the GDP of 9%.

As in many Western Balkan countries, almost half of the population of North Macedonia (about 2.1 million inhabitants) live in rural areas. Until 2019 the total population numbers were steadily increasing, while between 2019 and 2021 the data show a decline. The net-immigration in North Macedonia can be attributed to the increase of the population with an increasingly higher number of people moving into the country and, until 2018, a decreasing number of people moving out of North Macedonia.

The employment and earnings have gradually improved in North Macedonia in the recent years with the mean nominal monthly earnings of employees increased from 491 euros in 2010 to 656 euros in 2020. Education level index of adult population with score of 0.7 remained unchanged between 2010-2021.

In terms of overall logistics performance, similar to other studied Western Balkan countries, North Macedonia scores relatively low (2.7). Similarly, the lowest rank in this composite measure, is for the efficiency of customs clearance process (2.45). The overall connection to internet in North Macedonia has been improving in the recent years and has reached to 81% in 2021.

In the recent years, the development of the GDP and added value in North Macedonia showed a positive trend, however in 2020 there was a trend break with declining numbers. Concerning the trade, North Macedonia is a net-importer of product, where in recent years an overall increasing trend of both exports and imports was observed.

GRM (2018) National transport strategy 2018-2030. Government of the Republic of Macedonia, Ministry of transport and communications.

[9] World Bank, GovData 360, GCI 4.0: Quality of roads

ttps://govdata360.worldbank.org/indicators/hb16043d6?country=BRA&indicator=41362&viz=line_chart&years=2017,2019

Analysis of the agricultural sector data revealed that about 50% of the total country territory is attributed to agriculture. The structure of the agricultural sector is characterized by small-sized family farms, owned or leased, and highly fragmented into small parcels. Officially, almost one-fifth of the workforce is employed in agriculture. Agriculture has always served as a shock absorber for the socio-economic and structural changes in industry and other sectors of the economy. Both the share in value added and the share in employment has been gradually decreasing in recent years. Most of the gross agricultural output (around 70%) is generated by crop production, with wheat and vegetables being the main contributors. Potatoes, tomatoes and peppers dominate vegetable production and make North Macedonia a net exporter of processed vegetables. Other important agricultural products are fruit, cereals, tobacco and grapes for wine production as well as direct consumption. Livestock output has less importance, with dairy farming and cow milk production dominating this sub sector.

Wine was identified by national experts as a product that can offer a competitive advantage to North Macedonia. This is due to, among others, the contribution of wine sector to the economy with an annual export of about 50 million Euros. Besides viticulture together with wine production contributes about 17%-20% to the agricultural GDP and ensures the livelihood of around 21,400 family agricultural households (individual grape growers), 52 companies (grape growing companies and wineries with own grape area), 12,000 seasonal workers and more than 2,500 full-time employees in 99 registered wineries.

Analysis of urban-rural disparities revealed the following trends:

- In terms of urban vs rural population there is a limited increase in urban population and a limited decrease in rural population in studied years.
- The gap between urban and rural population in completion rates between 2011-2019 seems to be narrowed, where the completion rate in upper secondary education in rural areas was only 60% in 2011 and it went up to 84%.
- The average employment rate for the period 2010-2020 is about 43% in urban areas and 41% in rural areas and is a steady decrease in unemployment between 2010-2020 is seen.
- In relation to gender issues, women are the major group in terms of unpaid work and informal workers, engaged mostly as unpaid family workers or seasonal agricultural workers and because of these young women in rural areas are no longer interested in spending their future in farming, and are willing to stay in the rural areas only if they are able to get employment other than agriculture. Besides, patriarchal structures and traditional social norms are still present and are reflected in the low employment rate of women but also in the minimal share of women in the property ownership structure, which is namely evident in the rural areas.
- Analysis of migration data revealed that young people migrate mostly to the urban areas, but also abroad. This situation might provide risk for the rural development and depopulation of the rural areas.
- The analysis of infrastructure and ICT revealed that according to EC report when it comes to infrastructure the country is moderately prepared in most areas, including in the areas of competition, transport and energy (National Transport Strategy, 2018. Although the internet and mobile coverage is more stable in urban than rural areas, the use of internet has become also a practice among the rural population, however there is a part of the rural population that does not use the internet infrastructure at all.

5.12. Data gaps

For North Macedonia, the data for macro-economic developments are readily available between 2010-2020 for most of the considered indicators (migration, internet use, social protection expenditure, trade balance). The data on income distribution (the Gini index) is the least updated and is available up until 2019 only. For population and employment,

exchange and interest rates, consumer price index and several indicators from national accounts (total GDP, GDP per capita, Gross Value Added) data are updated with year 2021. Other national account statistics (taxes, salaries, share of food in total households expenditures) are not available for the year 2021 but otherwise are complete. With the exception for the education level of adult population in North Macedonia that is fully available for 2010-2021, other education statistics like proportion of enrolled in vocational education, completion rates for secondary education, adult literacy rate are poorly available (for 1 or 3 years).

For agricultural sector, the key agricultural statistics (gross value added for agriculture, employment in agriculture, agricultural trade, agricultural land, value of production) for year 2021 are not yet available but otherwise are complete for the years 2010-2020. The only exception is somewhat poor availability of data on number of farm holdings which are only available for the years 2010, 2013 and 2016. According to NE the farm structure survey has been conducted only these three years, it was planned also for 2019, however is still not conducted. For all studied agricultural sectors, data availability for the case of North Macedonia is rather good. For the sectors of dairy, meat, eggs, fruits and vegetables, arable crops the data on production value, outputs, areas and livestock numbers, as well as international trade of products from these sectors are available for the years 2010-2020. Data on costs and revenues are not available from statistics and have been separately collected using expert estimates, interviews, national statistics and literature studies for two product categories only; dairy and fruits and vegetables. The estimated data are provided for one year only (2021). Otherwise, data on the on the costs of production in North Macedonia of meat, eggs, arable crops are not available.

Data gaps analysis for rural urban disparities shows that in North Macedonia with the exception for population and employment in rural and urban areas, other characteristics of disparities has no complete data and thus are collected from literature sources. This results in few sporadic values and does no represent the entire dynamics over the years 2010-2021. Migration numbers are provided by the state statistical office and are reported for the years 2014-2020. Data on education (educational attainment rates, completion rates for secondary education and adult literacy) in rural-urban areas are reported but are greatly incomplete, showing mainly the values in 2017-2020.

6. SERBIA

6.1. Introduction

This chapter describes the key characteristics and developments of Serbia, with regards to socio-economics, the agricultural sector and rural-urban disparities. The data described in this chapter is used to make cross-country comparisons in the main study report as well as to assess the competitiveness of the agrifood sectors of the various IPARD countries.

6.2. Social and macro-economic developments

6.2.1. Population

Serbia has a population of about 6,8 million inhabitants (see Figure 6-1). Serbia is divided in 25 districts. According to FAO data (see Figure 6-2), about 55% of the population is living in urban areas. This share hardly changed in the recent years (see Figure 6-2). The overall population density is about 90 inhabitants per square km. The population has been steadily declining over the recent years, from 7.29 million in 2010 to 6.84 million in 2021 (see Figure 6-1). The rural population of Serbia remained relatively stable over the years (see Figure 6-2).

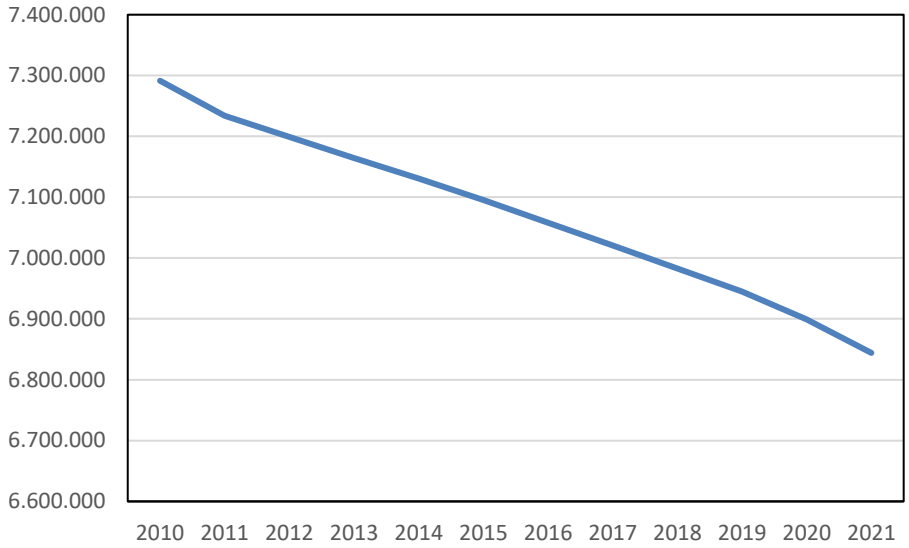

Figure 6-1. Total population of Serbia in 2010-2021, persons. Source: World Bank.

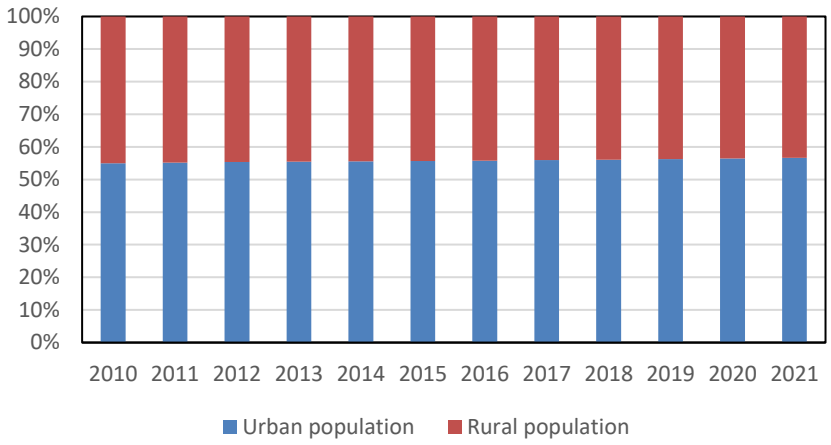

Figure 6-2. Share of urban and rural population in Serbia in 2010-2021, % to total. Source: World Bank.

6.2.2. Migration

Timeseries data about immigration and emigration was not available for Serbia. From World Bank data about net-migration, however, we find that in the five-year period 2013-2017 about 20 000 more people entered Serbia than left. In 2018-2022 this turned into a net-migration deficit of 50 000 people. The international migrant stock was estimated at about 9% of the population in 2015. At the same time, according to the UN DESA International Migration Report 2017 some 9.1% of people who were born in Serbia live abroad, which is four times the world average.[10]

6.2.3. Employment

The employment and earnings have gradually improved in Serbia in the recent years. Starting from 2010 up to 2021, the employment to population ratio increased gradually from 38% up to 49% (see Figure 6-3). During the 2010-2021 period, the unemployment ratio (percentage of labour force) has been declining in the years 2012-2020 (see Figure 6-4), the ratio went down from 24.0% to 9.0%, with slight increase to 10% in 2021. The mean nominal monthly earnings of employees increased from 250 euros in 2010 to 447 euros in 2020 (see Figure 6-5).

10

https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf

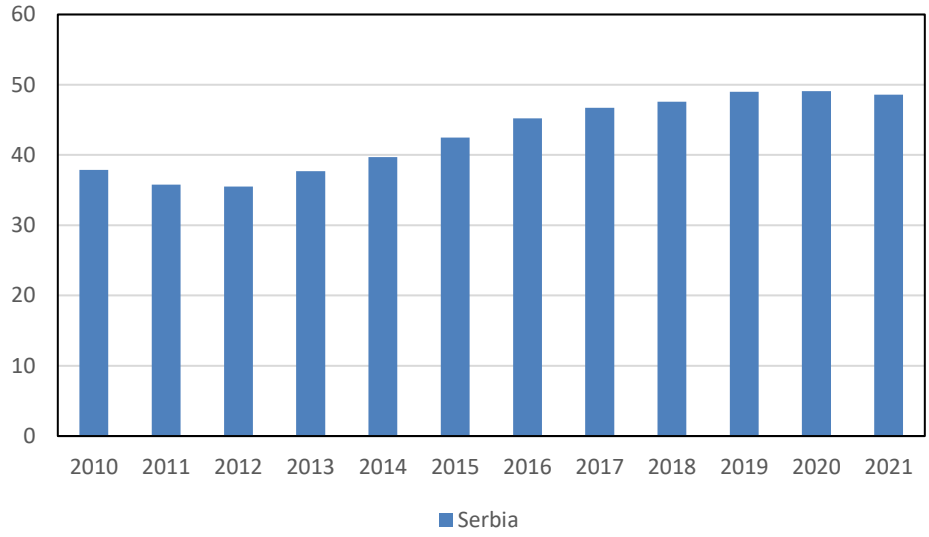

Figure 6-3. Employment to population ratio in 2010-2021 in Serbia, 15+, total, %. Source: World Bank.

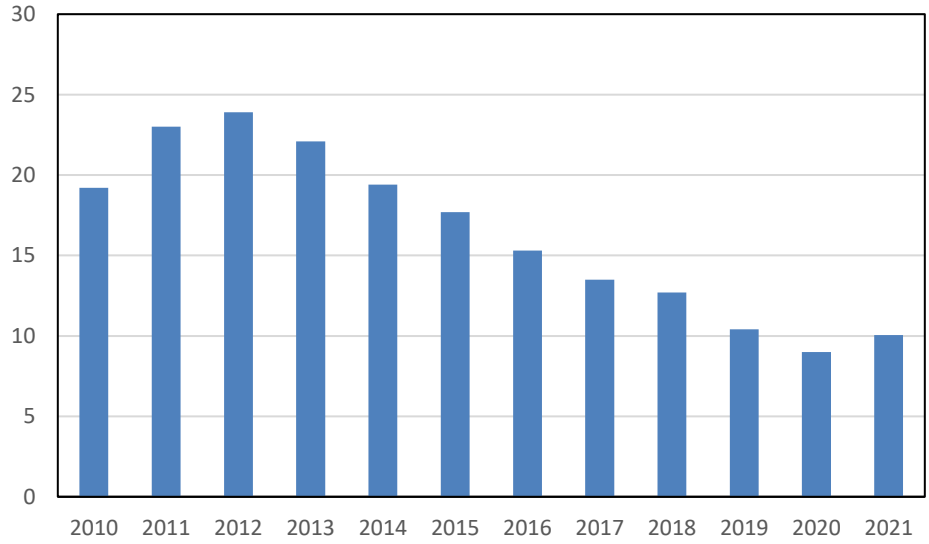

Figure 6-4. Unemployment in 2010-2021 in Serbia, % of total labour force. Source: World Bank.

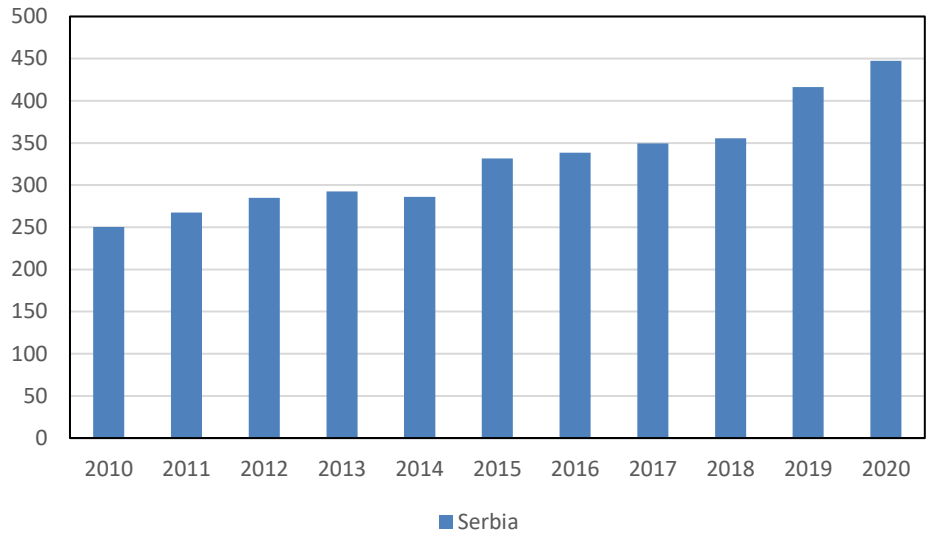

Figure 6-5. Mean nominal monthly earnings of employees in 2010-2020 in Serbia, in EUR. Source: ILO.

6.2.4. Health

In Serbia, life expectancy at birth was 75.9 years in 2019 (see Figure 6-6). In the period 2010-2019 life expectancy at birth increased gradually from 74.3 years in 2010 to 75.9 years indicating improving health and other human development conditions in Serbia, however it has dropped to the level of 2010 in 2020 as a result of COVID 19 pandemic. In 2019, Serbia spent around 8.7% of its GDP on health, i.e., a slightly higher share compared to the previous year (see Figure 6-7). Between 2010 and 2017, this percentage declined from 9.5% to 8.2%. No data on health expenditure is available for more recent years.

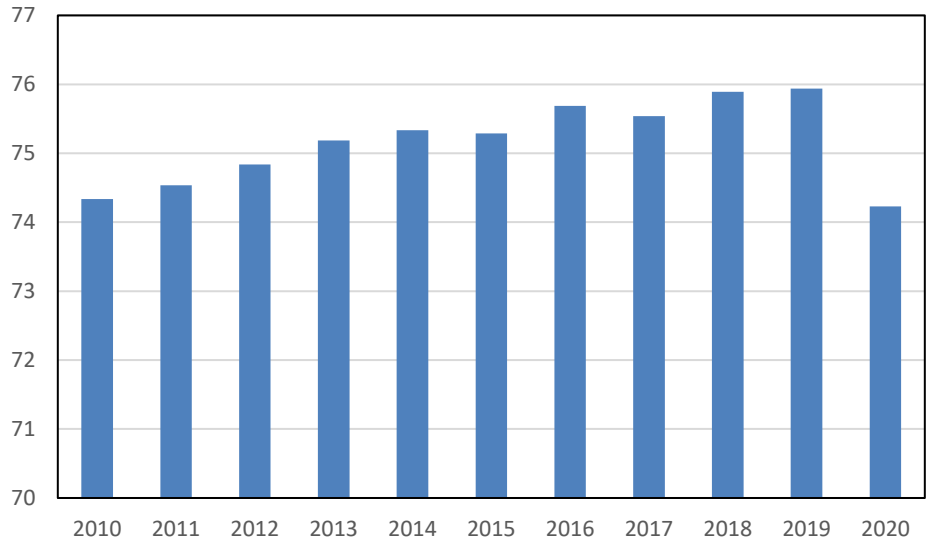

Figure 6-6. Life expectancy at birth in 2010-2020 for Serbia, total (years). Source: World Bank, United Nations.

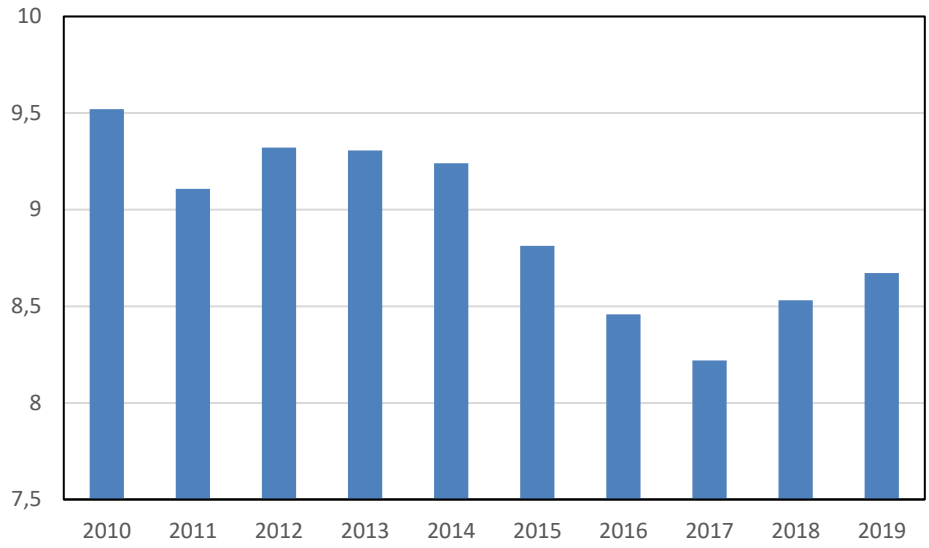

Figure 6-7. Current health expenditures in Serbia in 2010-2019, % of GDP. Source: World Bank.

6.2.5. Education

Education level of adult population is a composite measure based on, (a) the percentage of the population without any education, (b) the proportion of workers with secondary education, and (c) the proportion of workers with tertiary education. Education level of adult population is an index between 0 and 1, with a higher number indicating a higher performance on education level of adult population (Barro and Lee dataset). In Serbia this measure increased from 0.6 to 0.8 in the 2010-2021 period (see Table 6-1). The proportion of 15- to 24-year-olds enrolled in vocational education increased from 24.1% in 2010 to 24.5% in 2020. Adult literacy rate of population older than 15 years increased from 98.0% in 2011 to 99 % in 2019. The education attainment rate of completion of upper secondary education or higher for population older than 25 years increased from 64% in 2010 to 74% in 2019.

Table 6-1. Education statistics, Serbia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Education level of adult population	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8
Proportion of 15- to 24-year-olds enrolled in vocational education, both sexes (%)	24.0	25.0	25.0	25.0	25.0	25.0	24.0	24.0	24.0	25.0	25.0	
Completion rate, upper secondary education, both sexes (%)	69.0	69.0		90.0	76.0					83.0		
Educational attainment rate, completed upper secondary education or higher, population	64.0	67.0		67.0	69.0	71.0	71.0	72.0		74.0		

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
25+ years, both sexes (%)												
Educational attainment rate, completed short-cycle tertiary education or higher, population 25+ years, both sexes (%)	16.0	18.0		18.0	19.0	20.0	21.0	21.0		22.0		
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, both sexes (%)		16.6		11.0	13.0	14.0	15.0	15.0		16.0		
Adult literacy rate, population 15+ years, both sexes (%)		98.0					99.0			99.0		

Source: Legatum, UNESCO, World Bank.

6.2.6. Infrastructure and ICT

Logistics performance index is a composite measure based on a number of indicators related to the ability of a country in providing good trade logistics infrastructure. Logistics performance index lays between 0 and 5, with a higher number indicating a higher logistic performance. In Serbia, the overall logistic performance is rated with 2.84 (see Figure 6-9). The frequency with which shipments reach consignee within scheduled time is ranked highest, 3.3. The lowest rank, 2.6, is both for the quality of trade and transport-related infrastructure, and for efficiency of customs clearance process.

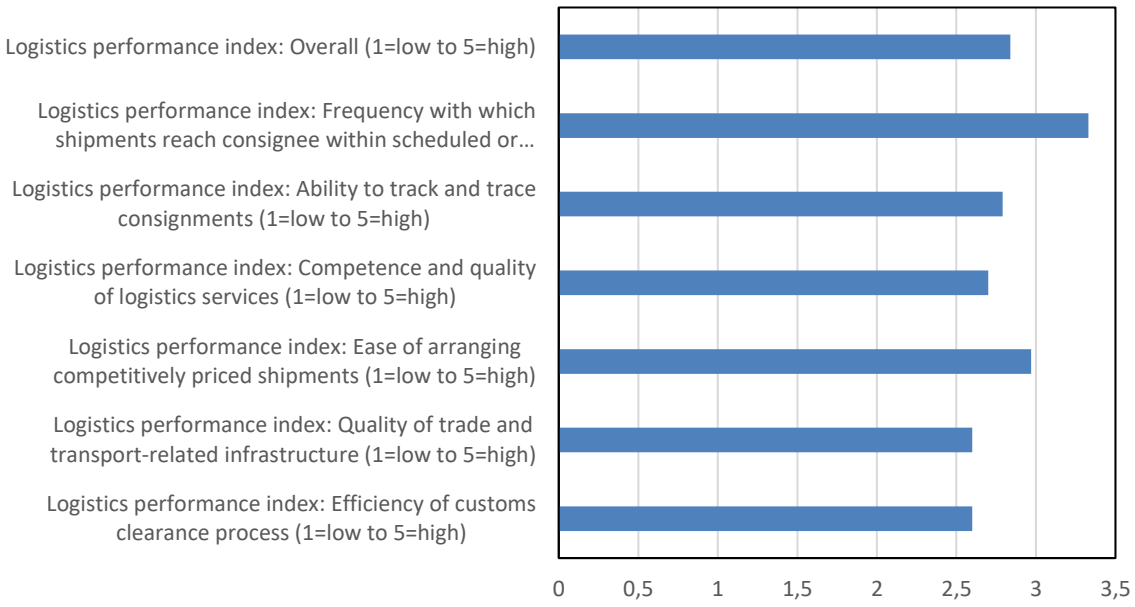

Figure 6-8. Logistics performance index, Serbia, 2018. Source: World Bank.

The overall connection to internet in Serbia has been improving in the recent years. The percentage of individuals using the internet has increased from 41% in 2010 to 78% in 2020. The number of mobile cellular subscriptions decreased from 136 to 120 per 100 people between 2010 and 2020.

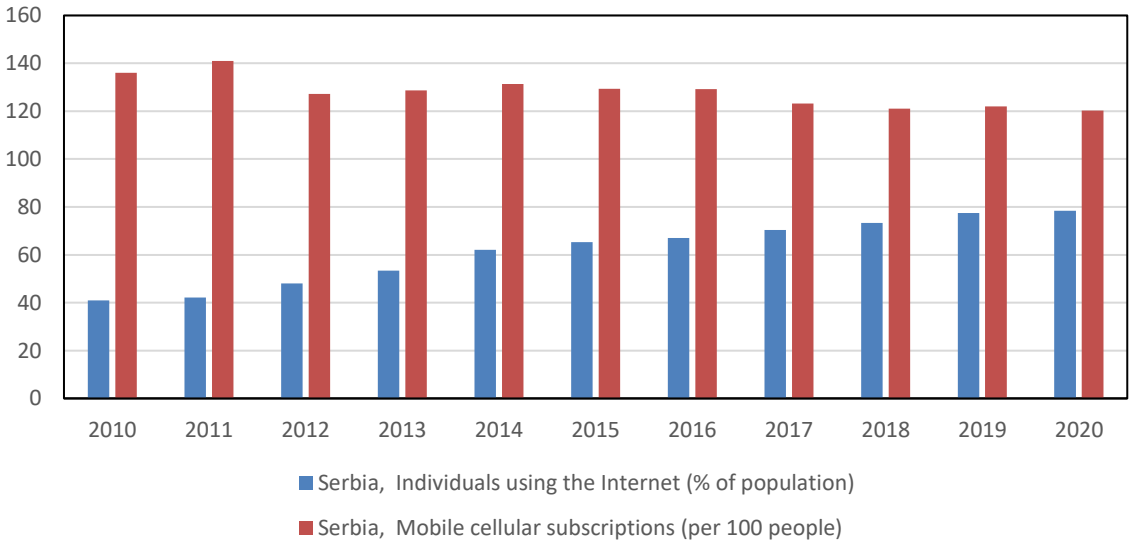

Figure 6-9. Individuals using the internet and mobile cellular subscriptions in Serbia. Source: World Bank.

6.2.7. Income distribution

There has been a trend toward less income distribution inequality in Serbia in the recent years. In 2012, Gini index was 40. Th index increased to 41 in 2015. In the years 2016-2019 the index declined to 34.5 (see Figure 6-10).

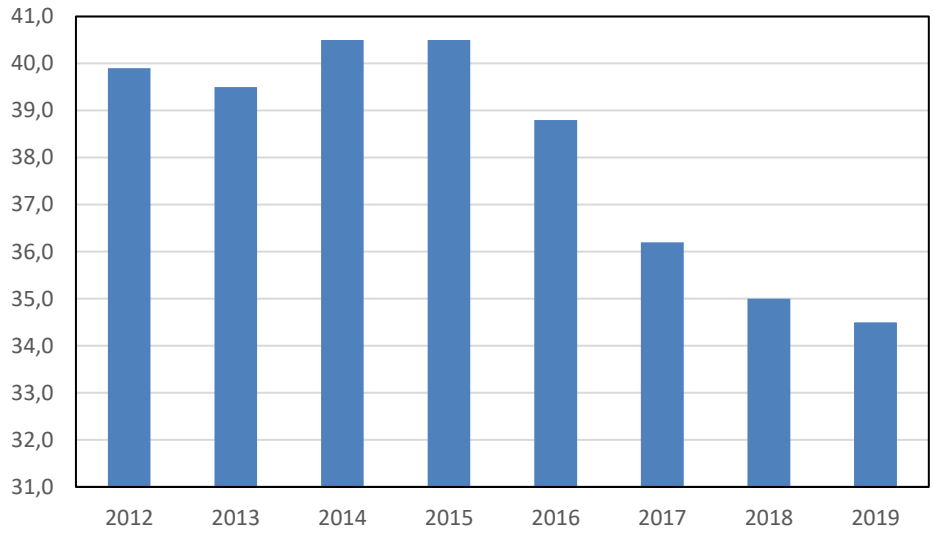

Figure 6-10. Gini Index, Serbia. Source: World Bank.

6.2.8. Social protection

Serbia has been spending a declining share of the GDP on social protection (see Figure 6-11). In 2010, the share of social protection expenditure in percentage of the GDP was 22.6%, in 2019 this share was 19.5%. On the other hand, in terms of euro per inhabitant, an increase of the expenditure on social protection is visible (see Figure 6-12). In 2010, the amount of money spent per inhabitant was 977 euros, in 2019, this amount increased up to 1291 euros. No data is available on the social protection expenditures for more recent years.

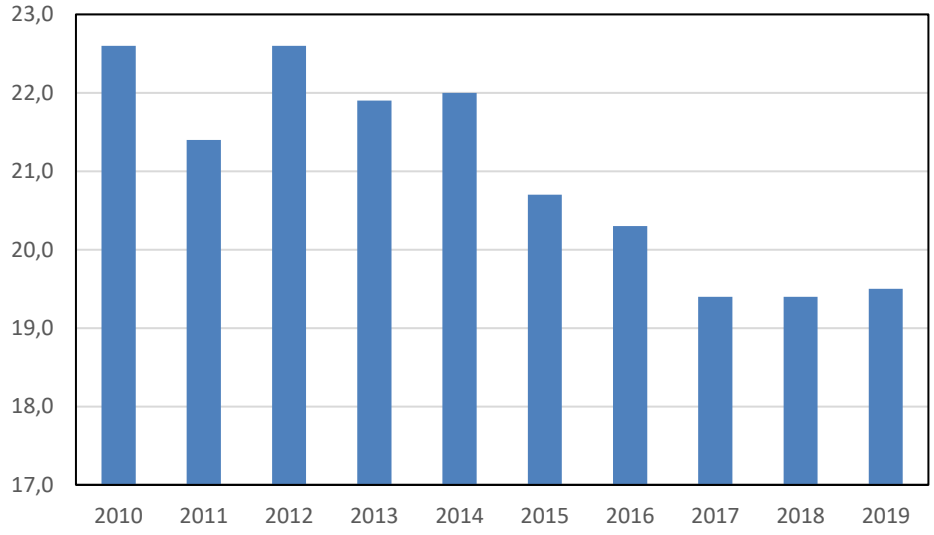

Figure 6-11. Social protection expenditure in Serbia, % of GDP. Source: Eurostat.

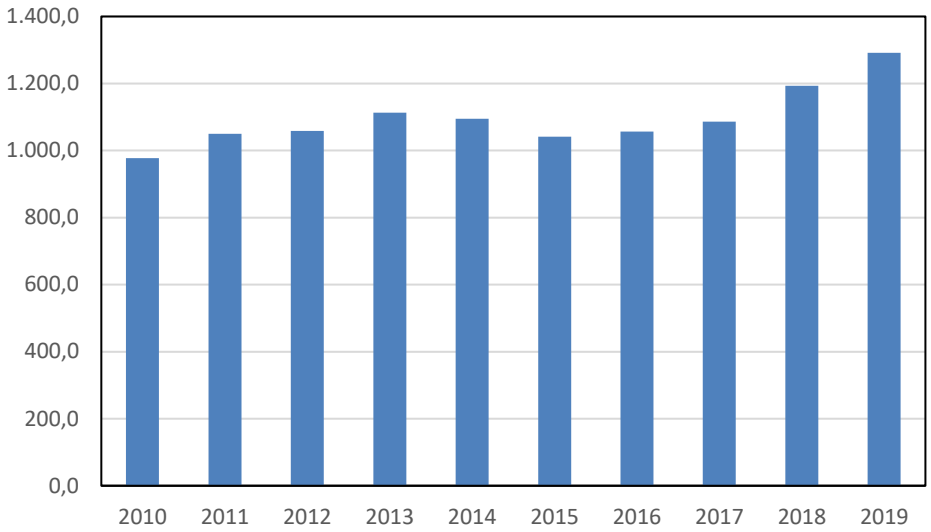

Figure 6-12. Social protection expenditure in Serbia, EUR per inhabitant. Source: Eurostat.

6.2.9. National accounts

In the recent years, the development of the GDP and added value in Serbia showed overall a positive trend. Between 2010 and 2021, the GDP in market prices increased from 31.5 billion euros to 53 billion euros. The real GDP growth varied between -1% and 4% between 2011 and 2021 (Table 6-2). The GDP per capita showed an increasing trend going up from 4 326 euros in 2010 to 6 759 euros in 2020 (Table 6-2) with slight decrease in 2021. The gross value added at basic prices increased from 26.3 billion euros to 44 billion euros in the 2010-2021 period.

The Gross fixed capital formation in Serbia was 21% in 2020. In the 2010 – 2021 period this percentage increased from 18% to 22%. In terms of Serbian government income in the 2011-2021 period, taxes on goods and services varied between 39% (2013), 40% (2020) and 46% (2011 and 2012), taxes on income, profits and capital gains varied between 8% (2012) and 15% of the revenue (2017-2021), and taxes on international trade were about 2% (2013-2020) (see Table 6-2).

The compensation of employees lies between 26% and 14% of expense and showed a slightly declining trend between 2011 (25%) and 2019 (17%). Gross fixed capital formation as a percentage of GDP increased from 18% (2010) to 21% (2020) (Table 6-2). The share of food in the total household's expenditures varied between 42%-34% during the 2010-2021period (see Table 6-2).

Table 6-2. National accounts statistics, Serbia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth 2015-last available year
GDP at market prices, current prices (million EUR)	31 545	35 387	33 709	36 439	35 425	35 742	36 763	39 107	42 879	46 015	46 695	53 326	49
Gross value added at basic prices (million current EUR)	26 367	29 856	28 451	30 835	29 755	29 801	30 493	32 469	35 526	38 064	38 801	44 432	49
Real GDP Growth (constant RSD)	1	2	-1	3	-2	2	3	2	5	4	-1	7	
GDP per capita (current EUR)	4 326	4 892	4 682	5 086	4 968	5 037	5 208	5 570	6 141	6 625	6 768	6 482	29
Share of food in total household's expenditures (%)	38	42	38	39	36	36	35	35	34	34	34	34	-4
Compensation of employees (% of expense)	25	26	25	16	15	14	15	15	16	17	16		8
Taxes on goods and services (% of revenue)	45	46	46	39	40	41	42	41	41	40	40		-3
Taxes on income, profits and capital gains (% of revenue)	9	9	8	14	14	14	14	15	15	15	14		5
Taxes on international trade (% of revenue)	4	3	3	2	2	2	2	2	2	2	2		16
Gross fixed capital formation (% of GDP)	18	18	20	16	16	17	17	18	20	22	21	22	32

Source: World Bank, SORS.

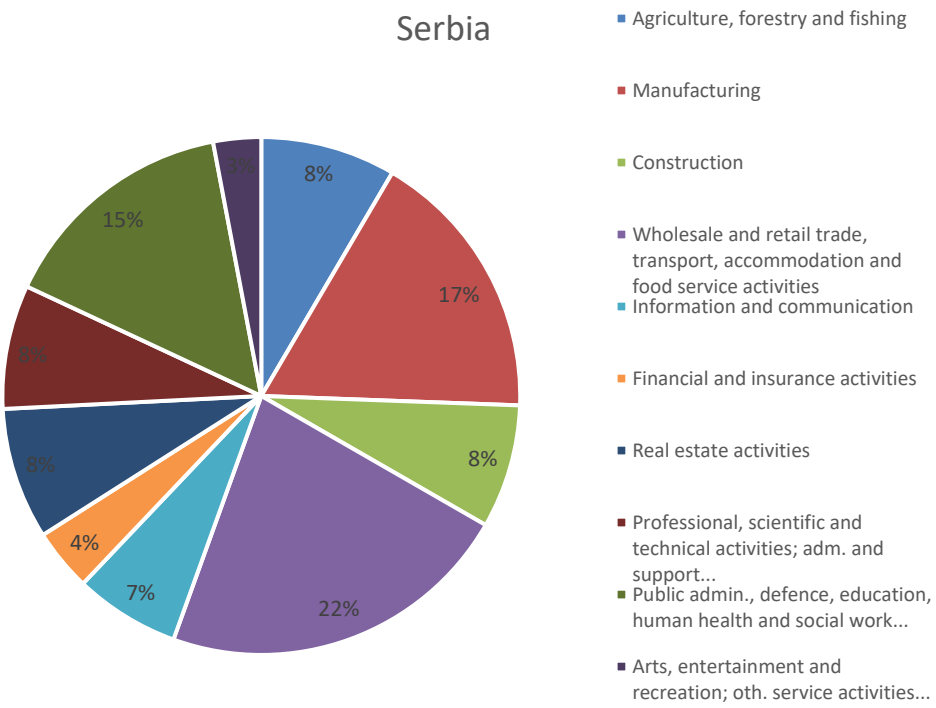

Figure 6-13. Breakdown of GDP by main activities in Serbia, 2021, % of gross value added. Source: Eurostat.

6.2.10. Government finances

Table 6-3 shows the government finances of Serbia between 2015-2021. General government final consumption expenditure has stayed stable between 16-17% of GDP. Central and general government expenditure on agriculture has also stayed stable between 2-4% of the total expenditure. General government debt was between 51-71% of the GDP in the years 2015-2020.

Table 6-3. Serbia: Total general debt, general government expenditure, in % of GDP; and government expenditure on Agriculture, forestry, fishing, in % of total expenditure

	2015	2016	2017	2018	2019	2020	2021
General government final consumption expenditure (% of GDP) (World Bank)	16	16	16	17	17	17	17
Central Government Expenditure Agriculture, forestry, fishing (% of total expenditure) (FAO)		3	3	3	4		
General Government Expenditure Agriculture, forestry, fishing, % of total expenditure (FAO)		2	2	2	2	2	
General Government Debt (Percent of GDP) (IMF)	71	69	59	54	53	58	

Source: FAO, World Bank, IMF.

6.2.11. Exchange rates

The Serbian Dinar (RSD) is the official currency of Serbia. The currency is pegged against the euros. In the 2010-2021 period, the exchange rate was between 102-123 RSD/EUR (see Figure 6-14).

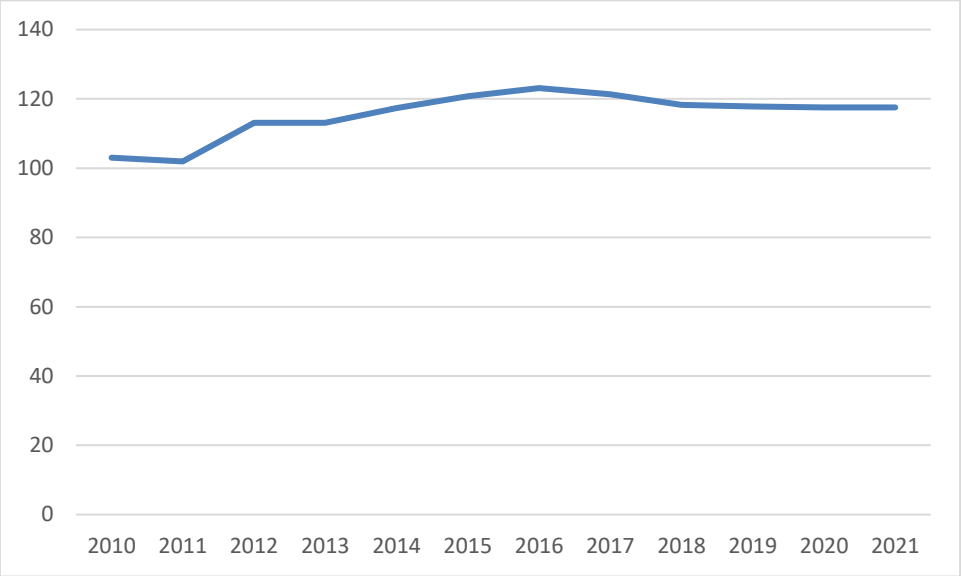

Figure 6-14. Exchange rate of Serbian Dinar to Euro in 2010-2021 (RSD/EUR). Source: Eurostat.

6.2.12. Interest rates

The deposit interest rate in Serbia shows a long-term decreasing trend. The lending interest rate decreased from 8.7% in 2010 to 2,5% in 2021. The deposit interest rates decreased significantly between 2010-2015 from 12% to 3.2%. In 2021 the deposit interest rate was 1.5%.

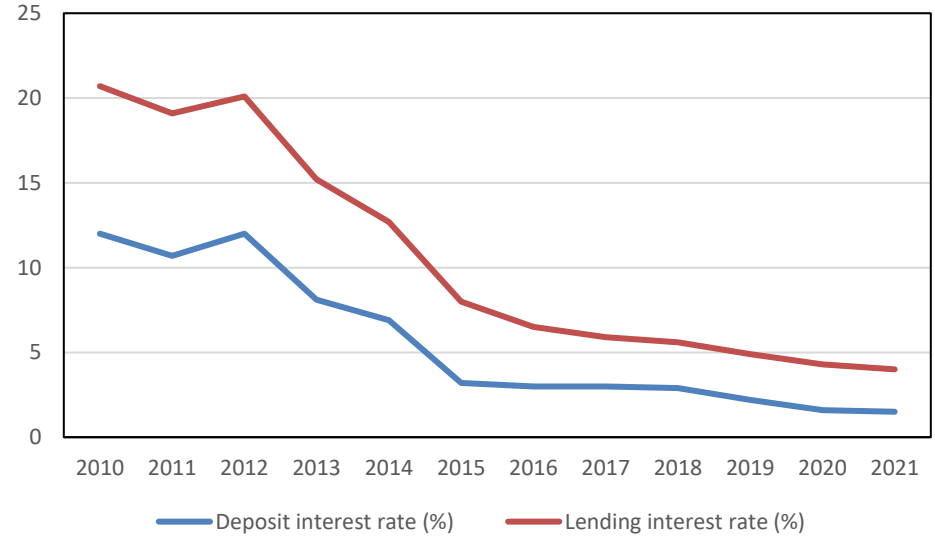

Figure 6-15. Interest rates in Serbia, 2010-2021. Source: IMF.

6.2.13. Prices

The prices of consumer goods in Serbia show an increasing trend in the long-term. The consumer price index went up from 100 in 2010 (2010 = 100) to 152 in 2021 (see Figure 6-16).

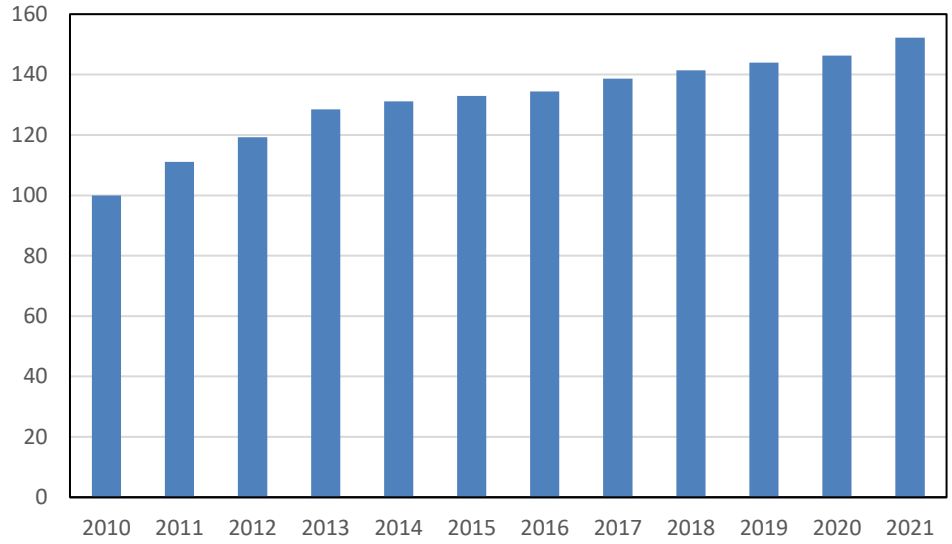

Figure 6-16. Consumer price index in Serbia in 2010-2021, 2010=100%. Source: World Bank.

6.2.14. Balance of payments and trade

Serbia is a net-importer of products. The exports were 17 070 million euros and the imports 22 967 million euros in 2020 (see Figure 6-17). The exports and the imports were somewhat fluctuating in the period between 2010 and 2020, but overall, they show an increasing trend. In 2010, the exports were 7 389 million euros and the imports 12 623 million euros.

Figure 6-17. Import, export and trade balance in 2010-2020 in Serbia, in million EUR. Source: FAO.

6.3. Agricultural sector

Serbian terrain ranges from the flat and rich lowlands of Vojvodina in the north (suited to crop farming and vegetable production), to hilly terrain in central Serbia and high mountains on the eastern, western and southern borders of the country (suitable for sheep and cattle breeding, and fruit and wine production, see EC, 2022).

Serbia's UAA is 3.5 million ha, which accounts for about 40% of the total territory. Arable land is the predominant land use (73%) followed by permanent grassland and crops. Characterized by rich land resources and a favourable climate, agriculture represents a vital sector of the Serbian economy, although it accounts for only 7-8% in the total value added.

6.3.1. Farm structure, labour

In 2018 in Serbia there were 564 541 agricultural holdings of which 99.7% are family holdings. The number of agricultural holdings is decreasing, but the average size increased from 5.4 ha (2012) to 6.2 ha (2018).[11] (see Table 6-4).

There is insufficient data on number and size of agricultural holdings available to further present the farm structure. Older data are available at https://seerural.org/news/open-access-agricultural-statistics-on-western-balkans-and-turkey/.

6.3.2. Production value

The total production value of agriculture in Serbia varied between 3 383 million euros (2010) and 4 019 million in 2020. Crops are the most important products with a share of 86% in total output of agricultural goods in 2020. In the 2010-2015 period, livestock represented a somewhat increasing share in the production value of agriculture, from 13% to 19%, but decreased again to 14% in 2020. (see Table 6-4).

[11] IPARD III Programme report – Serbia 2022

Table 6-4. Key agricultural statistics, Serbia

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross value added of the agriculture, forestry, hunting and fishery sector (A)	GVA (at current prices)	million EUR	2 243	2 562	2 166	2 701	2 499	2 394	2 497	2 357	2 715	2 737	2 966	3 479
	Share in GVA of all business activities	%	8	9	8	9	8	8	8	7	8	7	8	
	Agriculture, forestry and fishing, Value Added (% of GDP)	%	10	9	8	9	8	8	8	7	8	7	8	8
Employment in the agriculture, forestry, hunting and fishery sector (A)	Number	1 000 persons	533	478	467	492	508	500	506	481	451	453		
	Share in total employment	%	24	22	21	21	20	20	19	17	16	16	15	15
Trade in food and agricultural products	Export of agri-food products	million EUR	1 690	1 940	2 115	2 108	2 303	2 578	2 861	2 783	2 833	3 220	3 615	
	Share in export of all products	%	23	23	24	19	21	21	21	18	17	18	21	
	Import of agri-food products	million EUR	761	978	1 121	1 196	1 187	1 365	1 230	1 478	1 658	1 816	1 987	
	Share in import of all products	%	6	7	8	8	8	8	7	8	8	8	9	
	Trade balance in agri-food products	million EUR	929	962	994	913	1 117	1 213	1 632	1 305	1 175	1 404	1 628	
	Export/import rate	%	222	198	189	176	194	189	233	188	171	177	182	
Agricultural land	Total	1 000 ha	3 522	3 528	3 463	3 491	3 506	3 481	3 456	3 438	3 487	3 482	3 504	3 506
	- Arable land	1 000 ha	2 654	2 640	2 562	2 590	2 606	2 591	2 598	2 595	2 583	2 579	2 604	2 615
	of which fallow and uncultivated land	1 000 ha	23	22	22	19	20	18	17	15	9	9	9	
	- Land under permanent crops	1 000 ha	190	189	187	188	188	200	204	208	205	206	207	
	of which orchards	1 000 ha	164	164	163	168	175	176	180	184	183	184	185	
	vineyards	1 000 ha	24	22	22	22	22	22	22	22	20	20	20	
	olive trees	1 000 ha	0	0	0	0	0	0	0	0	0	0	0	
	other permanent crops	1 000 ha	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.7	9.8	0.7	

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	- Permanent grassland	1 000 ha	677	700	713	713	713	690	654	616	676	675	672	
	of which meadows	1 000 ha	377	374	382	382	382	369	343	322	352	346	340	
	pastures	1 000 ha	300	326	332	332	332	321	311	295	325	329	331	
	- Other agricultural land	1 000 ha	2.1	2.7	2.1	1 6	2.3	2.8	2.7	2.2	4.7	5.4	5.7	
Farm structure	Number of agricultural holdings	1 000 holdings	:	:	631	:	:	:	:	564		:		
	Utilised agricultural area (UAA)	1 000 ha	3 521:	3 528	3 462	3 495	3 518	3 480	3 456	3 438	3 476	3 482	3 504	
	UAA per holding	Ha/holding	:	:	5	:	:	:	:	:	6	:		
Change in volume of Gross Agricultural Output (GAO)	Total agricultural goods	%	1	-1	-20	23	3	-8	9	-12	14	-1		
	- Crops	%	1	-1	-30	40	6	-13	20	-24	26	2		
	- Livestock	%	0	1	-2	2	1	4	-2	2	1	1		
Value of production	Total agriculture	million EUR	3 383	3 844	3 349	3 609	3 399	3 275	3 472	3 057	3 582	3 617	4 019	
	- Crops	million EUR	2 947	3 313	2 773	2 998	2 795	2 665	2 925	2 501	2 992	3 034	3 439	
	- Livestock	million EUR	436	531	575	611	604	610	547	556	590	583	580	
Share of crop and livestock output in total Agricultural Goods Output	- Crops	%	87	86	83	83	82	81	84	82	84	84	86	
	- Livestock	%	13	14	17	17	18	19	16	18	16	16	14	

Sources: FAO, World Bank, Eurostat, Statistical office of the R. Serbia, Agricultural Census 2011, 2018

6.3.3. Prices and input costs

Figure 6-18 shows the producer price index of agriculture in Serbia whereby 2014-2016 are baseline. The producer prices in Serbia have been stable overall throughout 2013-2019 and show a slight increase since 2020.

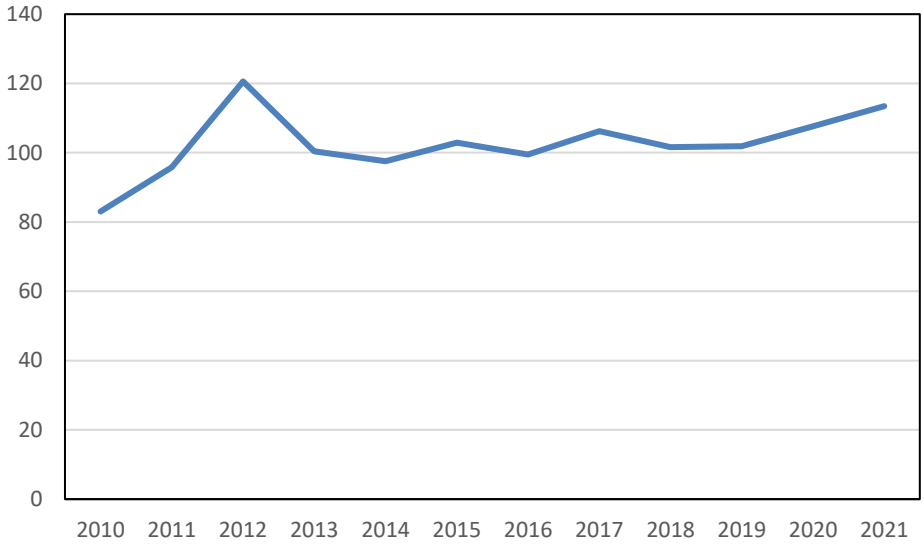

Figure 6-18. Producer price index of Agriculture, 2014-2016 = 100, in 2010-2021. Source: FAO

Prices of fuels, feedstuffs and fertilizers in euros are shown in Table 6-5. For most inputs with exception of Ammonium nitrate holds that prices increased between 2015 and 2021.

Table 6-5. Prices of fuel, and different feedstuffs and fertilizers

	2015	2016	2017	2018	2019	2020	2021	growth 2010-2021 (%)
Electricity prices for non-household consumers 20 MWh < Consumption < 500 MWh EUR per kWh	0.098	0.073	0.106	0.103	0.114	0.111	0.123	26
Prices Diesel oil (per 100 litres)	127.413	115.905	112.497	126.573	136.485	137.654	134.741	6
Prices Feedingstuffs barley (per 100 kg)	13.194	12.768	11.794	13.359	13.144	12.536	16.594	26
Prices Feedingstuffs fodder wheat (per 100 kg)	14.553	12.232	13.821	13.790	15.129	15.283	18.627	28
Prices Feedingstuffs maize (per 100 kg)	12.573	12.297	13.343	12.319	12.210	13.872	19.937	59
Prices Ammonium nitrate (26% N)(in sacks)(per 100 kg of nutritive substance)	38.101	30.052	29.669	27.902	28.001	31.469	31.895	-16
Prices Muriate of potash (per 100 kg of nutritive substance)	57.979	55.232	57.691	58.340	57.699	61.236	64.641	11
Prices Urea (per 100 kg of nutritive substance)	39.757	34.926	33.790	33.820	35.638	36.572	39.975	1

Source: Eurostat, calculations WR.

6.3.4. International trade

Table 6-6. Export and import of agricultural products by Serbia, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	growth 2010-2021 (%)
Export									
Total trade (million EUR)	7 388	12 058	13 417	15 012	16 279	17 538	17 073	21 611	193
Agricultural trade (million EUR)	1 696	2 599	2 882	2 807	2 857	3 247	3 639	4 215	149
Share of agricultural trade in total trade (%)	23	22	21	19	18	19	21	20	
Import									
Total trade (million EUR)	12 623	16 413	17 373	19 604	21 915	23 878	22 963	28 567	126
Agricultural trade (million EUR)	744	1 374	1 224	1 459	1 654	1 802	1 984	2 296	209
Share of agricultural trade in total trade (%)	6	8	7	7	8	8	9	8	

Source: UN Comtrade, calculations WR.

Table 6-6 reports the trade and the share of agricultural trade of Serbia in 2010-2021. Both, imports and exports, measured in euros, have substantially increased in the last 10 years. Total imports have almost doubled totalling to 28.6 billion euro and total exports increased by 193% to 21.6 billion euro. Agricultural trade has also increased and the shares remained more or less stable over time. The agricultural sector accounted for about 6-9% of total imports and about 18-23% of total exports. The share of imports has slightly increased over the last 10 years while the share of exports has slightly decreased.

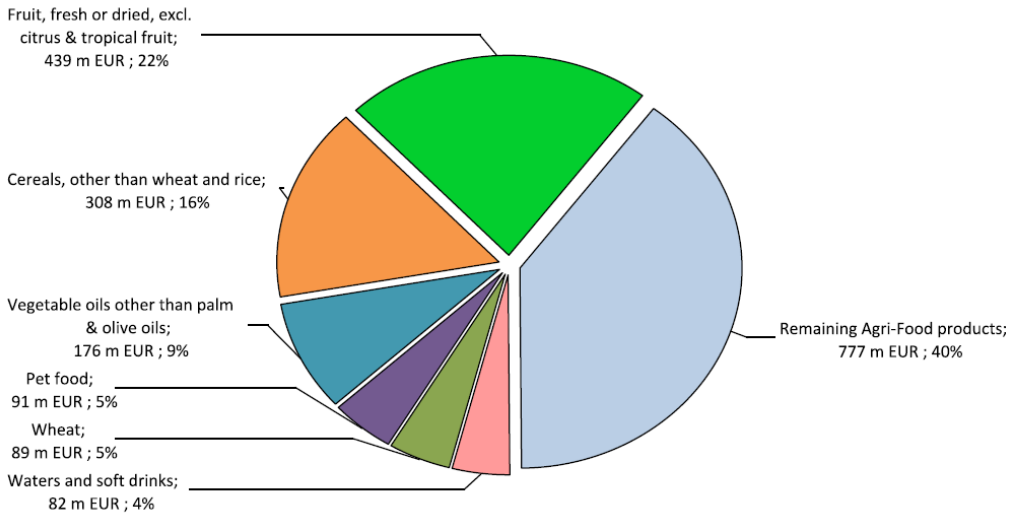

Figure 6-19. Exports from Serbia into EU, in 2021, in million euros and %.

Source: EC (2022d).

Figure 6-19 demonstrates that fruits is the major product category (22% in 2021) of Serbian exports to the EU, followed by cereals (16% in 2021) and vegetables oils (9%).

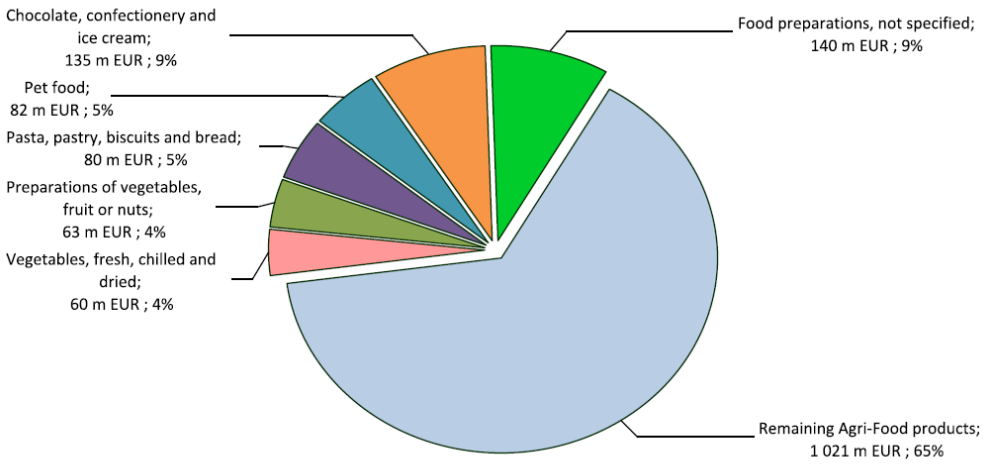

Figure 6-20. Imports to Serbia from EU, in 2021, million euros and %.

Source: EC (2022d).

Figure 6-20 shows that imports into Serbia from the EU mainly constitute prepared food and some 4% of fresh vegetables. The remaining agri-food products are 65% and are composed by categories of smaller shares.

6.4. Dairy sector

6.4.1. Production value and producer prices

In the period 2010 – 2021, the production value of milk in Serbia increased between 2010 and 2011 and remained relatively stable after. In 2010 the production value of fresh cow milk was 350 million euros. Between 2012 and 2021 the production value of fresh cow milk varied between 417 million euros and 438 million euros, see Figure 6-21. In 2021 the producer prices increased from 226 EUR/tonne to 275 EUR/tonne in the period 2010 – 2021. The cow milk production volume was stable between 1.5 and 1.6 million tonnes in the 2010-2020 period, see Table 6-8.

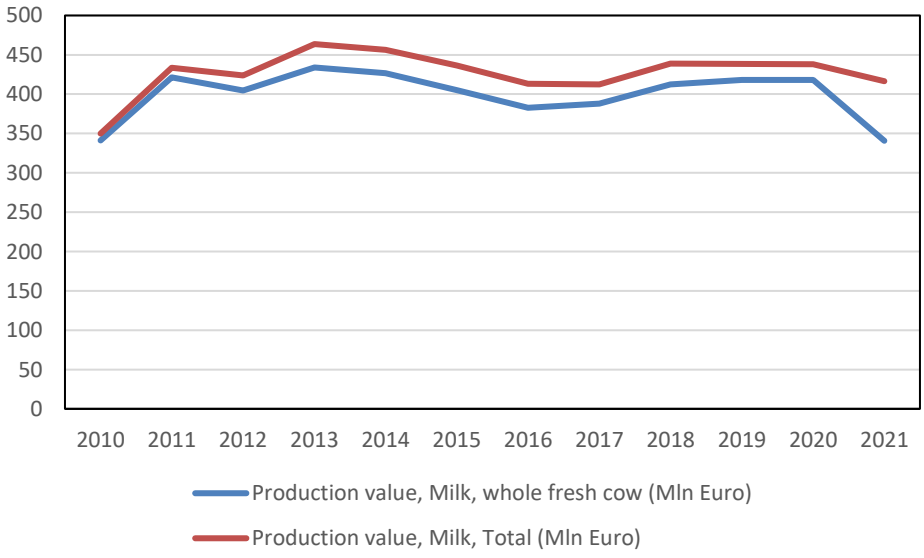

Figure 6-21. Gross Production Value of milk products in Serbia, current million EUR. Source: FAOSTAT.

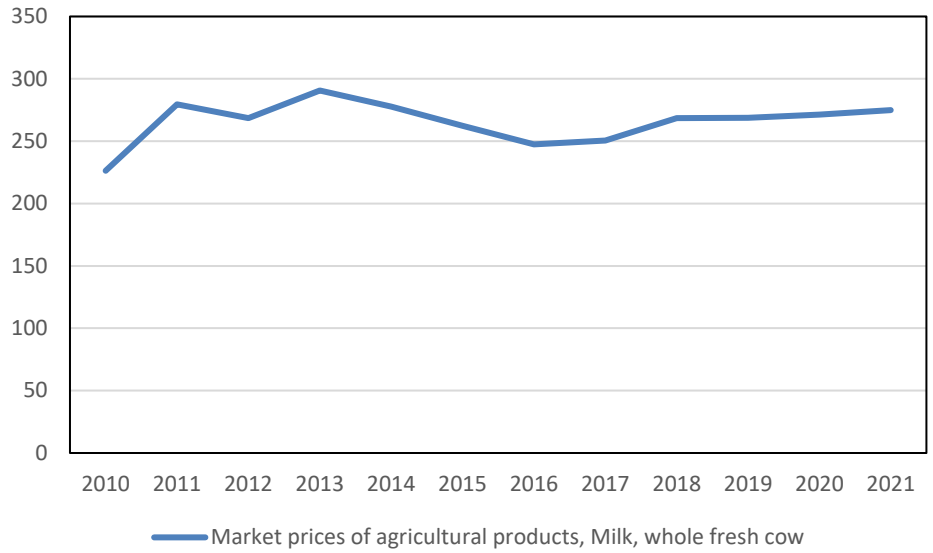

Figure 6-22. Milk producer prices in Serbia (EUR/tonne). Source: FAOSTAT.

6.4.2. Costs and revenues of milk

For milk, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Serbia, the National Expert used FADN data for estimation of costs and revenuers. The presented costs and revenues are per kg of milk for a group of dairy farms with an average income of 22.5 thousand euros per year.

The total production costs per kg of milk are 0.26 euros. These costs are estimated by attributing the total farm costs to milk by using the share of milk sales in the total sales including meat. The costs do not include the reimbursement for owners and family labour on family farms, if applicable. The net revenue per kg of milk is 19% of the average price per kg of milk.

In Serbia, there is governmental budgetary support of agriculture and rural development, which includes market and direct producer support. Although farms with dairy surely received subsidy for their production, the information about subsidies per kg of milk is not available. Therefore, the subsidies could not be included in the estimation of costs and revenues. The estimated cost and revenue items for milk are shown in the table below.

Table 6-7. Estimated costs and revenues of milk in Serbia, 2021

	For Milk, in EUR
Production costs of milk per kg	0.26
Average milk price per kg of milk	0.32
Net farm revenue per kg of milk	0.06 (19%)

6.4.3. Output, area, animals and yields

According to FAOSTAT (see Table 6-8), the dairy sector in Serbia has declined in terms of number of animals. The number of dairy cows declined from 523 106 heads to 421 748 heads in the last 10 years. The overall production remained rather stable at the level of 1.5 million tonnes due to an increase in dairy productivity.

Table 6-8. Production and yield for dairy, Serbia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Milk Animals	Milk, Total	Head	819 697	720 740	703 620	665 344	692 522	631 059	608 135
	Milk, whole fresh cow	Head	523 106	431 761	426 224	429 595	424 937	426 729	421 748
Production	Milk, Total	tonnes	1 531 657	1 610 820	1 603 736	1 599 261	1 590 005	1 597 041	1 583 741
	Milk, whole fresh cow	tonnes	1 506 700	1 546 216	1 548 697	1 550 704	1 537 375	1 553 839	1 539 445
Yield	Milk, Total	hg/An	18 686	22 350	22 793	24 037	22 960	25 307	26 043
	Milk, whole fresh cow	hg/An	28 803	35 812	36 335	36 097	36 179	36 413	36 502

Source: FAOSTAT.

6.4.4. International trade

In the period 2010-2021, the imports of dairy products in Serbia tripled (263% growth), see Table 6-9. Imports included mainly cheese and curd, and unconcentrated milk and cream. Exports increased as well by 83%. Cheese and curd are the most exported dairy products from Serbia.

Table 6-9. Export and import of dairy products, Serbia, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	50	72	70	73	84	97	91	102	0.5	104
Of which:										
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	20	10	7	7	12	24	15	16	0.1	-22
Milk and cream; concentrated or containing added sugar or other sweetening matter	0	1	2	0	2	2	1	0	0.0	n.a.
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	8	13	12	11	5	4	7	14	0.1	82
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	0	0	0	0	0	0	0	1	0.0	356
Butter and other fats and oils derived from milk; dairy spreads	4	5	5	6	6	6	6	7	0.0	104
Cheese and curd	11	31	32	38	45	48	45	47	0.2	321
Import										
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	32	42	42	57	78	102	101	116	0.4	263
Of which:										
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	7	10	10	14	18	21	23	22	0.1	207
Milk and cream; concentrated or containing added sugar or other sweetening matter	7	9	5	5	11	7	10	9	0.0	39
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	1	1	1	1	7	20	6	7	0.0	481
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	6	5	3	4	4	5	6	7	0.0	25
Butter and other fats and oils derived from milk; dairy spreads	3	3	7	11	11	14	11	13	0.0	337

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Cheese and curd	7	10	11	15	23	30	36	45	0.2	558

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

6.5. Eggs and honey

6.5.1. Production value and producer prices

The production value of eggs in Serbia almost doubled between 2010 and 2012 and remained relatively stable after up to 2021 (see Figure 6-23). The production value of honey fluctuated a lot in the period 2010-2020. Prices of honey more than doubled between 2010 and 2020. Prices of eggs increased with a half between 2010 and 2011 and remained rather stable after that period until 2020 (see Figure 6-24).

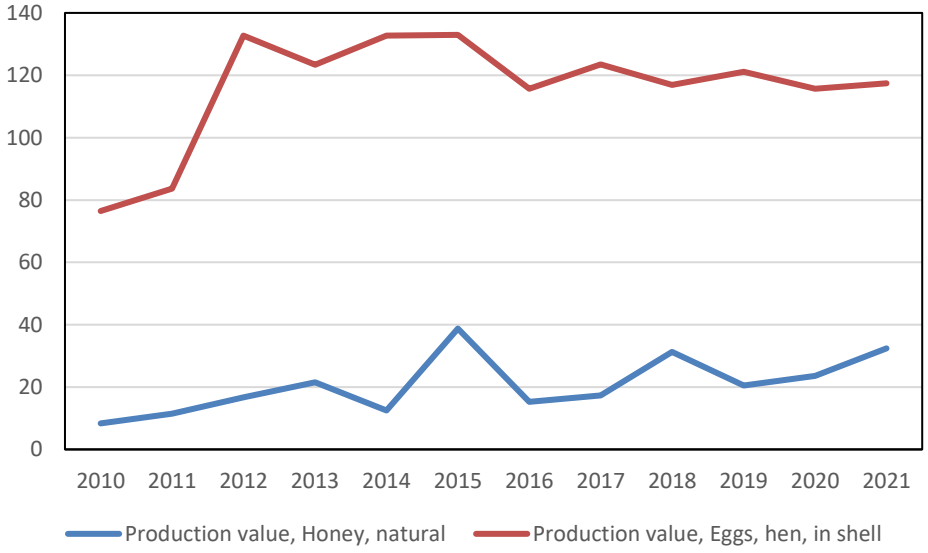

Figure 6-23. Gross Production Value of eggs in shell and honey in Serbia, current million EUR. Source: FAOSTAT.

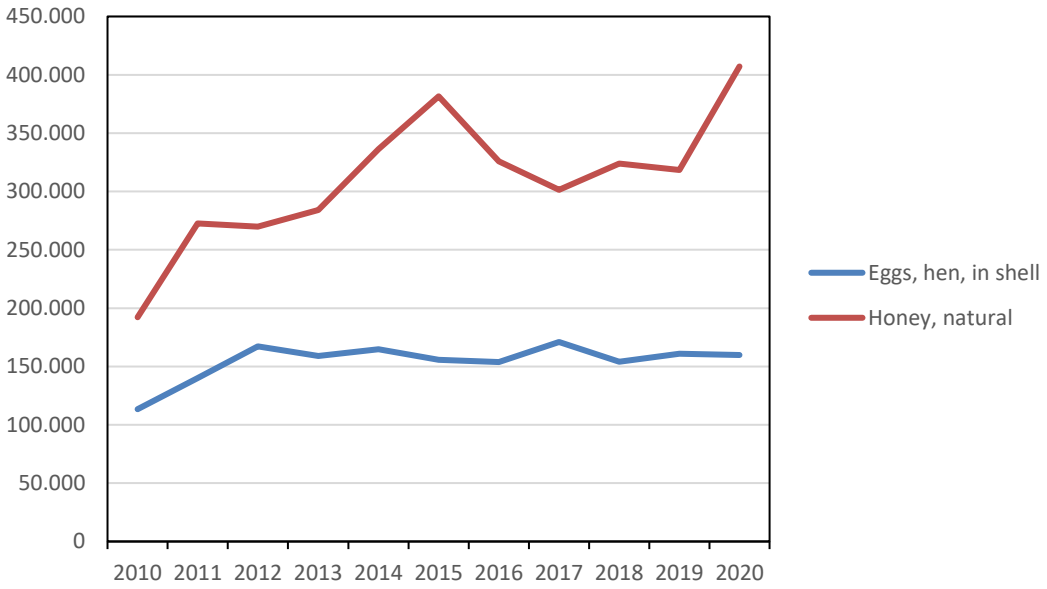

Figure 6-24. Producer prices of eggs in shell and honey in Serbia (EUR/tonne). Source: FAOSTAT.

6.5.2. Output, area, animals and yields

Table 6-10 indicates production and productivity for eggs and honey in Serbia in 2010-2020. The number of laying hens has however declined by 2020 by about 1 million of heads. Production of eggs and of honey has been steadily increasing throughout the years, although the maximum level of production achieved in 2015 (2.060 billion eggs in shell and 12,263 tonnes of honey) has not been maintained up until 2020.

Table 6-10. Production and yield for eggs and honey, Serbia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Laying	Eggs, hen, in shell	1 000 Head	9 412	10 220	9 131	8 852	8 891	8 863	8 510
Production	Eggs, hen, in shell	1 000 No	1 219 078	2 060 605	1 852 522	1 758 660	1 796 056	1 774 867	1 705 501
		tonnes	69 487	103 030	92 626	87 933	89 803	88 743	85 275
	Honey, natural	tonnes	4 479	12 263	5 761	7 014	11 427	7 600	6 838
Yield	Eggs, hen, in shell	100mg/An	73 828	100 812	101 441	99 337	101 004	100 127	100 206
		No/An	130	202	203	199	202	200	200

Source: FAOSTAT.

6.5.3. International trade

The imports of eggs and honey in Serbia increased between 2010 and 2020 with the imports of honey in 2020 being ten times the imports in 2010, see Table 6-11. With a value of about 3 million euros the imports of fresh eggs in shell are the highest. The exports of eggs are comparable to that amount. The exports of honey are relatively substantial with about 13 million euros in 2020.

Table 6-11. Export and import of eggs and honey, Serbia, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010 - 2021 (%)
Export										
Birds' eggs, in shell; fresh, preserved or cooked	1	2	3	3	3	3	3	3	0.0	195
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	0	0	0	0	0	0	0	0	0	n.a.
Honey; natural	6	9	8	9	10	9	13	13	0.1	132
Import										
Birds' eggs, in shell; fresh, preserved or cooked	0	1	2	4	1	1	3	4	0.0	n.a.
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	1	2	2	3	3	3	5	5	0.0	666
Honey; natural	0	0	0	0	0	0	1	3	0.0	n.a.

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

Table 6-11 indicates that the trade figures for eggs in honey in Serbia are negligible in 2010-2020, making it about 0.5% of the total agricultural trade in Serbia (see also EC, 2022d).

6.6. Meat sector

6.6.1. Production value and producer prices

Figure 6-25 presents gross production value of various types of meat in Serbia. The total production value of meat was slightly varying, remaining stable on the whole. Meats of various types showed different dynamics in the past 10 years, with some decrease in the value of cattle and chicken and some increase in the value of pig and sheep.

The prices all types of meat showed an overall increase in the 2010-2020 period, but little variation over the years, except for pig meat and somewhat sheep meat (see Figure 6-26).

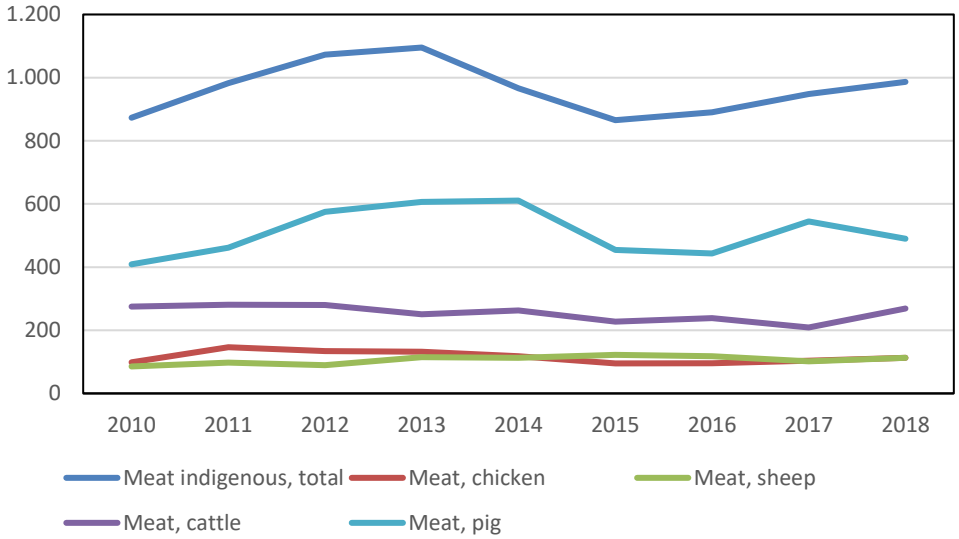

Figure 6-25. Gross Production Value of various types of meat in Serbia, current million EUR. Source: FAOSTAT.

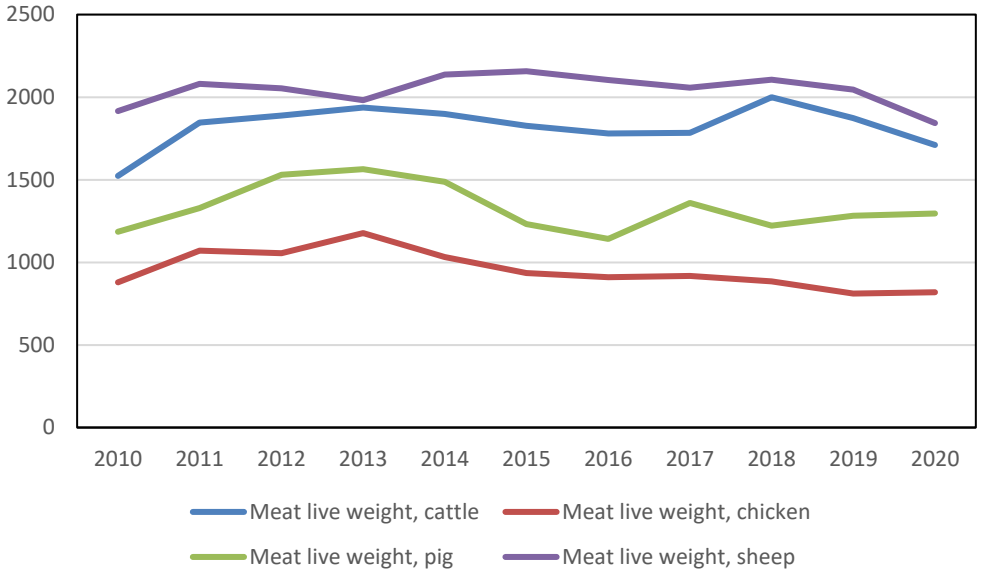

Figure 6-26. Producer prices of various types of meat in Serbia (EUR/tonne). Source: FAOSTAT.

6.6.2. Output, area, animals and yields

Table 6-12 shows the production and yield for main meat products in Serbia in 2010-2020. There are no remarkable differences observed in the growth in the population of livestock, except for an increase in the number of chickens by almost 20 million heads (130%). The total meat production has increased but not much drastically (from 473 741 to 516 977 tonnes). The production by different types of meats has varied in similar direction as changed the livestock numbers. The productivity numbers for various animals remained more or less without big changes.

Table 6-12. Production and yield for meat, Serbia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Producing Animals/ Slaughtered	Meat, chicken	1 000 Head	53 715	39 309	41 466	50 630	68 409	72 375	71 543
	Meat, sheep	Head	1 152 364	1 492 850	1 630 462	1 552 180	1 541 208	1 517 031	1 355 641
	Meat, cattle	Head	435 756	301 726	324 073	283 907	325 495	288 524	308 913
	Meat, pig	Head	5 728 226	5 654 035	5 852 872	5 706 421	5 744 543	5 538 210	5 501 599
Production	Meat, Total	tonnes	473 741	462 721	488 594	491 035	524 683	515 903	516 977
	Meat, chicken	tonnes	83 808	76 243	78 641	85 018	105 505	113 577	113 978
	Meat, sheep	tonnes	22 726	28 884	32 519	28 689	31 030	32 476	29 520
	Meat, cattle	tonnes	95 587	66 032	71 014	62 033	71 158	65 008	66 926
	Meat, pig	tonnes	269 273	287 801	302 914	312 377	312 834	301 590	303 530
Yield/Carcass Weight	Meat, chicken	0.1g/An	15 602	19 396	18 965	16 792	15 423	15 693	15 931
	Meat, sheep	hg/An	197	193	199	185	201	214	218
	Meat, cattle	hg/An	2 194	2 188	2 191	2 185	2 186	2 253	2 166
	Meat, pig	hg/An	470	509	518	547	545	545	552

Source: FAOSTAT.

6.6.3. International trade

Table 6-13 presents import and export values of meat products in Serbia. The country was a net exporter of live animals and a net-importer of meat products in most of the period 2010-2021. Although exports have increased in value, imports have grown much more. Imports consisted primarily of meat of swine, while exports consisted mainly of bovine meat and poultry meat.

Table 6-13. Export and import of meat, Serbia, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Animals; live	50	53	35	47	37	36	49	54	0.3	8
Meat and edible meat offal	21	45	37	49	57	38	31	32	0.1	51
Of which:										
Meat of bovine animals; fresh or chilled	12	3	6	12	28	9	14	7	0.0	-44
Meat of bovine animals; frozen	2	2	1	1	1	6	4	6	0.0	307
Meat of swine; fresh, chilled or frozen	2	25	13	16	11	7	2	3	0.0	84
Meat of sheep or goats; fresh, chilled or frozen	0	0	0	0	0	0	0	2	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	0	3	5	6	4	3	1	1	0.0	n.a.
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e. fowls of the species Gal	4	9	8	8	10	10	9	10	0.0	172
Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, fr	0	0	1	2	1	0	0	0	0.0	n.a.
Meat and edible meat offal; salted, in brine, dried or smoked; edible flours and meals of meat or me	1	2	2	3	2	2	1	2	0.0	73
Import										
Animals; live	5	30	11	21	37	21	21	16	0.1	241
Meat and edible meat offal	13	62	51	84	104	99	102	109	0.4	712
Of which:										
Meat of bovine animals; fresh or chilled	0	1	2	1	5	4	3	4	0.0	n.a.
Meat of bovine animals; frozen	0	4	3	3	4	4	3	4	0.0	n.a.
Meat of swine; fresh, chilled or frozen	6	40	29	55	64	57	58	60	0.2	970
Meat of sheep or goats; fresh, chilled or frozen	0	0	1	1	1	1	0	0	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	2	1	1	2	3	1	1	1	0.0	-54
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e. fowls of the species Gal	1	8	7	8	11	14	15	17	0.1	1,787

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, fr	0	2	1	4	5	4	5	5	0.0	n.a.
Meat and edible meat offal; salted, in brine, dried or smoked; edible flours and meals of meat or me	5	6	8	9	11	14	16	18	0.1	293

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

6.7. Fruit and vegetables

6.7.1. Production value and producer prices

Figure 6-27 and Figure 6-28 demonstrate gross production value in Serbia for selected fruits and vegetables respectively over the period 2010-2020. The total production value of fruit and vegetables has been stable with the exception of a significant decline in 2014. In the same period, fruit products showed different trends, with a declining production value of grapes and an increasing value of apples. For vegetable products holds more or less the same with declining production values of cucumbers and gherkins, and cabbages and an increasing value of green chilis and peppers.

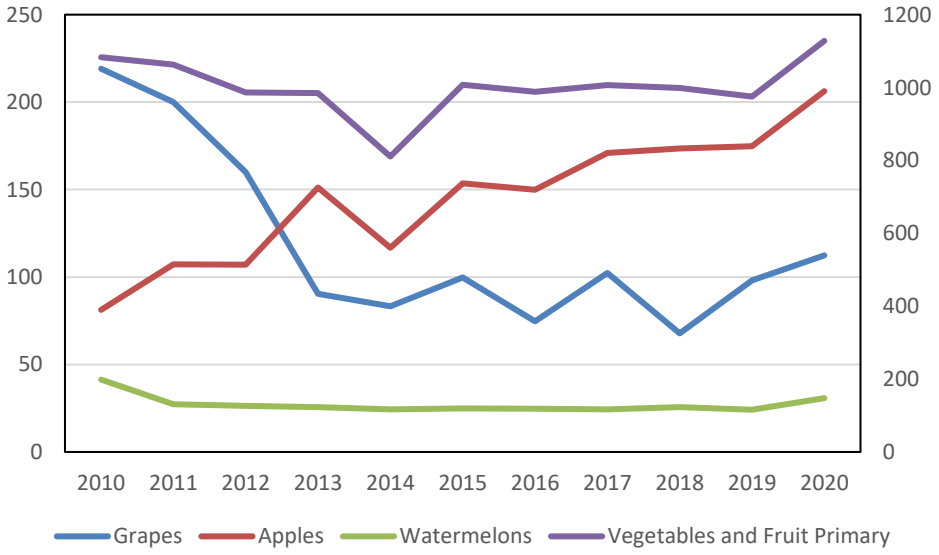

Figure 6-27. Gross Production Value of selected fruits in Serbia, current million EUR. Vegetables and Fruit Primary on right axis. Source: FAOSTAT.

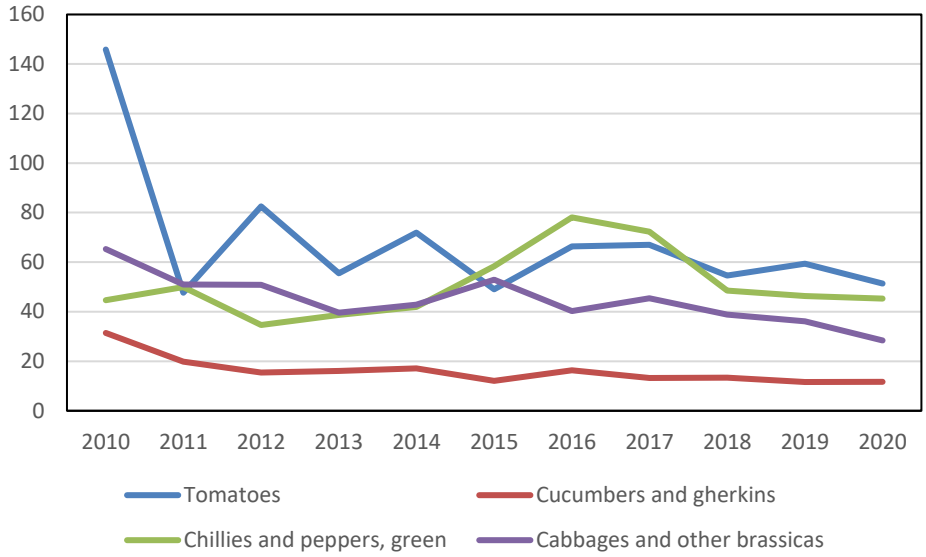

Figure 6-28. Gross Production Value of selected vegetables in Serbia, current million EUR. Source: FAOSTAT.

Figure 6-29 and Figure 6-30 show producer prices for selected fruits and vegetables respectively in Serbia. In the years 2010-2020, the producer prices for fruit and vegetables demonstrate high fluctuation, especially for grapes and tomatoes the prices were highly unstable over the years.

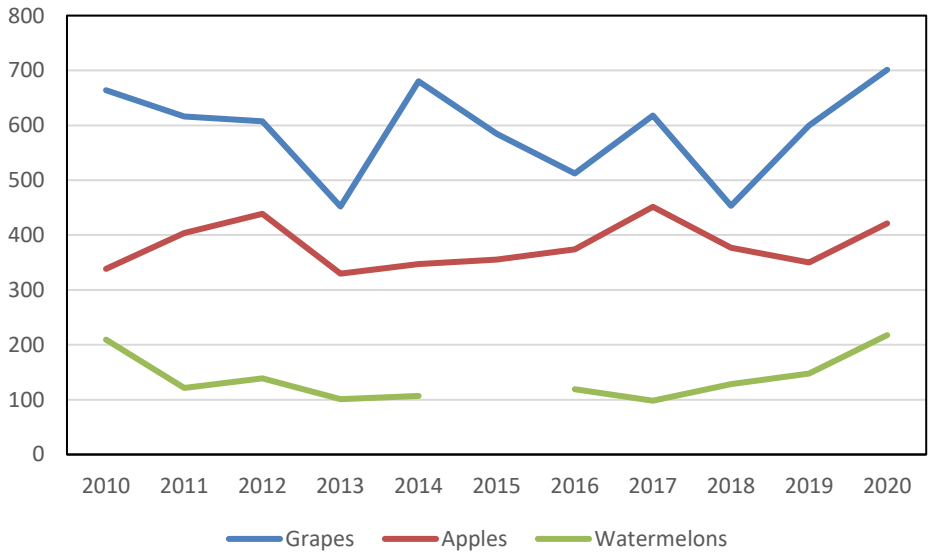

Figure 6-29. Producer prices of selected fruits in Serbia (EUR/tonne). Source: FAOSTAT.

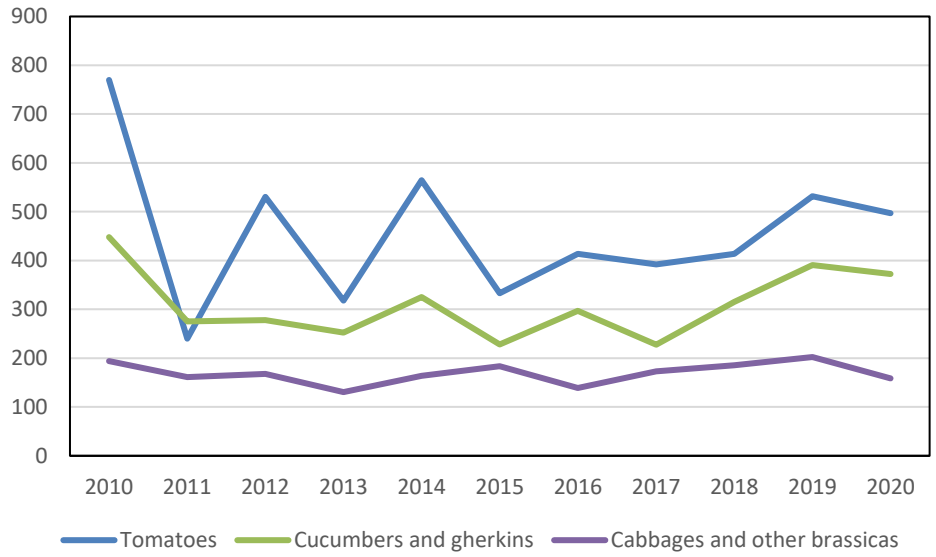

Figure 6-30. Producer prices of selected vegetables in Serbia (EUR/tonne). Source: FAOSTAT.

6.7.2. Costs and revenues of apples and tomatoes

For apples and tomatoes, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Serbia, the National Expert used FADN data for estimation of costs and revenuers. The presented costs and revenues are per kg of apples and tomatoes for the groups of farms with an average income of 57 thousand euros and 25 thousand euros per year respectively.

The total production costs per kg of apples are 0.14 euros and per kg of tomatoes 0.23 euros. The costs do not include the reimbursement for owners and family labour on family farms, if applicable. The net revenue per kg of apples is 55% of the average price per kg. The net revenue per kg of tomatoes is 51% of the average price per kg.

In Serbia, there is governmental budgetary support of agriculture and rural development, which includes market and direct producer support. Although farms with apples and tomatoes did receive subsidy for their production, the estimation of subsidies specifically per kg of product is not provided. Therefore, the subsidies could not be included in the estimation of costs and revenues.

The estimated cost and revenue items for milk are shown in the table below.

Table 6-14. Estimated costs and revenues of apples and tomatoes in Serbia, 2021

	For Apples, in EUR	For Tomatoes
Production costs per kg of product	0.14	0.23
Average price per kg of product	0.32	0.47
Net farm revenue per kg of product	0.18 (55%)	0.24 (51%)

6.7.3. Output, area, animals and yields

Table 6-15 shows the production and yield for main fruits and vegetables in Serbia in 2010-2020. Overall, areas under fruits and vegetables have been declining with the exception for brassica. Harvested areas under the crops as listed have changed quite remarkably in the past 10 years. Area under cabbages and brassicas still takes the largest share of all fruits and vegetables. It kept growing and was about 2 million ha in 2020. Total areas under citrus fruits dominates above all other fruits and is about 200 000 ha and has decreased by one third. The yields of all fruits and vegetables have been varying over the years but with the exception of two listed crops (chili peppers and gherkins) the yields have been increasing. The production of fruits and vegetables has been fluctuating over the years.

Table 6-15. Production and yield for fruit and vegetables, Serbia (Source: FAOSTAT)

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Citrus Fruit, Total	ha	300 599	196 268	201 118	206 728	206 569	206 715	208 328
	Fruit Primary	ha	47 377	21 201	21 201	21 201	20 333	20 501	19 840
	Grapes	ha	24 000	24 703	24 818	25 134	25 917	26 089	26 360
	Apples	ha	14 148	6 824	6 314	8 372	6 814	5 709	5 237
	Watermelons	ha	140 589	80 643	82 249	83 894	68 897	67 877	68 381
	Vegetables Primary	ha	20 181	8 869	10 065	10 917	8 629	7 888	7 347
	Tomatoes	ha	18 475	14 845	16 977	17 386	12 016	10 097	9 974
	Chillies and peppers, green	ha	8 699	3 990	3 843	4 271	3 220	3 020	2 883
	Cucumbers and gherkins	ha	20 891	11 039	10 804	10 213	8 251	7 957	7 547
	Cabbages and other brassicas	ha	1 552 606	1 701 028	1 698 069	1 604 359	1 745 262	1 857 537	1 909 656
Production	Citrus Fruit, Total	tonnes	330 070	170 647	145 829	165 568	149 474	163 516	160 307
	Fruit Primary	tonnes	239 945	431 759	400 473	378 644	460 404	499 578	489 426
	Grapes	tonnes	197 451	241 576	207 983	247 493	199 419	163 483	141 258
	Apples	tonnes	1 165 155	907 773	999 940	918 317	714 034	669 880	669 062
	Watermelons	tonnes	189 412	147 021	160 456	170 764	131 869	111 639	103 277
	Vegetables Primary	tonnes	154 953	165 195	227 645	198 583	135 072	118 256	106 562
	Tomatoes	tonnes	70 136	52 664	55 059	57 957	42 539	29 711	31 281
	Chillies and peppers, green	tonnes	336 600	288 698	290 001	262 545	209 353	178 308	179 377
	Cucumbers and gherkins	tonnes	51 650	86 669	84 431	77 607	84 488	89 860	91 666
	Cabbages and other brassicas	tonnes	69 669	80 490	68 784	78 094	73 513	79 760	80 800
Yield	Citrus Fruit, Total	hg/ha	99 977	174 780	161 364	150 650	177 646	191 490	185 670
	Fruit Primary	hg/ha	139 561	354 009	329 400	295 620	292 661	286 360	269 731
	Grapes	hg/ha	82 877	112 567	121 575	109 462	103 638	98 690	97 843
	Apples	hg/ha	93 857	165 770	159 420	156 420	152 821	141 530	140 570
	Watermelons	hg/ha	83 872	111 280	134 090	114 220	112 410	117 120	106 840
	Vegetables Primary	hg/ha	80 625	131 990	143 271	135 699	132 109	98 381	108 502

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
	Tomatoes	hg/ha	161 122	261 526	268 420	257 069	253 730	224 089	237 680
	Chillies and peppers, green	hg/ha	300 599	196 268	201 118	206 728	206 569	206 715	208 328
	Cucumbers and gherkins	hg/ha	47 377	21 201	21 201	21 201	20 333	20 501	19 840
	Cabbages and other brassicas	hg/ha	24 000	24 703	24 818	25 134	25 917	26 089	26 360

6.7.4. International trade

Serbia is a net exporter of fresh fruit and nuts. Additionally, exports of fruits and nuts are growing at a faster pace than imports (Table 6-16). For vegetables, exports and imports were almost even in 2021, but imports are growing faster than exports.

Table 6-16. Export and import of fruit and vegetables, Serbia, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2020 (%)	growth 2010-2020 (%)
Export										
Vegetables and certain roots and tubers; edible	56	80	92	99	106	116	109	114	0.5	103
Fruit and nuts, edible; peel of citrus fruit or melons	269	526	549	585	496	545	646	824	3.8	206
Preparations of vegetables, fruit, nuts or other parts of plants	62	81	85	101	102	110	109	141	0.7	126
Import										
Vegetables and certain roots and tubers; edible	44	64	52	55	74	98	104	121	0.4	174
Fruit and nuts, edible; peel of citrus fruit or melons	109	165	173	189	189	211	265	286	1.0	164
Preparations of vegetables, fruit, nuts or other parts of plants	33	51	43	51	65	79	104	122	0.4	369

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

6.8. Cereals, potatoes and other crops

6.8.1. Production value and producer prices

Figure 6-31 shows production values and Figure 6-32 shows producer prices for cereals and potatoes in Serbia in 2010-2021. Production of cereals has been fluctuating but showed an overall stable with some decline in 2017 and increase afterwards. The production values of potatoes and sugar beet show a stable trend between 2010 and 2020.

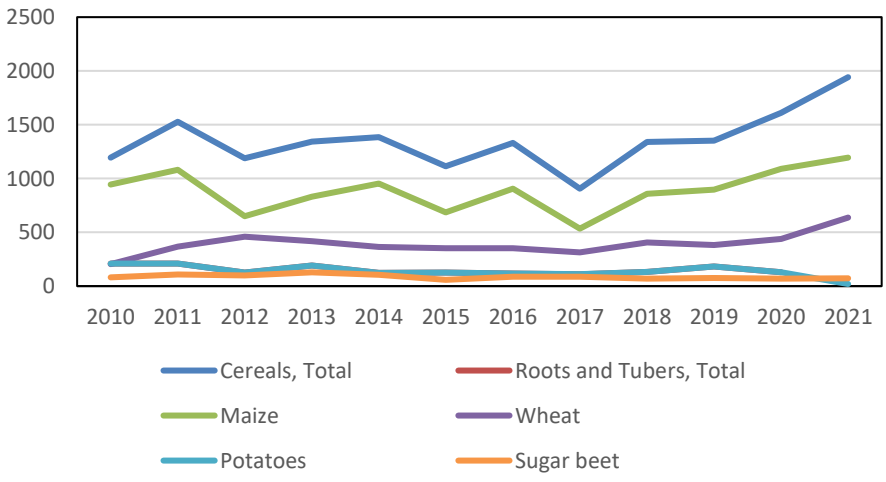

Figure 6-31. Gross Production Value of selected arable crops in Serbia, current million EUR. Source: FAOSTAT.

Producer prices of potatoes showed most significant fluctuations in the 2010-2021 period. Producer prices of wheat and maize differed less in their development over time. Up to 2012 the prices of maize and wheat increased, after 2013 they decreased showing an overall slightly increasing trend.

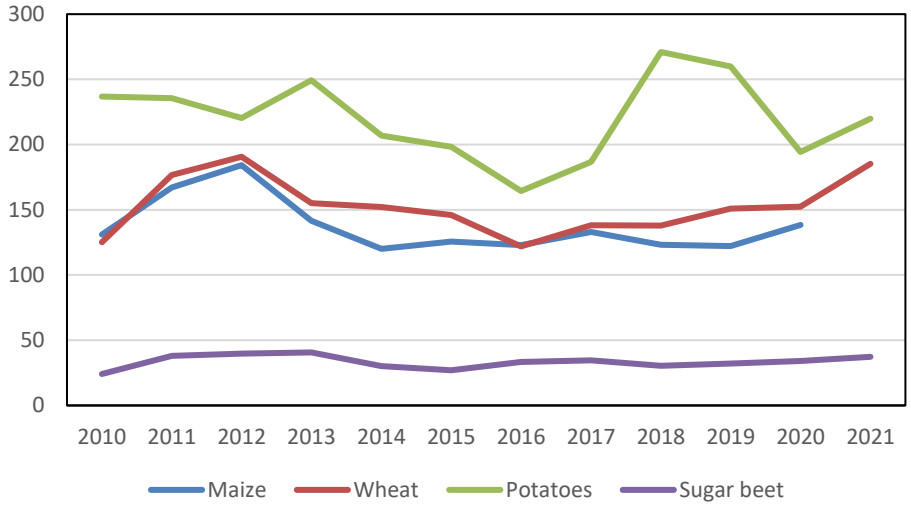

Figure 6-32. Producer prices of selected arable crops in Serbia (EUR/tonne). Source: FAOSTAT.

Table 6-17. Production and yield for cereals, potatoes and other crops, Serbia

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Cereals, Total	ha	1 874 470	1 766 780	1 766 713	1 718 505	1 721 071	1 707 342	1 748 752
	Pulses, Total	ha	34 198	27 134	26 931	27 891	23 992	24 258	23 552
	Roots and Tubers, Total	ha	76 675	41 812	40 430	38 761	28 546	34 432	30 017
	Maize	ha	1 223 579	1 010 227	1 010 097	1 002 319	901 753	962 083	996 527
	Wheat	ha	484 205	589 922	595 118	556 115	643 083	577 499	581 128
	Potatoes	ha	76 675	41 658	40 105	38 472	28 232	34 110	29 676
	Sugar beet	ha	66 446	42 123	49 237	53 857	48 125	42 539	37 418
Production	Cereals, Total	tonnes	9 295 194	8 458 145	10 893 437	6 818 156	10 552 897	10 461 255	11 472 036
	Pulses, Total	tonnes	95 803	57 784	58 924	58 688	57 261	54 949	55 125
	Roots and Tubers, Total	tonnes	887 363	643 136	722 936	595 688	495 279	709 877	673 151
	Maize	tonnes	7 207 191	5 454 841	7 376 738	4 018 370	6 964 770	7 344 542	7 872 607
	Wheat	tonnes	1 630 404	2 428 203	2 884 537	2 275 623	2 941 601	2 534 643	2 873 503
	Potatoes	tonnes	887 363	639 410	714 350	589 241	487 909	702 086	664 891
	Sugar beet	tonnes	3 324 847	2 183 194	2 683 860	2 513 495	2 325 303	2 305 316	2 018 215
Yield	Cereals, Total	hg/ha	49 588	47 873	61 659	39 675	61 316	61 272	65 601
	Pulses, Total	hg/ha	28 014	21 296	21 880	21 042	23 867	22 652	23 406
	Roots and Tubers, Total	hg/ha	115 730	153 816	178 812	153 682	173 502	206 168	224 257
	Maize	hg/ha	58 903	53 996	73 030	40 091	77 236	76 340	79 000
	Wheat	hg/ha	33 672	41 161	48 470	40 920	45 742	43 890	49 447
	Potatoes	hg/ha	115 730	153 490	178 120	153 161	172 821	205 830	224 050
	Sugar beet	hg/ha	500 383	518 290	545 090	466 698	483 180	541 930	539 370

Source: FAOSTAT.

6.8.2. Output, area, animals and yields

Table 6-17 shows the production and yield numbers for selected cash crops in Serbia in 2010-2020. Cereals in this country take the largest share among the cash crops. Its total area was rather stable across the years at the level of about 1.75 million ha in 2020. Areas under pulses (0.023 million ha) and roots and tubers (0.030 million ha) are substantially lower and have been reducing in size quite a lot (more than twice for potatoes). Yields of all crops have increased with the exception for slight decrease in yield of pulses which in combination with its area decline has resulted also in an overall lower production of this category of crops.

6.8.3. International trade

Table 6-18 presents trade statistics (imports and exports) of cereals and some other arable products for Serbia. Serbia has been a net-exporter of cereals and cereal products, oil seeds and sugar crops. For almost all products in this group holds that their import and export values increased in the period 2010-2021. Only sugar and sugar confectionery export values decreased. Preparations of cereals have the largest import value. Over the years, their import has been growing the most as well. Cereals have the largest export value and oil seeds the second largest exports value.

Table 6-18. Export and import of cereals and other crops, Serbia, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2020 (%)	growth 2010-2020 (%)
Export										
Cereals	324	438	463	341	417	561	692	767	3.5	137
Products of the milling industry; malt, starches, inulin, wheat gluten	42	57	63	73	70	69	60	77	0.4	84
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	51	119	139	138	153	160	209	164	0.8	222
Potatoes, fresh or chilled	2	0	2	4	1	3	2	3	0.0	117
Sugars and sugar confectionery	157	93	126	96	52	55	55	102	0.5	-35
Preparations of cereals, flour, starch or milk; pastrycooks' products	80	100	109	116	138	143	156	175	0.8	120
Import										
Cereals	11	27	23	16	22	23	27	29	0.1	167
Products of the milling industry; malt, starches, inulin, wheat gluten	5	10	9	9	11	12	14	18	0.1	251
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	51	98	38	99	71	58	52	96	0.3	87
Potatoes, fresh or chilled	2	5	2	3	8	11	5	8	0.0	228
Sugars and sugar confectionery	20	31	32	35	39	40	53	56	0.2	183
Preparations of cereals, flour, starch or milk; pastrycooks' products	37	66	59	76	99	125	141	162	0.6	343

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

6.9. Showcase product for Serbia: raspberry

The production and exports of Raspberry are growing. The sector is described below.

6.9.1. Description of raspberry in Serbia

Raspberry is included in the report due to constantly increasing production and export. It is expected that this increasing trend will continue. All raspberries produced are marketed through official market channels (cooling houses). Raspberries are mostly exported frozen (roll, semolina, block, belly, original), but in recent years there has been an increase in the production of processed products, especially juices, jams, as well as high-quality products - lyophilized raspberries.

6.9.2. Production developments

The production volume and area of raspberry in Serbia had grown in the last decade. In 2021, the second pandemic year, the production and area have slightly decreased.

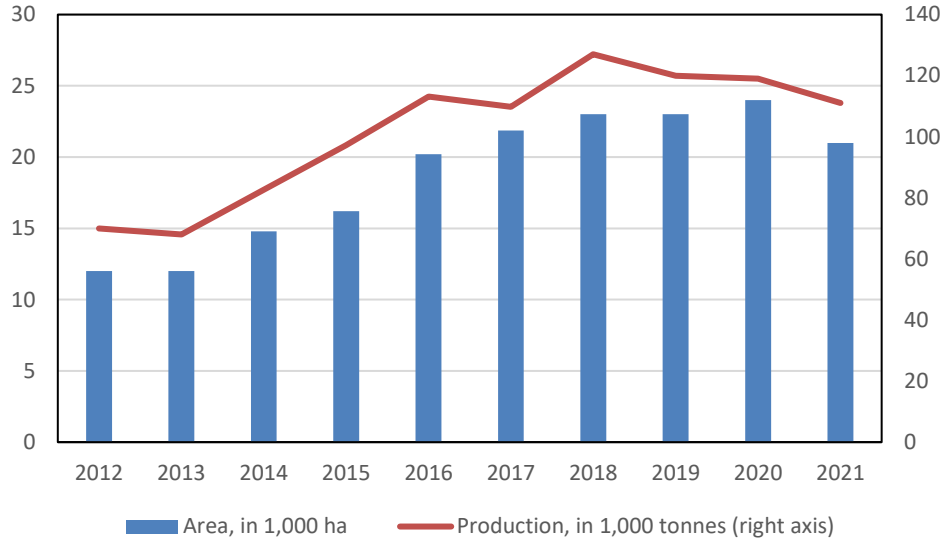

Figure 6-33. Production of raspberries in Serbia, 2012-2021, in 1 000 ha, and in 1 000 tonnes. Source: Statistical office of the R. Serbia (SORS), Data received on request.

6.9.3. Raspberry Supply Chain

According to MAFWM, Commodity balances, the area under raspberry has increased from 15 000 ha in 2011 to 23,000 in 2020.[12] It is estimated that area and total production trend upward will continue in the future. Forecast is based on good agro-ecological conditions for raspberry growing, increased prices and small average farms sizes in Serbia suitable for high-value products as a raspberry. The number of the cooling houses are estimated to be around 300. Each cooling house is a wholesaler, collecting the raspberry from small farms.

6.9.4. Location in country

As the raspberry requires growing in hot days and cool nights, mountain areas are the main production areas for raspberry, which are located in Central and South Serbia. Raspberry is tolerating less fertile mountainous soil with high contents of iron, which is typical for mountain areas of Serbia. As the small less fertile mountain soil is suitable

[12] Available at: http://www.minpolj.gov.rs/download/bilans-malina-15-03-2020/

for raspberry, this fruit is of extraordinary importance for small farmers in strengthening their weak economic position.

6.9.5. Trade developments

The main marketing channels are local cooling-houses. Small cooling-houses are collecting and selecting raspberry for large cooling-houses. Around 50 cooling houses are involved in export. Almost 100% of production is exported, mostly to the EU. Raspberry is exported in a frozen form.

6.9.6. Raspberry price developments

Fruit markets are free, there are no guaranteed prices, but the price of raspberries is defined by the principle of supply and demand in the market.

In 2020, the price increased by about 37%, compared to the previous year. The reason for the increase in the price of raspberries is the reduced stocks of raspberries at the world level. During the COVID pandemic, there was an increased demand for raspberries worldwide, as well as other berries. It is consumed due to its healing properties and as an antioxidant, as a preventive.

The weather conditions affect the raspberry harvest. Significant variations in raspberry prices are caused by the volatility in production in Serbia and other countries. The major Serbian competitors are Chile and Poland. E.g., in the case of a poor harvest in these countries the price of Serbian raspberries is increasing.

6.9.7. Strengths and weaknesses compared

The main advantage of Serbia for growing raspberry is its suitable agro-ecological conditions. Besides, raspberry can be cultivated on less fertile mountain land. Sentral Serbia is characterized with small and fragmented land parcels not suitable for mass production of the standard quality products, so Serbian farmers are relying on intensive high value products such as raspberry.

Despite advantages there are also weakness in production and sales of raspberries in Serbia. Although Serbian raspberry yields are the highest in the EU, Serbia is not taking advantage and exporting fresh raspberry with much higher price instead of exporting frozen. Besides, Serbian raspberry is exported not processed in most of the cases, compared to the EU competitors who are exporting processed raspberry, thus adding value to the products. Moreover, despite Serbian well known high quality, raspberry, exported raspberries are not labelled as a produced in Serbia.

6.10. Rural-urban disparities

In the final part of the country factsheet for Serbia, we are describing the differences between rural and urban areas within the country. The agricultural sector is concentrated in rural areas. The development of rural areas is therefore crucial for the advance of agriculture. The focus of the research is on socio-economic disparities between rural and urban areas. In addition, the quality of infrastructure and quality and use of ICT are discussed.

6.10.1. Population

Serbia’s population has been steadily declining over the recent years, from 7.29 million in 2010 to 6.91 million in 2020 (see Figure 6-34). The rural population was about 43% in 2021. A gradual decrease in rural population can be seen, where it has deceased by from 3.3 million in 2010 to 2.9 million (decrease of about 1.2 times) in 2021.

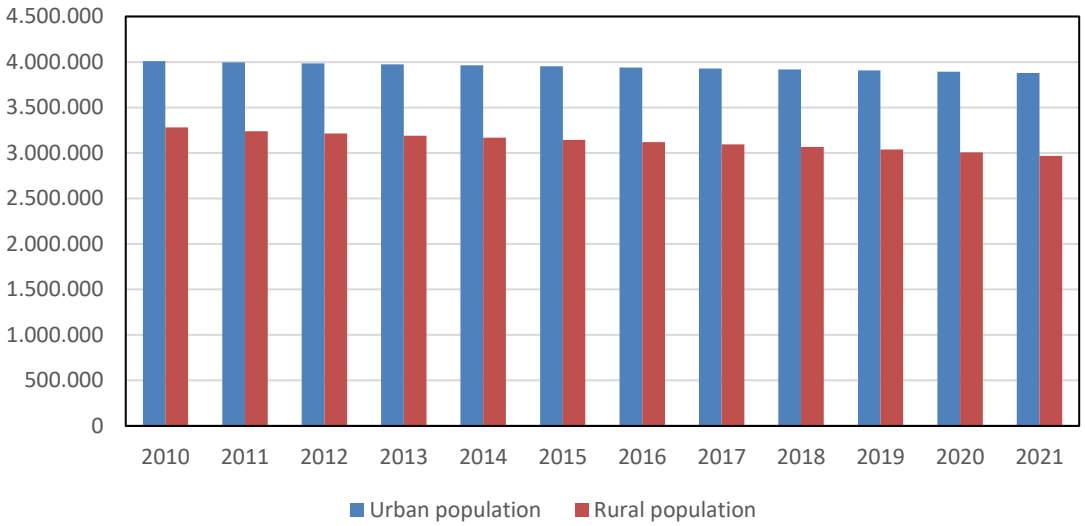

Figure 6-34. Rural and urban population of Serbia in 2010-2020, persons. Source: World Bank.

6.10.2. Education

In Table 6-19 we can see that the literacy rate is 1% higher in urban areas. There is a difference in the percentage of persons in rural areas that completed upper secondary education, compared to those in urban areas, namely 7% lower. Also, data shows that in 2019 the completion rate of upper secondary education in rural areas has increased since 2011 with 28%.

Table 6-19. Rural-urban education statistics, Serbia

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Adult literacy rate, population 15+ years, rural, both sexes (%)		97					98			99
Adult literacy rate, population 15+ years, urban, both sexes (%)		99					99			100
Completion rate, upper secondary education, rural, both sexes (%)	51	49		86	69					79
Completion rate, upper secondary education, urban, both sexes (%)	79	79		91	80					86
Educational attainment rate, completed upper secondary education or higher, population 25+ years, rural, both sexes (%)										
Educational attainment rate, completed upper secondary education or higher, population 25+ years, urban, both sexes (%)		49								
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, rural, both sexes (%)										
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, urban, both sexes (%)		17								

Source: UNESCO.

6.10.3. Employment

Figure 6-35 shows that the unemployment rate for rural and urban areas has been decreasing since 2012.

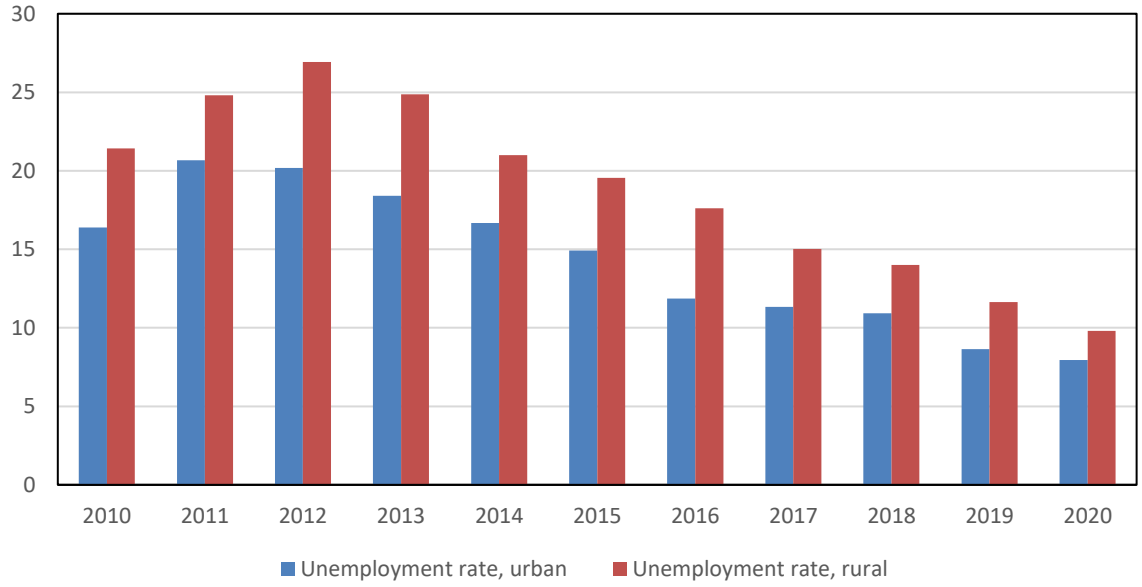

Figure 6-35. Unemployment rate, rural-urban, Serbia, in %. Source: ILO.

6.10.4. Income

There is no data on exact poverty rates in rural areas. On country level the poverty rate was 25.9% in 2016 and 21.7% in 2020 (Beker et al, 2018).

6.10.5. Health

According to the national expert population in urban areas generally has better access to healthcare than those in rural areas. Residents in rural areas usually have to come to urban areas for health care. If there are any services in rural communities then they are small dwellings that provide basic health care.

6.10.6. Gender

According to several civil society organisations and their collection of data they conclude that Serbia is still predominantly a patriarchal and traditional society, which effects gender equality. Women in rural areas have limited access to income, property and decision making. The probability of women being landowners is low, according to the results of the 2011 Census only 17.3% of holdings are registered to women. Besides women are often informally engaged in agricultural work (Beker et al., 2018).

According to the national expert traditionally, women do a lot of hard work on the farm. On the other hand, they are less involved in the decision-making process. But this picture is changing, and gender equality is becoming more and more pronounced in rural areas. A challenge is that educated women often do not stay on farms, which adversely affects rural development. The Ministry of Agriculture, Forestry and Water Management of the Republic of Serbia as part of the IPARD program encourages gender equality by giving preference to female farms managers.

6.10.7. Migration

Based on Figure 6-2 it can be concluded that the population in urban and rural areas has stayed quite stable in the last decade. However, there is no data available on migration.

6.10.8. Infrastructure and ICT

In 2019, the total road network was 43917 km (STAT, 2020). According to the Serbian statistics the road infrastructure is improving in length and quality. Nevertheless, there are still remote villages (mostly mountainous regions) that are not connected with main roads.

Urban communities are in most cases connected to the water supply and sewerage network, in contrary to the rural communities, that depend on the sources and wells from which individual households are supplied. Water quality is regularly monitored in urban areas, while in rural areas water quality control is rare. Because of the poorly built water supply network only about 2% of agricultural land is irrigated, and according to this parameter, Serbia occupies one of the last places in Europe.

There is no official data on internet and mobile access in rural and urban areas. According to the national expert there is a high difference in internet and mobile network and access. Main reasons are poor internet infrastructure in rural areas and often there is no internet available. Also, in rural areas the population tends to be older with lower education levels, which is an additional barrier for internet usage.

6.11. Conclusions

Following EC (2022), Serbia has comparative advantages in agriculture due to the abundance of high-quality agricultural land, a strategic trading location and high levels of education. From analysis of macro-economic and agricultural sector indicators of Serbia it can be concluded that agricultural sector is the third large sector in the economy of the country with share of the GDP of 8%.

Serbia has a population of about 6.9 million inhabitants, from which more than half lives in urban areas and this share hardly changed over the years. The population has been steadily declining over the recent years. The employment and earnings have gradually improved in the recent years with the mean nominal monthly earnings of employees increasing up to 447 euros in 2020.

In terms of education, Serbia is highly developed. Education level index of adult increased from 0.6 to 0.8 in the 2010-2021 period, while adult literacy rate of population older than 15 years has also increased up to 99% in 2019. The completion rate of upper secondary education in rural areas increased up to 79% in 2019.

In Serbia, the overall logistic performance is rated with 2.84, with the lowest rank (2.6), given for both the quality of trade and transport-related infrastructure, and for efficiency of customs clearance process.
With regards to income distribution inequality there has been a decreasing trend, where Gini index has declined to 34.5 in 2019 compared to 41 in 2015. In the recent years, the development of the GDP and added value in Serbia showed overall a positive trend. When it comes to trade, Serbia is a net-importer of products with overall increasing trend in both export and import.

The analysis of agricultural sector of Serbia revealed that crops are the most important products in agriculture (72% of total agricultural goods output in 2019), but livestock represented a somewhat increasing share in the production value of agriculture, from 30% to 34% in the 2010-2018 period, but decreased in 2019 to 28%. In terms of trade agricultural sector accounts for about 6-9% of total imports and about 18-23% in total exports. Share of imports has slightly increased over the last 10 years while share of exports has slightly decreased. Cheese and curd are the most exported products from Serbia. The country is also net exporter of meat products.

Concerning production values of agricultural products, it is notable that for cow milk as well as for eggs, it increased in the beginning of the studied period (between 2010 and 2012) and remained relatively stable afterwards. The total production value of fruit and

vegetables has been stable with the exception of a significant decline in 2014. In the same period, fruit products showed different trends, with a declining production value of grapes and an increasing value of apples. For vegetable products holds more or less the same with declining production values of cucumbers and gherkins, and cabbages and an increasing value of green chilis and peppers. Cereals in Serbia have the largest share among the cash crops.

According to national expert opinion, raspberry is a potential product that can offer a competitive advantage for Montenegro. Raspberry is selected due to its constantly increasing production and export. It is expected that this increasing trend will continue. In recent years, next to frozen fruits, there has been an increase in the production of processed products, especially juices, jams, as well as high-quality products - lyophilized raspberries.

Analysis of urban-rural disparities revealed the following trends:

- In terms of urban vs rural population, Serbia's population has been gradually declining in both urban and rural areas over the recent years.
- The literacy rate is slightly higher among urban population. The data shows that in 2019 the completion rate of upper secondary education in rural areas has increased since 2011 with 28%.
- The unemployment rate for rural and urban areas has been decreasing, where for rural areas it has decreased from 21% to 9.8%, while in urban areas from 16% to 8%.
- In relation to gender issues, Serbia, like other studied Western Balkan countries, is still predominantly a patriarchal and traditional society, which effects gender equality. Women in rural areas have limited access to income, property and decision making, while traditionally, women do a lot of hard work on the farm. However, this picture is gradually changing, and gender equality is becoming more and more pronounced in rural areas.
- With regards to Infrastructure and ICT the road infrastructure is improving in length and quality. Nevertheless, there are still remote villages (mostly mountainous regions) that are not connected with main roads. Although there is no official data on internet and mobile access in rural and urban areas, according to the national expert there is a high difference in internet and mobile network and access with main reasons being poor internet infrastructure in rural areas and the age of population often there is no internet where it tends to be older with lower education levels, which is an additional barrier for internet usage.

6.12. Data gaps

For Serbia, the data for macro-economic developments are readily available between 2010-2020 for several of the considered indicators (internet use, life expectancy, social protection expenditure, trade balance). The data on income distribution (the Gini index) and the data on health expenditures are the least updated among the available data (up until 2019 only). There is no data available on international migration in Serbia. For population and employment, and several indicators from national accounts (total GDP, GDP per capita, Gross Value Added) data are updated with year 2021. Other national account statistics (taxes, salaries, share of food in total households' expenditures) are not available for the year 2021 but otherwise are complete. With the exception for the education level of adult population in Serbia that is fully available for 2010-2021, other education statistics like proportion of enrolled in vocational education, completion rates for secondary education, adult literacy rate are available but not complete after 2019.

For agricultural sector, the key agricultural statistics (gross value added for agriculture, employment in agriculture, agricultural trade, agricultural land, value of production, share of crop and livestock outputs, producer price index) are complete for the years 2010-2020. Remarkably, the data on land types (grassland, meadows, vineyards,

permanent crops) are also available for all years. Poor availability of data on number of farm holdings which are only available for the years 2012 and 2017 is encountered. For all studied agricultural sectors, data availability for the case of Serbia is rather good. For the sectors of dairy, meat, eggs, fruits and vegetables, arable crops the data on production value, producer prices, outputs, areas and livestock numbers, as well as international trade of products from these sectors are available for the years 2010-2020 and only miss the update of the year 2021. Data on costs and revenues are not available from statistics and have been separately collected using expert estimates, interviews, national statistics and literature studies for two product categories only: dairy and fruits and vegetables. The estimated data are provided for one year only (2021). Otherwise, data on the on the costs of production in Serbia of meat, eggs, arable crops are not available.

Data gaps analysis for rural urban disparities shows that in Serbia with the exception for population and employment in rural and urban areas, other characteristics of disparities has no complete data and thus are collected from literature sources. This results in few sporadic values and does not represent the entire dynamics over the years 2010-2021. There is no data on exact poverty rates in rural areas. Migration numbers are missing for Serbia. There is no official data on internet and mobile access in rural and urban areas. Data on education (educational attainment rates, completion rates for secondary education and adult literacy) in rural-urban areas are reported for occasional years and do not continue after 2019.

7. TÜRKİYE

7.1. Introduction

This chapter describes the key characteristics and developments of Türkiye, with regards to socioeconomics, the agricultural sector and rural-urban disparities. The data described in this chapter is used to make cross-country comparisons in the main study report as well as to assess the competitiveness of the agri-food sectors of the various IPARD countries.

7.2. Social and macro-economic developments

7.2.1. Population

Türkiye has a population of about 85 million inhabitants as of 2021 data (see Figure 7-1). Türkiye is divided in 81 provinces which correspond to NUTS-III regions. Türkiye is a transcontinental country mainly located in Western Asia with a part of the area located on the Balkans in Southeast Europe. In terms of area, Türkiye is a larger country than any country in the European Union. The country is diverse in terms of geographical and climatic conditions. The overall population density is about 110 inhabitants per square km.

The population has been steadily increasing over the recent years from 73.7 million in 2010 to 85.1 million in 2021 (see Figure 7-1). The majority of people are living in urban areas (77% in 2021), (see Figure 7-2).[13]

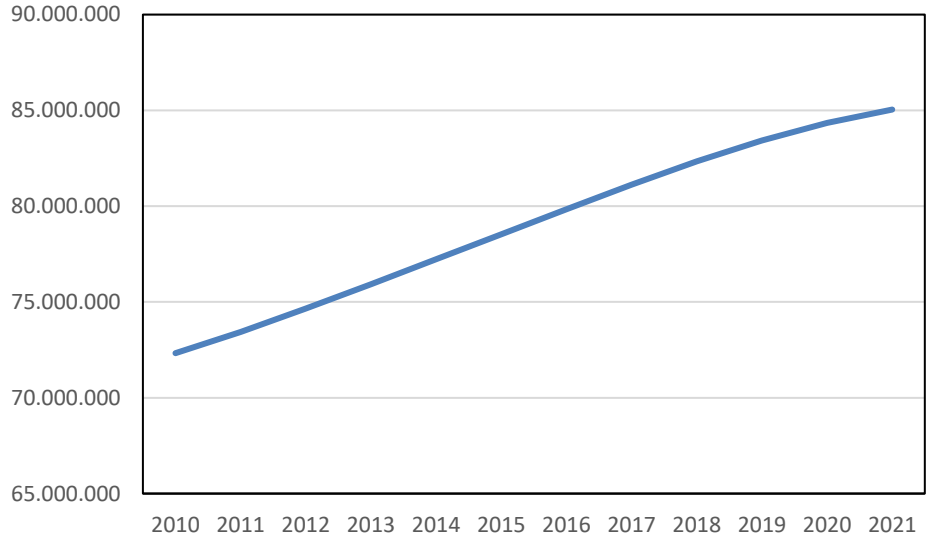

Figure 7-1. Total population of Türkiye in 2010-2021, persons. Source: World Bank.

[13] Note that TurkStat data about rural and urban population are significantly different from World Bank data. In TurkStat the rural population was only 7% of total population in 2021. This difference is due to a different definition and method. There has been a redefinition of rural and urban in Türkiye population in 2013. In World Bank and FAO the rural population is higher than in national statistics of Turkstat. For comparability we use World Bank data.

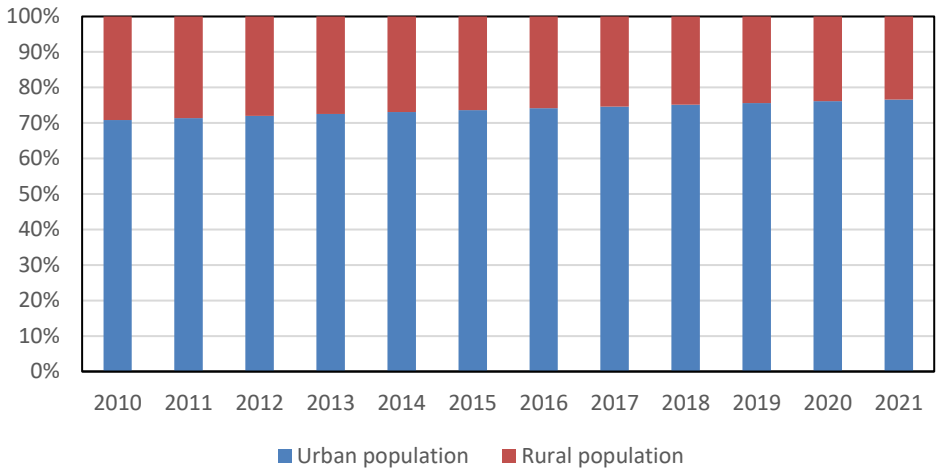

Figure 7-2. Population, urban and rural, %, 2010-2021. Source: World Bank.

7.2.2. Migration

Between 2016 and 2019, Türkiye showed an increasing immigration and emigration trend, with a positive net-migration clearly contributing to the increasing population numbers (see Figure 7-3). Due to international refugee crises, the influx of people into Türkiye has been varying quite a lot in recent years.

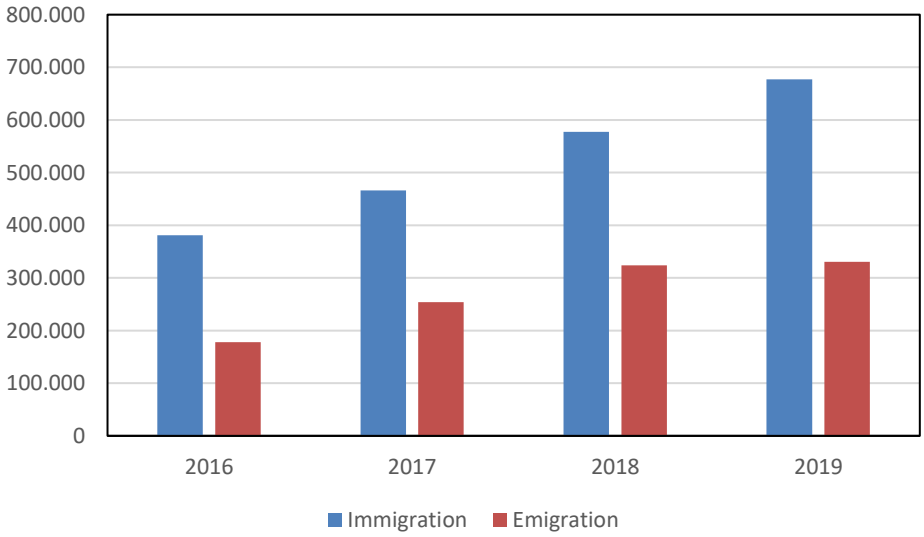

Figure 7-3. Immigration and emigration in 2016-2019 to and from Türkiye, persons. Source: TURKSTAT.

7.2.3. Employment

In the years 2018-2021, the (un)employment and earnings trends in Türkiye have been mixed. In the years 2010-2018, the employment to population ratio increased from 43% up to 47%, but in 2019-2020 this ratio decreased and increased again in 2021 (see Figure 7-4). In 2020, 43% of people older than 15 years were employed in Türkiye, being the lowest ratio in the period 2010-2021. The same ratio increased to 45% in 2021. At the same time, the unemployment ratio (% of labour force) has been declining in the years 2018-2020 (see Figure 7-5). This indicates a decreasing share of labour

force in the population. In the period 2010-2021, the unemployment ratio varied between 8.3% (2012) and 13.7 (2017).

The mean nominal monthly earnings of employees varied between 492 euros and 592 euros in the period 2011-2017, with an outlier of 760 in 2014. The mean nominal monthly earnings of employees increased to 694 euros in 2018 but decreased to 619 euros in 2020 (see Figure 7-6).

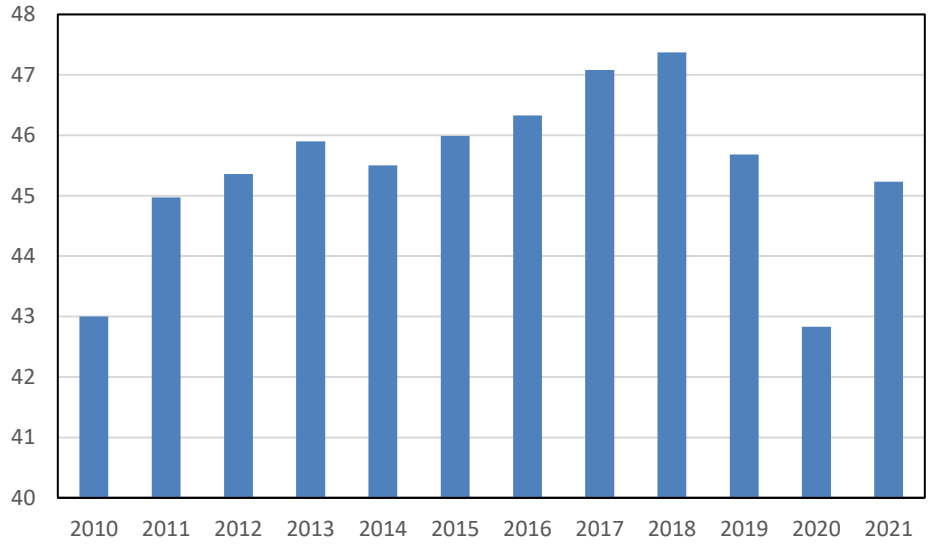

Figure 7-4. Employment to population ratio in Türkiye, 15+, total, %. Source: World Bank, TurkStat.

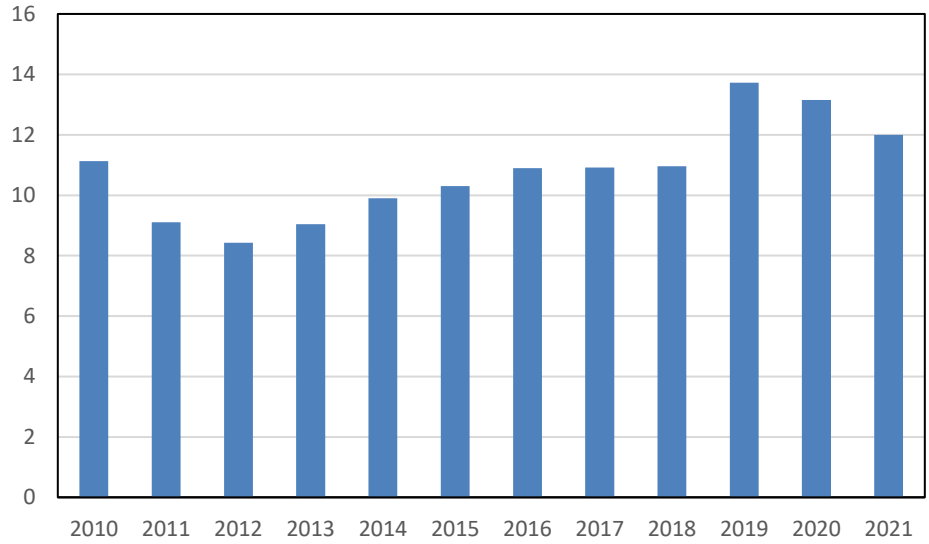

Figure 7-5. Unemployment in Türkiye, total, % of labour force. Source: World Bank, TurkStat.

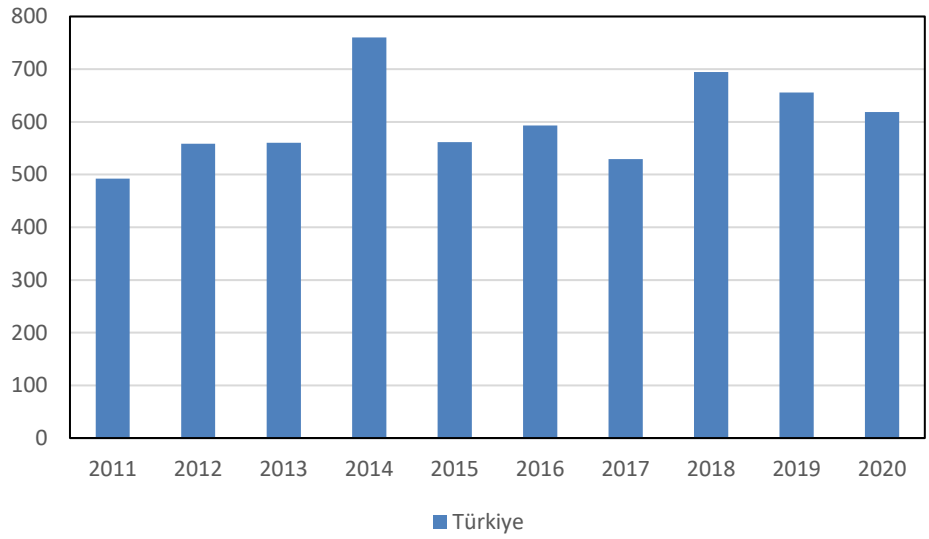

Figure 7-6. Mean nominal monthly earnings of employees in Türkiye in 2011-2020, in EUR. Source: ILO.

7.2.4. Health

In Türkiye, life expectancy at birth was 77.9 years in 2020 (see Figure 7-7). In the period 2010-2020 this number increased gradually from 74.5 years in 2010 indicating improving health and other human development conditions in Türkiye.

In 2020, Türkiye spent 5% of its GDP on health (see Figure 7-8). In the period 2010-2020, this percentage declined from 5.3%.

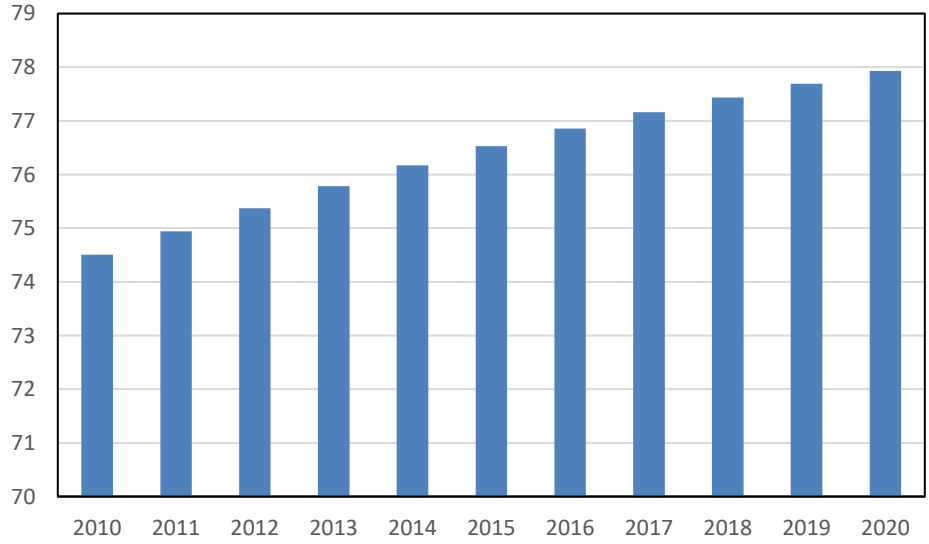

Figure 7-7. Life expectancy at birth in 2010-2020 for Türkiye, total (years). Source: World Bank, United Nations.

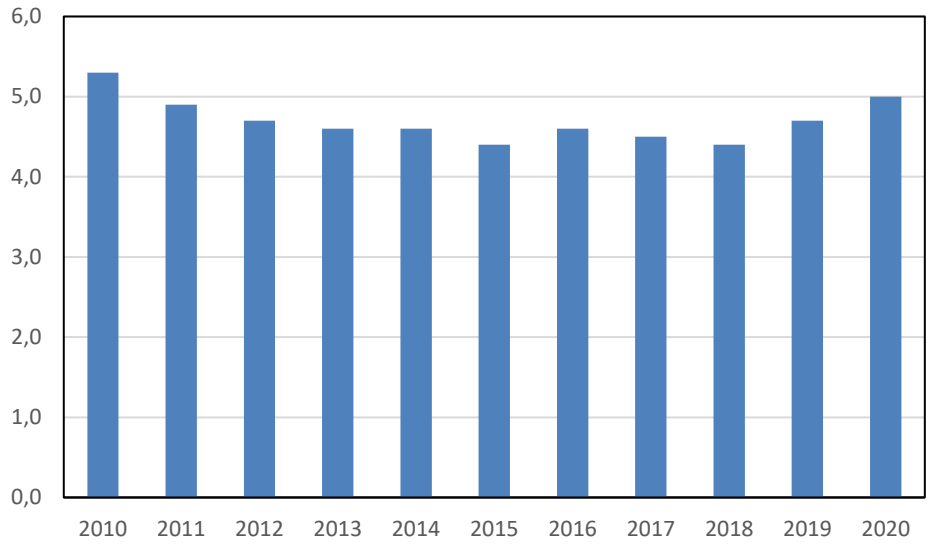

Figure 7-8. Current health expenditure, % of GDP, Türkiye, 2010-2020. Source: World Bank, TurkStat.

7.2.5. Education

Education level of adult population is a composite measure based on, (a) the percentage of the population without any education, (b) the proportion of workers with secondary education, and (c) the proportion of workers with tertiary education. Education level of adult population is an index between 0 and 1, with a higher number indicating a higher performance on education level of adult population (Barro and Lee dataset). In Türkiye this measure increased from 0.4 to 0.5 in the 2010-2021 period (see Table 7-2). The proportion of 15- to 24-year-olds enrolled in vocational education increased from 9.9% in 2010 to 23.6% in 2019. Adult literacy rate of population older than 15 years increased from 92.7% in 2010 to 97.1% in 2021. The completion rate of upper secondary education in rural areas was 37.2% in 2014. No recent insights are available on the development of this rate. The education attainment rate of completion of upper secondary education or higher for population older than 25 years increased from 28.4% in 2010 to 45% in 2021.

Table 7-1. Education statistics, Türkiye

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Education level of adult population	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Proportion of 15- to 24-year-olds enrolled in vocational education, both sexes (%)	10.0	11.0	11.0	21.0	23.0	25.0	26.0	26.0	25.0	24.0		
Completion rate, upper secondary education, both sexes (%)				42.0	56.0							
Educational attainment rate, completed upper secondary education or higher, population 25+ years, both sexes (%)	28.4	30.6	31.6	32.6	34.6	36.7	37.6	38.7	40.1	41.7	43.0	45.0

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Educational attainment rate, completed short-cycle tertiary education or higher, population 25+ years, both sexes (%)	10.9	12.3	12.9	14.4	15.6	17.2	18.1	18.9	19.7	20.6	21.6	22.7
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, both sexes (%)												
Adult literacy rate, population 15+ years, both sexes (%)	92.66	94.11	94.92	95.26	95.44	95.6	95.88	96.15	96.42	96.74	96.95	97.14

Source: Legatum, UNESCO, World Bank, TurkStat.

7.2.6. Infrastructure and ICT

The Logistics performance index is a composite measure based on a number of indicators related to the ability of a country in providing good trade logistics infrastructure. The Logistics performance index lays between 0 and 5, with a higher number indicating a higher logistic performance. In Türkiye, the overall logistics performance was rated at 3.15 in 2018 (see Figure 7-9). The frequency with which shipments reach consignees within scheduled time is ranked highest, 3.63. The lowest rank, 2.71, is both for the quality of trade and transport-related infrastructure, and for efficiency of customs clearance process.

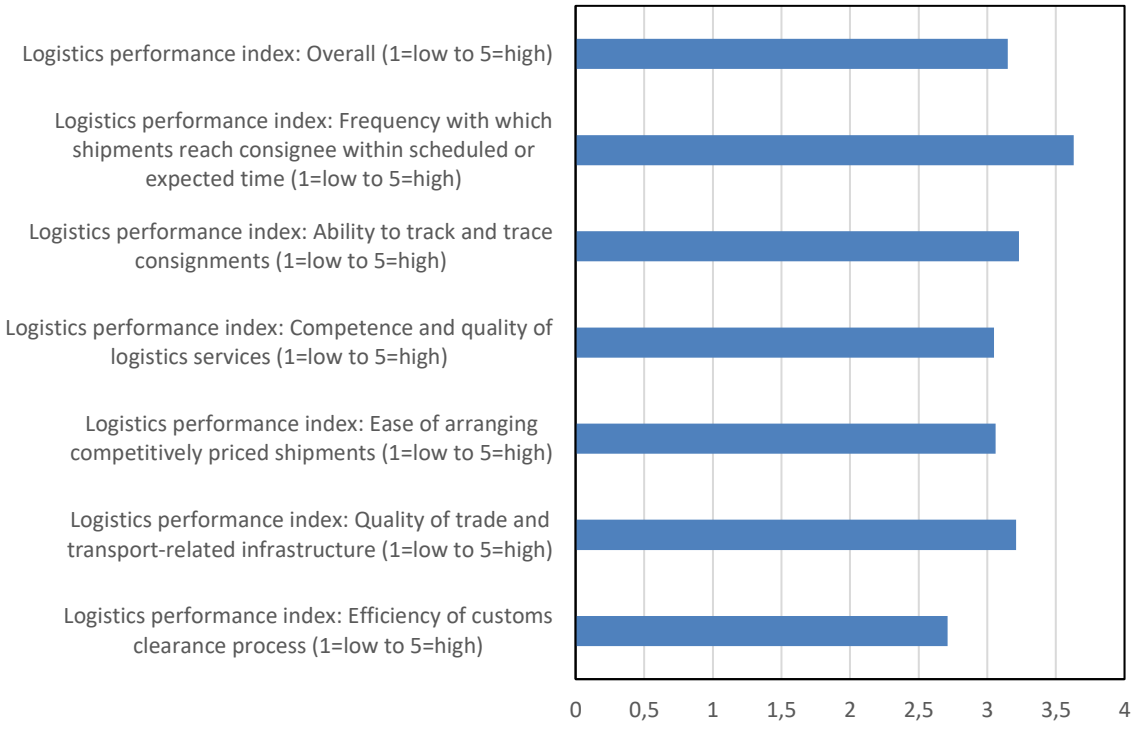

Figure 7-9. Logistics performance index, Türkiye, 2018. Source: World Bank.

Following Figure 7-10, the overall connection to internet in Türkiye has been improving in the recent years. The percentage of individuals using the internet has increased from 40% in 2010 to 78% in 2020. The number of mobile cellular subscriptions increased from 85 to 97 per 100 people between 2010 and 2020.

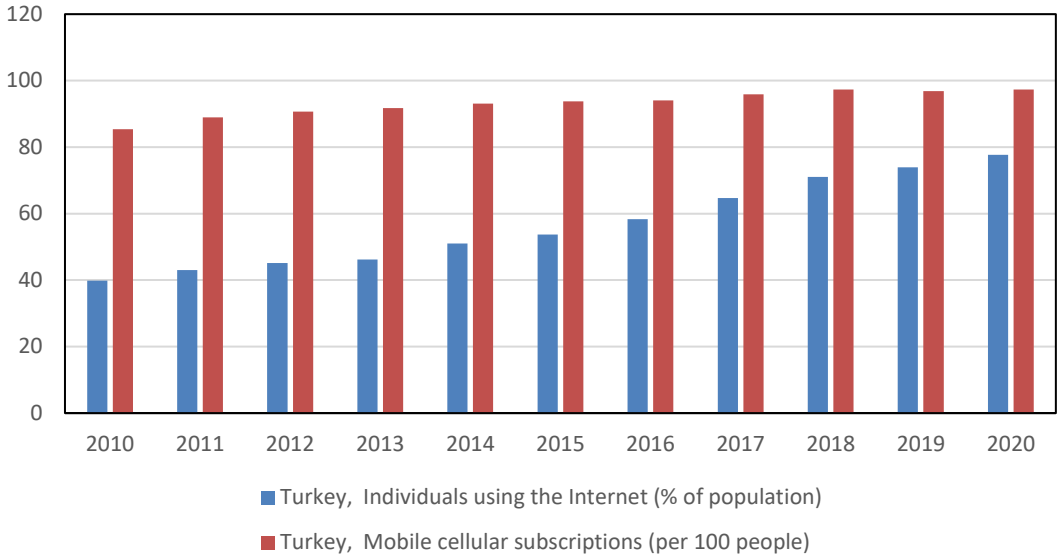

Figure 7-10. Individuals using the internet and mobile cellular subscriptions in Türkiye. Source: World Bank, TurkStat.

7.2.7. Income distribution

The income distribution has been fluctuating in Türkiye in the recent years. Between 2010 and 2014 Gini index declined from 41 to 39. In the period 2014-2017 the index increased to 41. In 2021, Gini index ended at 39.1 (see Figure 7-11).

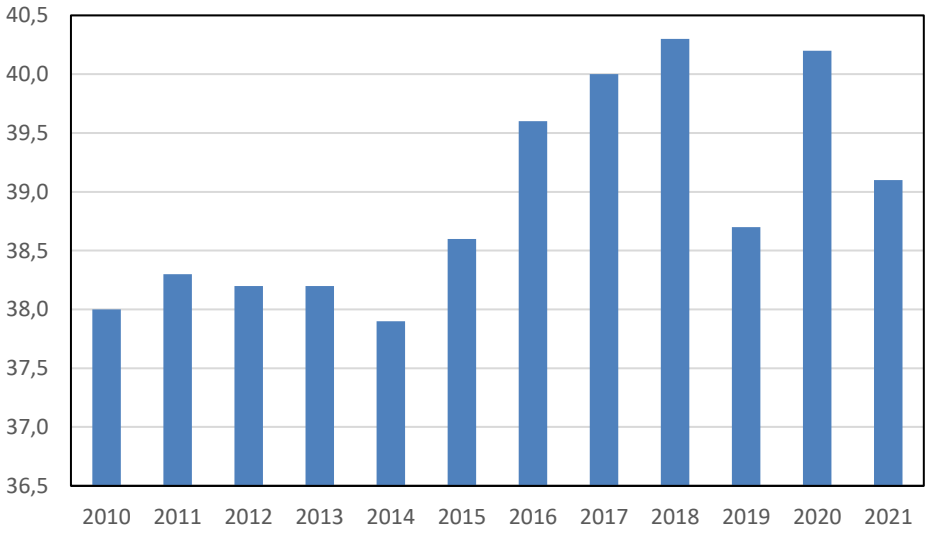

Figure 7-11. Gini Index, Türkiye. Source: TurkStat.

7.2.8. Social protection

Türkiye has been spending a fluctuating share of the GDP on social protection (see Figure 7-12). In 2010 the share of social protection expenditure in percentage of the GDP was 12.7%. In 2015, this share declined to 11.9% and it increased to 13% in 2020. In terms of euro per inhabitant, the expenditure on social protection varied as well (see Figure 7-13). In 2010, the amount of money spent per inhabitant was 1 077 euros, in

2016, this amount increased up to 1 260 euros. In 2020, 975 euros per inhabitant was spent on social protection in Türkiye.

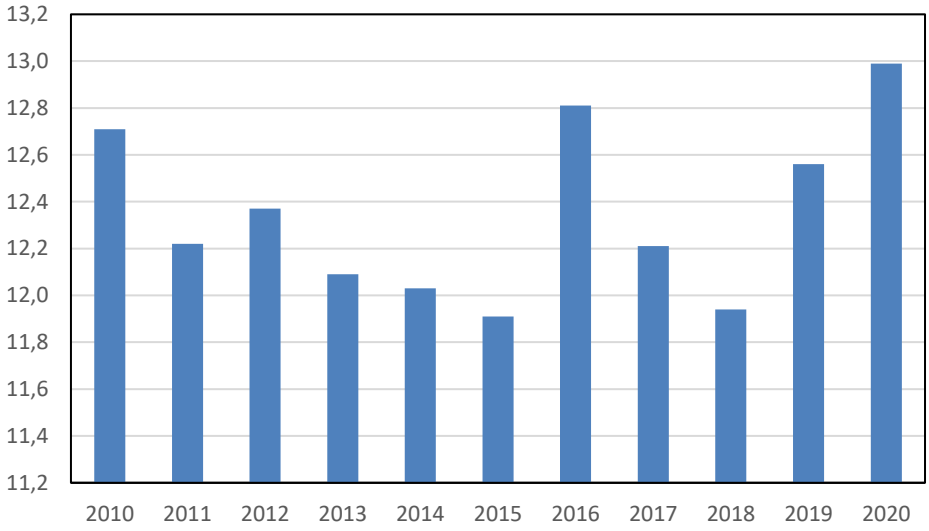

Figure 7-12. Social protection expenditure in Türkiye, % of GDP. Source: Eurostat.

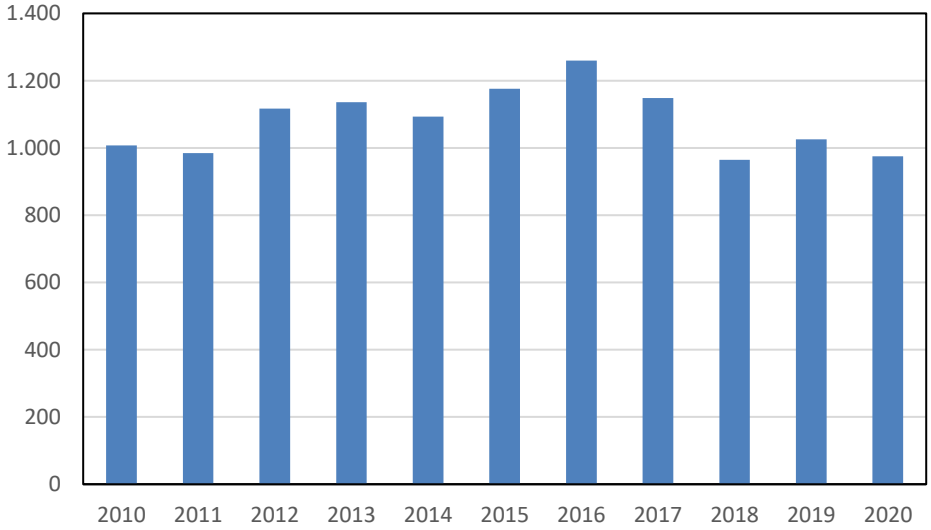

Figure 7-13. Social protection expenditure in Türkiye, EUR per inhabitant. Source: Eurostat.

7.2.9. National accounts

Until 2016, the development of the GDP in market prices and added value at basic prices in Türkiye showed an overall positive trend. However, between 2016 and 2020 a decline is visible. Followed by an increase in 2021. Between 2010 and 2016, the GDP in market prices increased from 586.1 billion euros to 785.7 billion euros. Between 2016 and 2020, the GDP in market prices decreased to 630.3 billion euros and increased to 684.8 billion euros. The gross value added at basic prices increased from 515.8 billion euros to 693.1 billion euros in the 2010-2016 period. Between 2016 and 2020, the gross value added at basic prices decreased to 560.3 billion euros and increased again to 616.5 billion euros in 2021. The GDP per capita showed the same trend, increasing from 8 103 euros in 2010 to 9 842 euros in 2016, and decreasing to 7 474 euros in 2020 (Table 7-2). In 2021 the GDP per capita also increased to 8 065 euros. At the same time, the real GDP growth was positive during the whole 2010-2021 period and varied between 0% and

11% (Table 7-2), which indicates a depreciation of the local currency in the latest three years.

The gross fixed capital formation in Türkiye was 28% in 2021. In the 2010 – 2020 period this percentage increased from 25%.

Table 7-2. National accounts statistics, Türkiye

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth 2015,l last availabl e year
GDP at market prices, current prices (million EUR)	586 100	602 560	685 364	721 168	706 777	779 015	785 702	760 375	659 163	679 771	630 323	684 772	-12
Gross value added at basic prices (million current EUR)	515 776	530 600	605 512	632 422	625 510	686 922	693 080	674 505	590 915	612 096	560 354	616 648	-10
Real GDP Growth (constant TRY)	8	11	5	8	5	6	3	8	3	1	2	11	81
GDP per capita (current EUR)	8 018	8 110	9 087	9 474	9 167	9 991	9 906	9 468	8 292	8 225	7 527	8 065	-19
Share of food in total household's expenditures (%)	22	21	20	20	20	20	20	20	20	21			3
Compensation of employees (% of expense)	22	23	25	24	25	25	25	22	22	23	24		-5
Taxes on goods and services (% of revenue)	39	39	37	41	38	39	38	38	34	32	36		-8
Taxes on income, profits and capital gains (% of revenue)	17	18	18	16	18	17	17	18	19	19	18		7
Taxes on international trade (% of revenue)	1	1	1	1	1	1	1	1	1	1	2		43
Gross fixed capital formation (% of GDP)	24	28	27	28	29	30	29	30	30	26	27	28	-5

Source: World Bank, TurkStat.

In Türkiye, Wholesale and retail trade, transport, accommodation and foodservice activities is the most important sector in terms of the contribution to the GDP (26%). Other important sectors are Manufacturing and Public sector (public administration, defence, education, human health, social work, etc.), both 16% of the GDP in 2021. Agriculture, forestry and fishing is the third large sector in terms of share of the GDP (7%) (Figure 7-14).

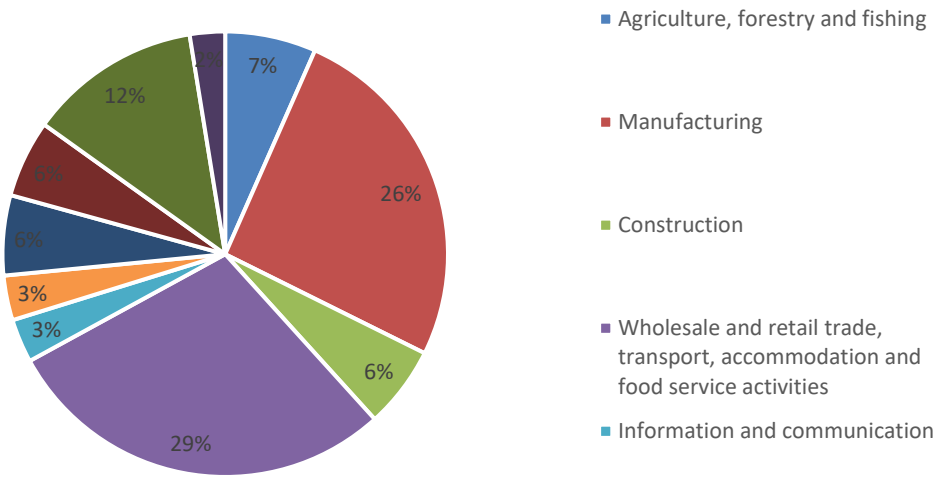

Figure 7-14. Breakdown of GDP by main activities in Türkiye, 2021, % of gross value added. Source: Eurostat.

In terms of Turkish government income in the 2010-2020 period, taxes on goods and services varied between 32% (2019) and 41% (2013), taxes on income, profits and capital gains varied between 17% (2010, 2014-2015) and 19% (2018-2019) of the revenue, and taxes on international trade were about 1% (see Table 7-2).

The compensation of employees was between 22% and 25% of expense during the 2010-2020 period. Gross fixed capital formation as a percentage of GDP increased from 25% in 2010 to about 30% (2015-2018) and decreased to 27% in 2020 (see Table 7-2). The share of food in the total household's expenditures was 20-22% during the 2010-2020 period (see Table 7-2).

7.2.10. Government finances

Table 7-3 shows the government finances of Türkiye between 2015-2021. General government final consumption expenditure has stayed stable between 13-16% of GDP, with the lowest level observed in 2021. Central and general government expenditure on agriculture has also stayed stable between 3-4% of the total expenditure. General government debt has significantly increased from 27 to 40% of the GDP in the years 2015-2020.

Table 7-3. Türkiye: Total general debt, general government expenditure, in % of GDP; and government expenditure on Agriculture, forestry, fishing, in % of total expenditure

	2015	2016	2017	2018	2019	2020	2021
General government final consumption expenditure (% of GDP) (World Bank)	14	15	14	15	16	15	13
Central Government Expenditure Agriculture, forestry, fishing (% of total expenditure) (FAO)	4	4	4	3	4	3	
General Government Expenditure Agriculture, forestry, fishing, % of total expenditure (FAO)	3	3	3	3	3	3	
General Government Debt (Percent of GDP) (IMF)	27	28	28	30	33	40	

Source: FAO, World Bank, IMF.

7.2.11. Exchange rates

The Turkish lira (TRY) is the official currency of Türkiye. The currency shows long-term weakening trend against the Euro (see Figure 7-15). Between 2010 and 2021, the exchange rate went up from 2.00 TRY/EUR to 10.51 TRY/EUR.

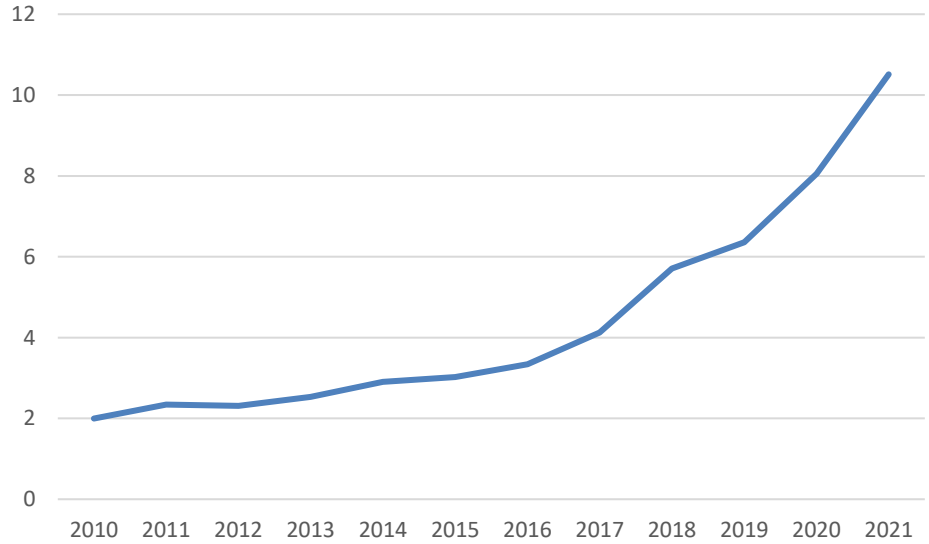

Figure 7-15 Exchange rate of Turkish Lira to Euro, 2010-2021. Source: Eurostat.

7.2.12. Interest rates

The deposit interest rate in Türkiye shows a mixed trend in a long-term period. The lending interest rate increased from 13% in 2010 to 25% in 2018 but decreased again

to 15% in 2020. The deposit interest showed the same picture increasing from 15% in 2010 to 23% in 2018 and decreasing to 13% in 2020 (see Figure 7-16). In 2021, the interest rates increased again to 22% for the lending rate and 21% for the deposit rate.

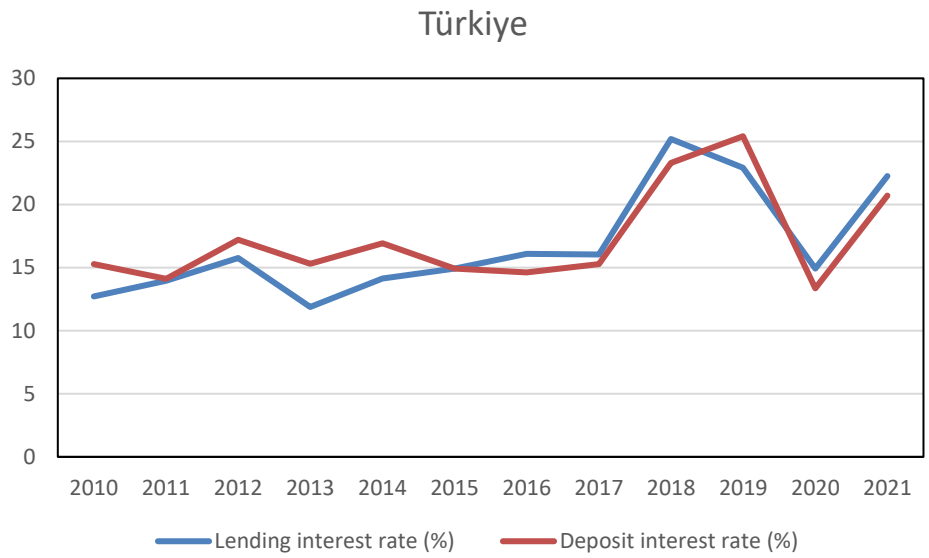

Figure 7-16. Interest rates in Türkiye, 2010-2020. Source: IMF.

7.2.13. Prices

The prices of consumer goods in Türkiye show an increasing trend in the long-term. Within ten most recent years of the data, the prices became more than three times higher. The consumer price index went up from 100 in 2010 (2010 = 100) to 315 in 2021 (see Figure 7-17).

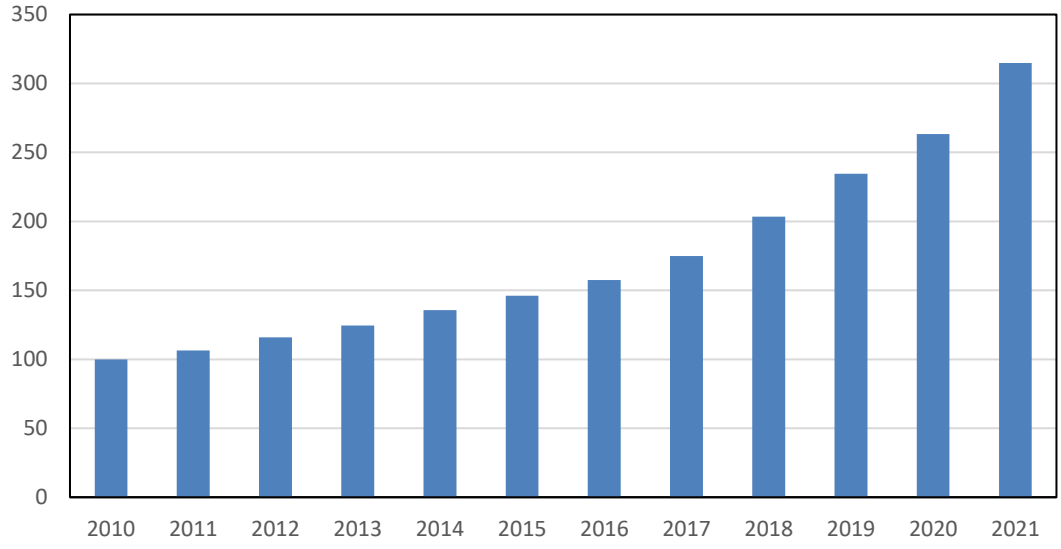

Figure 7-17. Consumer price index (2010=100), Türkiye, 2010-2021. Source: World Bank.

7.2.14. Balance of payments and trade

Türkiye is a net-importer of products. The exports were 149 billion euros and the imports 192 billion euros in 2020 (see Figure 7-18). The exports and the imports were somewhat fluctuating in the period between 2010 and 2020, but overall, they show an increasing

trend. However, the exports grew faster than the imports. In 2010, the exports were 86 billion euros and the imports 140 billion euros.

Figure 7-18. Import, export and trade balance, in million EUR, Türkiye, 2010-2020. Source: FAO.

7.3. Agricultural sector

Agriculture is of key importance to Türkiye, in both social and economic terms. About half of Türkiye's total land area is devoted to agriculture. In 2010-2021 about 17-23% of the workforce was employed in agriculture (see Table 7-4). Statistics does not provide current numbers about the farm structure. Following EC (2022), small and medium sized family farming is an important characteristic of Turkish agriculture. In these farms, the productivity of production factors is typically low. According to EC (2022), the farm structure in Türkiye shows similarities with some of the new EU countries. According to the data from the Farmer Registration System, the number of agricultural holdings was 3 022 127 as of 2019 (IPARD III Programme) compared to approximately 12 million in the EU, most of which are family farms employing family labour. Holdings are smaller than the EU average (7 ha compared to 13 ha in the EU). The division between arable and livestock sector in Türkiye over the last years was rather stable with the shares of approximately 60% and 40% respectively. Türkiye is an exporting country in agri-food products. The share of agri-food in the exports of all products is rather constant at 10-12%. The share of agri-food in the imports of all products was also stable at the level of 6-8%. Agri-food trade was increasing in the past 10 years while the value of agricultural production declined.

Table 7-4. Key agricultural statistics, Türkiye

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross value added of the agriculture, forestry, hunting and fishery sector (A)	GVA (at current prices)	million EUR	52 444	49 122	52 601	48 050	46 360	53 370	48 255	45 924	38 038	43 470	41 859	38 724
	Share in GVA of all business activities	%	10	9	9	8	7	8	7	7	6	7	8	
	Agriculture, forestry and fishing, Value Added (% of GDP)	%	9	8	8	7	7	7	6	6	6	6	7	6
Employment in the agriculture, forestry, hunting and fishery sector (A)	Number	1 000 persons	5 084	5 412	5 301	5 204	5 470	5 483	5 305	5 464	5 297	5 076	4 725	
	Share in total employment	%	23	23	22	21	20	20	19	19	18	18	18	17
Trade in food and agricultural products	Export of agri-food products	million EUR	8 885	10 158	11 593	12 466	13 098	14 571	14 035	14 274	14 245	16 761	17 156	
	Share in export of all products	%	10	10	10	11	11	11	11	10	10	10	12	
	Import of agri-food products	million EUR	7 447	9 878	9 823	10 038	10 734	11 067	10 911	12 622	11 961	14 360	14 486	
	Share in import of all products	%	5	6	5	5	6	6	6	6	6	8	8	
	Trade balance in agri-food products	million EUR	1 438	280	1 770	2 428	2 364	3 504	3 125	1 652	2 284	2 401	2 669	
	Export/import rate	%	119	103	118	124	122	132	129	113	119	117	118	
Agricultural land	Total	1 000 ha	39 011 000	38 231 000	38 399 000	38 423	38 558 000	38 551	38 328	37 964	37 797 000	37 716	37 762 000	38 063 000

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	- Arable land	1 000 ha	21 384	20 523 000	20 581 000	20 574	20 699	20 650	20 382	19 998	19 723	19 580	19 586 000	19 851 000
	of which fallow and uncultivated land	1 000 ha	4 249	4 017	4 286	4 148	4 108	4 114	3 998	3 967	3 513	3 387	3 173	
	- Land under permanent crops	1 000 ha	3 011	3 091	3 213	3 232	3 238	3 284	3 329	3 348	3 457	3 519	3 559	
	of which orchards	1 000 ha												
	vineyards	1 000 ha	478	473	462	469	467	462	435	417	417	405		
	olive trees	1 000 ha	784	798	814	826	826	837	846	846	864	789	887	
	other permanent crops	1 000 ha	1749	1820	1925	1937	1950	1985	2048	2085	2176	2241	1749	
	- Permanent grassland	1 000 ha	14 617	14 617	14 617	14 617	14 617	14 617	14 617	14 617	14 617	14 617		
	of which meadows	1 000 ha												
	pastures	1000 ha												
	- Other agricultural land	1 000 ha												
Farm structure	Number of agricultural holdings	1 000 holdings	-	-	-	-	-	-	-	-	-	-		
	Utilised agricultural area (UAA)	1 000 ha	39 011	38 231	38 399	38 423	38 558	38 551	38 328	37 964	37 797	37 712		
	UAA per holding	Ha/holding	-	-	-	-	-	-	-	-	-	-		
Change in volume of Gross Agricultural Output (GAO)	Total agricultural goods	%	24	4	0	-13	2	14	6	11	16	18		

		Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	- Crops	%	8	0	-6	-3	1	15	-4	6	14	22		
	- Livestock	%	43	9	5	-20	4	14	14	15	17	14		
Value of production	Total agriculture	million EUR	59 569	55 025	59 042	56 121	55 941	62 637	59 561	53 146	43 935	50 699	47 633	
	- Crops	million EUR	38 823	36 013	37 077	35 204	35 100	39 112	36 491	31 999	27 196	30 955	30 355	
	- Livestock	million EUR	18 249	16 205	19 226	18 802	18 710	21 534	21 173	19 135	15 036	18 243	16 374	
Share of crop and livestock output in total Agricultural Goods Output	- Crops	%	65	65	63	63	63	62	61	60	62	61	64	
	- Livestock	%	31	29	33	34	33	34	36	36	34	36	34	

Source: FAO, World Bank, Eurostat, TurkStat.

7.3.1. Farm structure, labour

For Türkiye the average farm size was 7.0 ha in 2017.[14] According to the 2001 census, there are approximately 3 million agricultural holdings in Türkiye (compared to approximately 12 million in the EU).

Recent data on number and size of agricultural holdings to present the farm structure is not available. Older data is available here: https://seerural.org/news/open-access-agricultural-statistics-on-western-balkans-and-turkey/.

7.3.2. Production value

From 2010 to 2019, the total production value of agriculture in Türkiye fluctuated between 44 billion million euros (2018) and 63 billion euros (2015). In 2020, the production value of agriculture was 47 633 million euros. The shares of crops in the production value of agriculture are about 64% in 2020.

7.3.3. Prices and input costs

Figure 7-19 shows the producer price index of agriculture in Türkiye where 2014-2016 are baseline. The prices been increasing since 2018. In 2021, the producer price index got over 200.

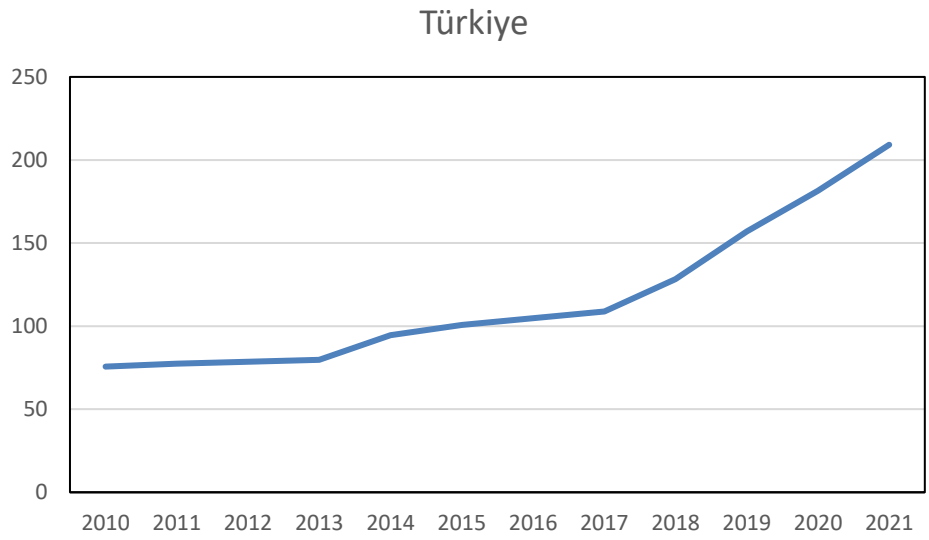

Figure 7-19. Producer price index of Agriculture, 2014-2016 = 100, in 2010-2021. Source: FAO

Prices of fuels and fertilizers in euros are shown in Table 7-5. For fertilizes holds that prices increased between 2015 and 2021. Electricity prices showed a decrease.

[14] IPARD III Programme report – Turkey 2022

Table 7-5. Prices of electricity, and different fertilizers

	2015	2016	2017	2018	2019	2020	2021	growth 2010-2021 (%)
Electricity prices for non-household consumers 20 MWh < Consumption < 500 MWh EUR per kWh	0.094	0.089	0.075	0.075	0.102	0.083	0.087	-7
Prices Ammonium nitrate (26% N)(in sacks)(per 100 kg of nutritive substance)	25.604	19.492	19.026	13.850	17.160	17.831	31.070	21
Prices Muriate of potash (per 100 kg of nutritive substance)	46.508	36.893	30.954	30.360	32.999	32.869	58.978	27
Prices Urea (per 100 kg of nutritive substance)	35.319	25.497	24.882	23.444	29.575	27.251	51.463	46

Source: Eurostat, calculations WR

7.3.4. International trade

Table 7-6 reports the trade and the share of agricultural trade of Türkiye in 2010-2020. Over the last 10 years, both total and agricultural exports of Türkiye were increasing. Agricultural exports doubled in value to about 20.5 billion euros in 2021. The share of agricultural exports in total exports remained rather stable at the level of 10-12%. The share of agricultural imports in total imports has increased from 5 to 7%, going hand in hand with the overall growth in total agricultural imports that was at the level of 17 billion euros in 2021.

Table 7-6. Export and import of agricultural products by Türkiye, 2010-2021, in million EUR

Row Labels	2010	2015	2016	2017	2018	2019	2020	2021	growth 2010-2021 (%)
Export									
Total trade (million EUR)	85 975	136 080	134 830	145 611	150 009	161 538	148 536	190 400	121
Agricultural trade (million EUR)	8 963	16 237	15 865	16 059	15 893	17 061	17 459	20 449	128
Share of agricultural trade in total trade (%)	10	12	12	11	11	11	12	11	
Import									
Total trade (million EUR)	139 954	192 535	182 658	211 311	195 717	187 901	192 185	229 461	64
Agricultural trade (million EUR)	7 262	12 586	12 407	14 210	13 431	14 375	14 638	16 954	133
Share of agricultural trade in total trade (%)	5	7	7	7	7	8	8	7	

Source: UN Comtrade, calculations WR.

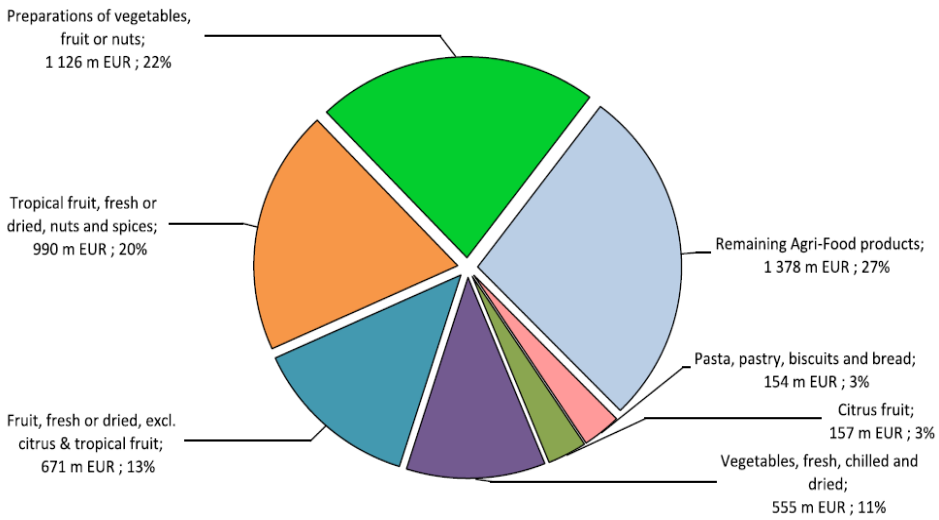

Figure 7-20. Exports from Türkiye into EU, in 2021, in million euro and %. Source: EC (2022e).

Figure 7-20 demonstrates that fresh vegetables and their preparations are the major product categories of Türkiye exports to the EU counting up to 69% in 2021.

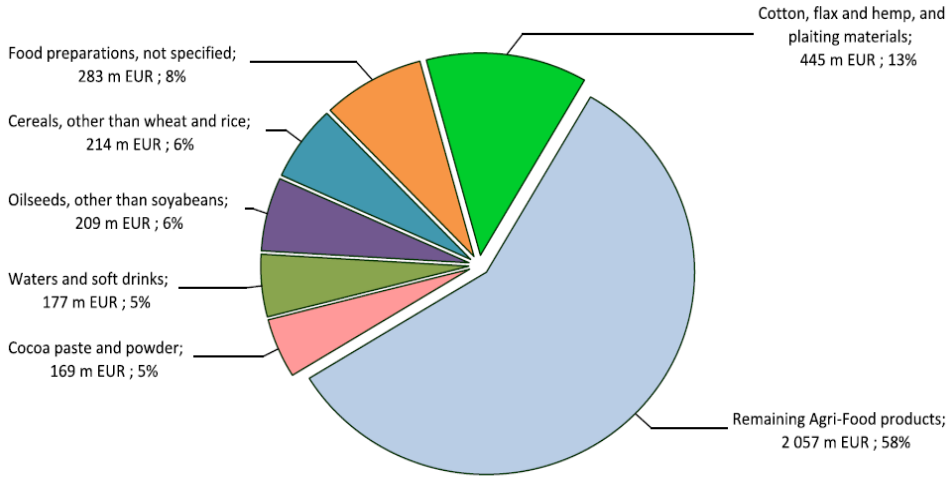

Figure 7-21. Imports to Türkiye from EU, in 2021, in million euro and %. Source: EC (2022e).

Figure 7-21 shows that imports into Türkiye from the EU mainly constitute of cotton, food preparations, cereals and oilseeds. The remaining agri-food products are 58% and are composed by categories of smaller shares.

7.4. Dairy sector

7.4.1. Production value and producer prices

The production value of milk in Türkiye varies over the years. The value of fresh cow milk in euros varied between 4.7 million euros and 5.6 million euros in the period 2011 – 2021 (see Figure 7-22). The depreciation of local currency clearly had a negative

impact on the production value in euros, although the production volume faced an increase from 14 million tonnes to 22 million tonnes between 2010 and 2020 (see Table 7-8). The producer prices of fresh cow milk in euros also showed a decreasing trend from 459 EUR/tonne in 2010 to 263 EUR/tonne in 2021 (see Figure 7-23).

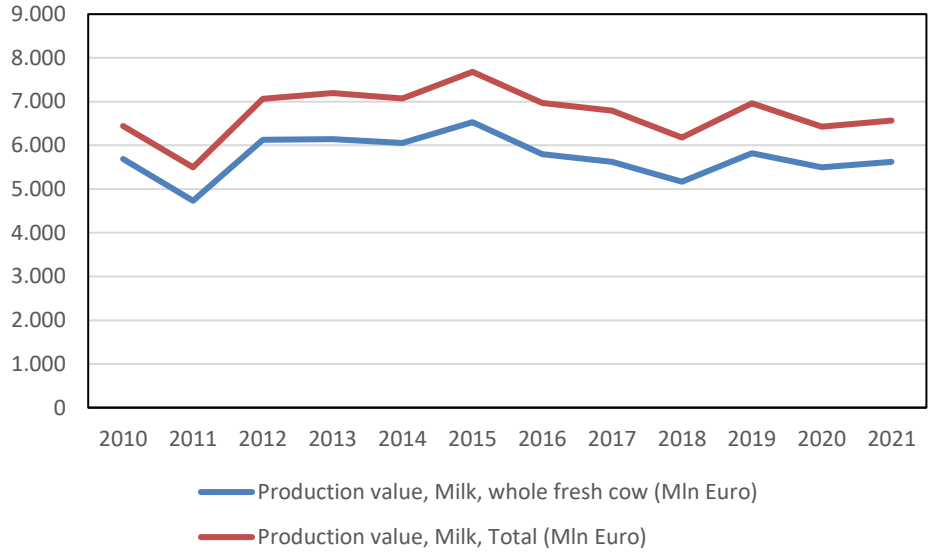

Figure 7-22. Gross Production Value of dairy in Türkiye, current million EUR. Source: FAOSTAT.

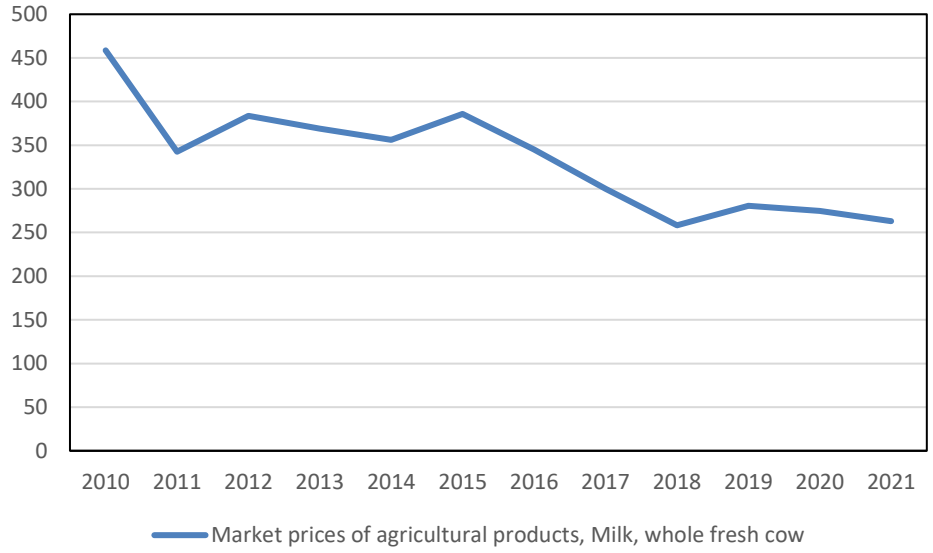

Figure 7-23. Milk producer prices in Türkiye (EUR/tonne). Source: FAOSTAT.

7.4.2. Costs and revenues of milk

For milk, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Türkiye, the National Expert provided estimated costs and revenues per Holstein cow (600 kg live weight with a daily yield of 20 kg of milk) basing on the Turkish National Dairy Council. The presented costs, and meat and calf revenues are per head. The costs and revenues for milk per kg are presented as well. The total costs of milk per kg are estimated by subtracting the meat and calf revenues per head from the farm costs per head and dividing the difference by the milk yield per head.

The total estimated production costs per kg of milk are 0.30 euros. This cost calculation includes labour cost since calculation is based on commercial farm. The estimated

average price of milk is 0.26 euros and the estimated subsidy on milk is 0.02 euros per kg.

The net farm income is estimated with and without including subsidies. The farm income without subsidy is negative, or -15% of the market price per kg. The farm income with subsidy is negative as well, or -8% of the total revenue per kg of milk, i.e. the market price plus the subsidies.

The estimated cost and revenue items for milk are shown in the table below.

Table 7-7. Estimated costs and revenues of milk in Türkiye, 2021

	For Milk, in EUR
Total costs per head (20 kg milk yield)	**6.5**
Total calf revenues per head	0.45
Production costs of milk per kg	**0.30**
Average milk price per kg of milk	**0.26**
Subsidies per kg of milk	**0.02**
Net farm income, excluding subsidies, per kg of milk	**-0.04 (-15%)**
Net farm income, including subsidies, per kg of milk	**0.02 (-8%)**

7.4.3. Output, area, animals and yields

Table 7-8. Production and yield for dairy, Türkiye

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Milk Animals	Milk, Total	Head	17 563 349	25 540 193	25 199 562	28 505 537	30 600 239	31 968 157	32 151 788
	Milk, whole fresh cow	Head	4 361 840	5 535 773	5 431 714	5 969 046	6 377 907	6 580 753	6 309 235
Production	Milk, Total	tonnes	13 543 674	18 654 683	18 489 162	20 699 894	22 120 716	22 960 379	21 839 351
	Milk, whole fresh cow	tonnes	12 418 544	16 933 520	16 786 263	18 762 319	20 036 877	20 782 374	20 000 000
Yield	Milk, Total	hg/An	7 711	7 304	7 337	7 262	7 229	7 182	6 793
	Milk, whole fresh cow	hg/An	28 471	30 589	30 904	31 433	31 416	31 581	31 700

Source: FAOSTAT.

According to FAOSTAT (see Table 7-8), the dairy sector in Türkiye has not been changing a lot in the last 10 years. The numbers of dairy cows have declined slightly and with a good growth in dairy productivity from 5 662 hg/animal to 7 080 hg/animal the overall production of milk in tonnes has remained at the level of 450 thousand tonnes.

7.4.4. International trade

Türkiye has been a net-exporter of dairy products in the period 2010-2021 (Table 7-9). Exports include concentrated milk and cream, cheese and also whey. Imports include mainly cheese and butter.

Table 7-9. Export and import of dairy products, Türkiye, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	229	503	562	641	661	613	537	726	0.4	217
Of which:										
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	9	17	15	26	30	23	18	13	0.0	56
Milk and cream; concentrated or containing added sugar or other sweetening matter	4	17	83	61	43	80	46	151	0.1	4,102
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	9	13	10	14	12	10	8	6	0.0	-39
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	7	17	18	27	24	36	46	69	0.0	866
Butter and other fats and oils derived from milk; dairy spreads	1	16	12	11	9	21	9	15	0.0	1,156
Cheese and curd	77	153	148	146	154	156	163	129	0.1	67
Import										
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	97	141	126	131	130	134	107	93	0.0	-4
Of which:										
Milk and cream; not concentrated, not containing added sugar or other sweetening matter	0	3	3	4	5	5	3	2	0.0	n.a.
Milk and cream; concentrated or containing added sugar or other sweetening matter	29	2	3	2	4	3	6	2	0.0	-93
Buttermilk, curdled milk and cream, yoghurt, kephir, fermented or acidified milk or cream, whether o	0	1	0	0	1	0	0	1	0.0	n.a.
Whey and products consisting of natural milk constituents; whether or not containing added sugar or	1	3	2	3	1	1	2	4	0.0	257

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Butter and other fats and oils derived from milk; dairy spreads	37	61	52	49	45	51	31	8	0.0	-79
Cheese and curd	20	45	43	41	36	38	30	28	0.0	39

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

7.5. Eggs and honey

7.5.1. Production value and producer prices

The production value of eggs in Türkiye fluctuated between 944 million euros and 1.8 billion euros in the 2010-2021 period (see Figure 7-24), with the highest value observed on 2011 and lowest in 2020. The production value of honey was rather stable until 2017 and declined somewhat in the years after. Producer prices of honey decreased from 8,800 euros per tonnes in 2010 to 5,300 per tonne in 2020. The decrease of egg producer prices clearly had a negative impact on the production value, despite the increasing production volume of eggs, i.e., from 11,8 million eggs to 19.7 million eggs between 2010 and 2020. Market prices decreased from 1600 euros per tonnes in 2010 to 763 euros per tonne in 2020. The decrease of egg prices in euros has been reinforced by the devaluation of local currency, as the prices in Turkish lira faced a strong increase during the period of analysis.

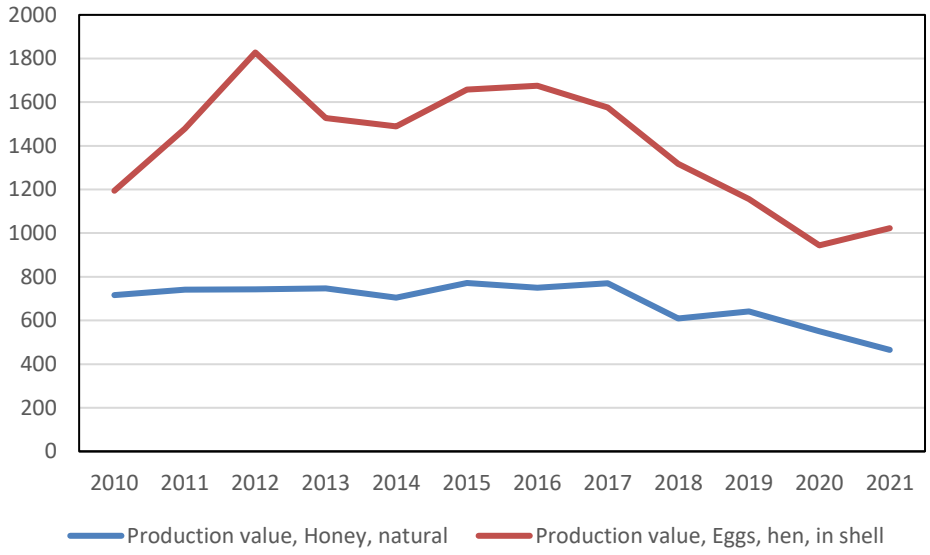

Figure 7-24. Gross Production Value of eggs in shell and honey in Türkiye, current million EUR. Source: FAOSTAT.

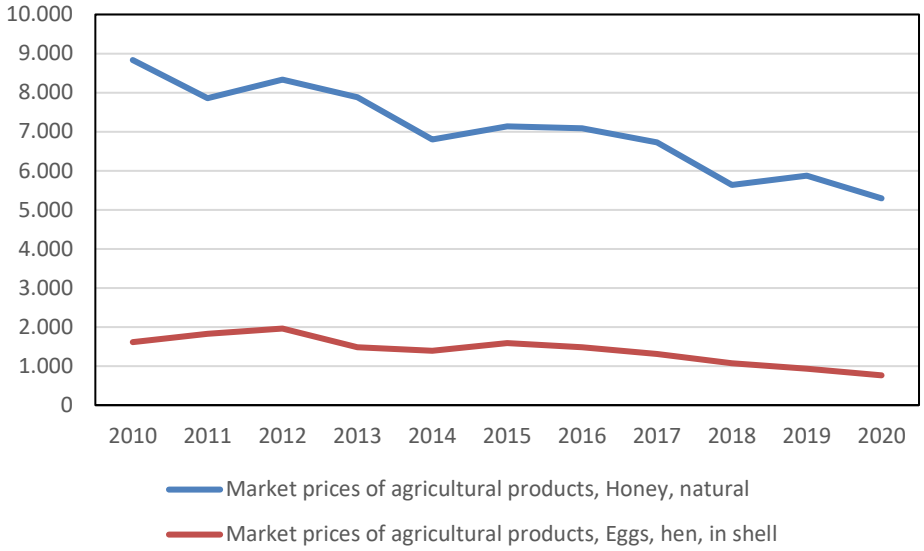

Figure 7-25. Producer prices of eggs in shell and honey in Türkiye (EUR/tonne). Source: FAOSTAT.

7.5.2. Output, area, animals and yields

Table 7-10 indicates production and productivity for eggs and honey in Türkiye in 2010-2020. The number of laying hens has substantially increased by 2020 (by about 52 million of heads). Production of eggs and of honey has been steadily increasing throughout the years, with the maximum level of production achieved for honey in 2017 at the level of 114 471 tonnes. Productivity of laying hens has been rather stable at the level of 160 eggs per animal. Production however has almost doubled from 11.8 million eggs in 2010 to 19.8 million eggs in 2020.

Table 7-10. Production and yield for eggs and honey, Türkiye

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Laying	Eggs, hen, in shell	1000 Head	70 934	98 597	108 689	121 556	124 055	120 725	122 711
Production	Eggs, hen, in shell	1000 No	11 840 396	16 727 510	18 097 605	19 281 196	19 643 711	19 898 126	19 788 063
		tonnes	740 025	1 045 469	1 131 100	1 205 075	1 227 732	1 243 633	1 236 754
	Honey, natural	tonnes	81 115	108 128	105 727	114 471	107 920	109 330	104 077
Yield	Eggs, hen, in shell	100mg/An	104 326	106 035	104 068	99 137	98 967	103 014	100 786
		No/An	167	170	167	159	158	165	161

Source: FAOSTAT.

7.5.3. International trade

Türkiye shows increasing imports in eggs with a value of 47 million euros in 2021, see Table 7-11. Imports of honey are rather negligible. The exports of eggs in shell almost doubled in the 2010-2021 period. These exports were about 317 million euro in 2021. The exports of honey are significant as well, worth 26 million euro in 2021.

Table 7-11. Export and import of eggs and honey, Türkiye, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Birds' eggs, in shell; fresh, preserved or cooked	118	247	262	335	368	265	224	317	0.2	169
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	0	0	0	0	0	0	0	0	0.0	n.a.
Honey; natural	4	23	14	21	22	22	23	26	0.0	501
Import										
Birds' eggs, in shell; fresh, preserved or cooked	9	24	21	30	37	34	33	47	0.0	441
Birds' eggs, not in shell; egg yolks, fresh, dried, cooked by steaming or boiling in water, moulded,	1	0	0	1	0	0	0	0	0.0	n.a.
Honey; natural	0	0	0	0	0	0	0	0	0.0	n.a.

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

7.6. Meat sector

7.6.1. Production value and producer prices

Figure 7-26 presents gross production value of various types of meat in Türkiye. In the period 2010-2020, the total production value of meat was fluctuating, especially in the second half of the researched period. This fluctuation was mainly due to the fluctuation in the production value of cattle, which showed the same trend. The production value of other important types of meat like chicken and sheep remained relatively stable.
The gross production value of sheep meat saw a decline after 2010, while after 2015 the production value increased to about 500-600 million euro and remained relatively stable. This decrease in production value coincides with a decrease in producer prices in euro which was reinforced by the devaluation of local currency, as the prices in Turkish lira faced a strong increase during the period of analysis.

The gross production value for chicken meat was 3.6 billion euros in 2010 and increased to 4.1 billion in 2020. The producer prices decreased from 3 301 euros per tonne in 2011 to 2 669 euro per tonne in 2020. Whilst the production increased from 1.4 million tonnes in 2010 to 2.1 million tonnes in 2020 (see Table 7-12 and Figure 7-27).

Cattle meat shows most fluctuations in the gross value production between 2010-2020, with a range of 3.2 billion euros in 2018 up to 6.9 billion in 2016. In the same year production was 1.1 million tonnes and in 2018 it was 1.0 million tonnes. In 2016, the producer price for cattle meat was 5 197 euros per tonne and in 2018 it was 4 553 per tonne.

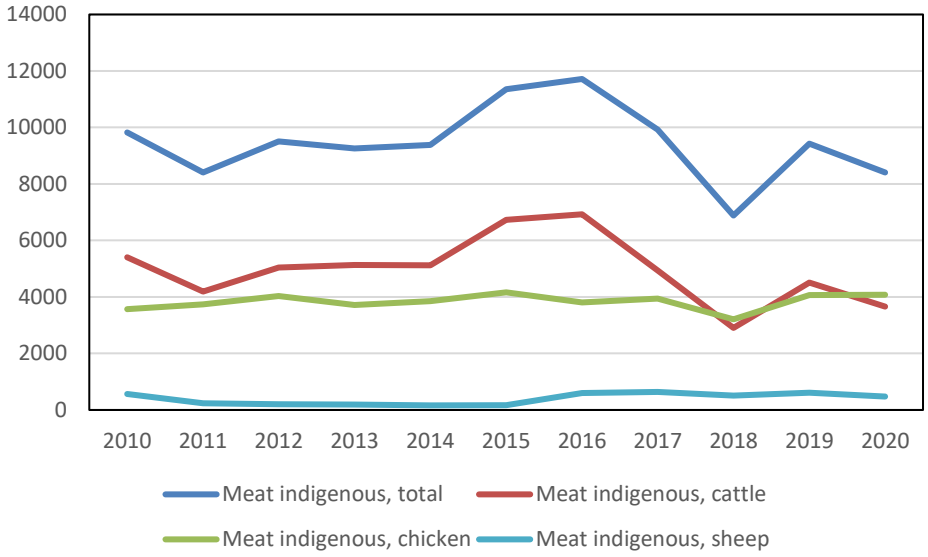

Figure 7-26. Gross Production Value of various types of meat in Türkiye, current million EUR. Source: FAOSTAT.

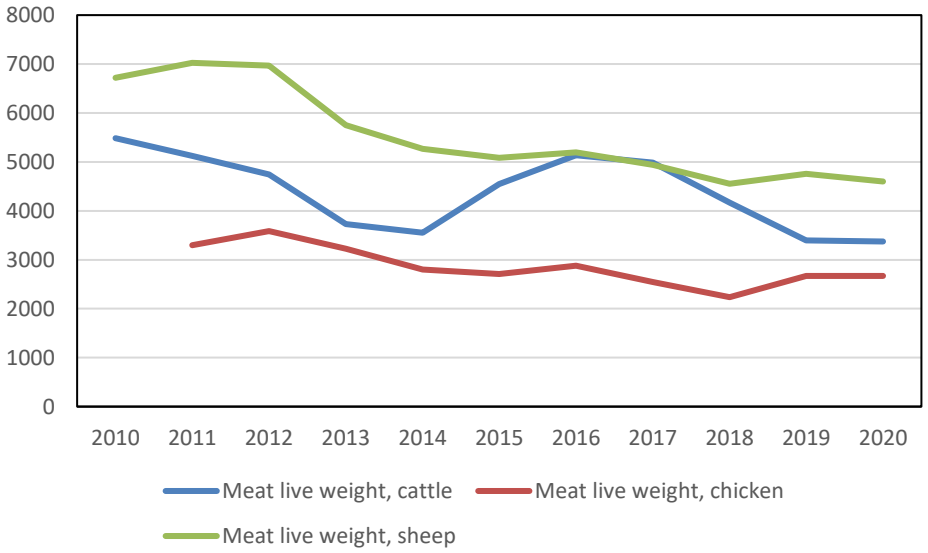

Figure 7-27. Producer prices of various types of meat in Türkiye (EUR/tonne). Source: FAOSTAT.

Table 7-12 shows the production and yield for main meat products in Türkiye in 2010-2020. Pig meat production is negligible, provided the country tradition of having no pig meat on the menu. The majority of meat is produced through the poultry sector. The production of chicken, cattle and also sheep meat is increasing. The average yield per animals (carcass weights) have also been growing for all types of livestock.

7.6.2. Output, area, animals and yields

Table 7-12. Production and yield for meat, Türkiye

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Producing Animals /Slaughtered	Meat of chickens	1 000 Head	843 898	1 118 719	1 101 572	1 228 444	1 228 533	1 207 088	1 200 707
	Meat of sheet, fresh or chilled	Head	9 691 041	12 808 697	13 277 503	13 244 903	14 133 170	14 546 576	15 801 021
	Meat of cattle with the bone, fresh or chilled	Head	2 932 054	3 706 346	3 993 893	4 334 034	4 844 711	4 856 517	4 812 902
	Meat of pig with the bone, fresh or chilled	Head	0	0	0	0	0	0	0
Production, a)	Meat, Total	tonnes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Meat of chickens	tonnes	1 444 078	1 909 318	1 879 062	2 136 755	2 156 690	2 138 477	2 138 459
	Meat of sheet, fresh or chilled	tonnes	186 068	249 770	266 878	262 249	291 143	315 661	346 042
	Meat of cattle with the bone, fresh or chilled	tonnes	647 104	862 096	956 138	1 093 910	1 281 426	1 330 200	1 341 356
	Meat of pig with the bone, fresh or chilled	tonnes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Yield/Carcass Weight	Meat of chickens, fresh or chilled	0.1g/An	17 112	17 067	17 058	17 394	17 555	17 716	17 810
	Meat of sheep, fresh or child	hg/An	192	195	201	198	206	217	219
	Meat of cattle with the bone, fresh or chilled	hg/An	2 207	2 326	2 394	2 524	2 645	2 739	2 787
	Meat of pig with the bone, fresh or chilled	hg/An	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: FAOSTAT. Data updated in June 2023. a) production data in FAOSTAT missing for Türkiye, calculated by multiplying number of animals and yield/carcass weight.

7.6.3. International trade

Table 7-13 presents import and export values of meat products in Türkiye. Türkiye mainly imports live animals and exports poultry meat. Exports of poultry have been growing steadily over the last years from 153 million euros to 478 million euros. Also imports of poultry meat were growing, putting Türkiye in active position among poultry traders. Import of live animals has been rather dynamic and increased six times by year 2018, lowering the value thereafter up until 2020.

Table 7-13. Export and import of meat, Türkiye, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Animals; live	6	31	25	31	49	76	73	90	0.0	1,524
Meat and edible meat offal	157	428	375	529	542	571	499	743	0.4	374
Of which:										
Meat of bovine animals; fresh or chilled	0	0	0	0	0	1	2	2	0.0	n.a.
Meat of bovine animals; frozen	0	6	5	6	11	11	5	8	0.0	n.a.
Meat of swine; fresh, chilled or frozen	0	2	2	2	2	2	2	2	0.0	n.a.
Meat of sheep or goats; fresh, chilled or frozen	0	1	2	2	5	5	2	5	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	1	3	4	11	10	8	9	10	0.0	899
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e. fowls of the species Gal	153	412	359	506	513	542	478	714	0.4	366
Import										
Animals; live	251	291	546	1 073	1 497	626	391	262	0.1	4
Meat and edible meat offal	189	125	85	140	274	78	65	65	0.0	-66
Of which:										
Meat of bovine animals; fresh or chilled	174	50	38	40	214	20	23	6	0.0	-96
Meat of bovine animals; frozen	14	58	10	46	17	15	5	7	0.0	-49
Meat of swine; fresh, chilled or frozen	0	2	2	2	2	2	2	2	0.0	n.a.
Meat of sheep or goats; fresh, chilled or frozen	0	4	2	4	4	4	1	2	0.0	n.a.
Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies; fresh, chilled	0	0	0	0	0	0	0	0	0.0	n.a.
Meat and edible offal of poultry; of the poultry of heading no. 0105, (i.e. fowls of the species Gal	1	11	33	47	37	37	33	46	0.0	6,951

Source: UN Comtrade, calculations WR. n.a.: growth is not calculated due to almost null trade.

7.7. Fruit and vegetables

7.7.1. Production value and producer prices

Figure 7-28 and Figure 7-29 present the gross production values of selected fruits and the gross production value of the selected vegetables. The overall trend of gross production value in the period 2010-2020 is declining. This holds for most fruits and vegetables. Only for apples there is a slight increase year 2020. In 2016, there is a break in the declining trend for vegetables and fruit primary, watermelons and tomatoes, where there is an evident increase of gross production value. The production value of tomatoes shows the most severe fluctuation, where from almost 6 billion euro in 2016 it has dropped to 2.7 billion in 2020.

Figure 7-30 shows the producer prices of selected fruits between 2010-2020. Figure 7-31 shows the producer prices of selected vegetables between 2010-2020. In this period the selected fruits and vegetables show in general a trend of decline in producer prices, with minor fluctuations in the year 2014 for apples, chillies and peppers green, cabbages and other brassicas. The producer prices for grapes showed an increase in 2015 and for tomatoes in 2016. In general, producer prices of vegetables show a larger variation compared to producer prices of fruits.

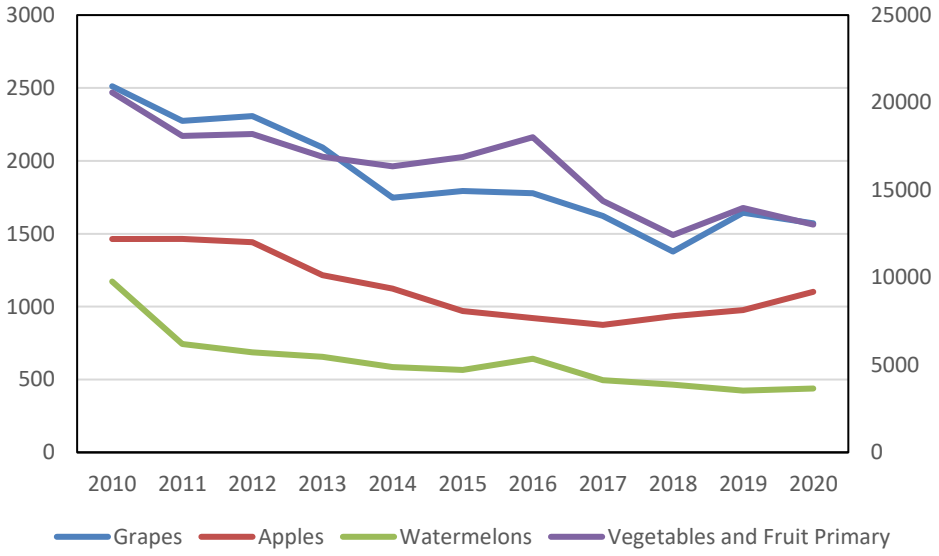

Figure 7-28. Gross Production Value of selected fruits in Türkiye, current million EUR. Vegetables and Fruit Primary on right axis. Source: FAOSTAT.

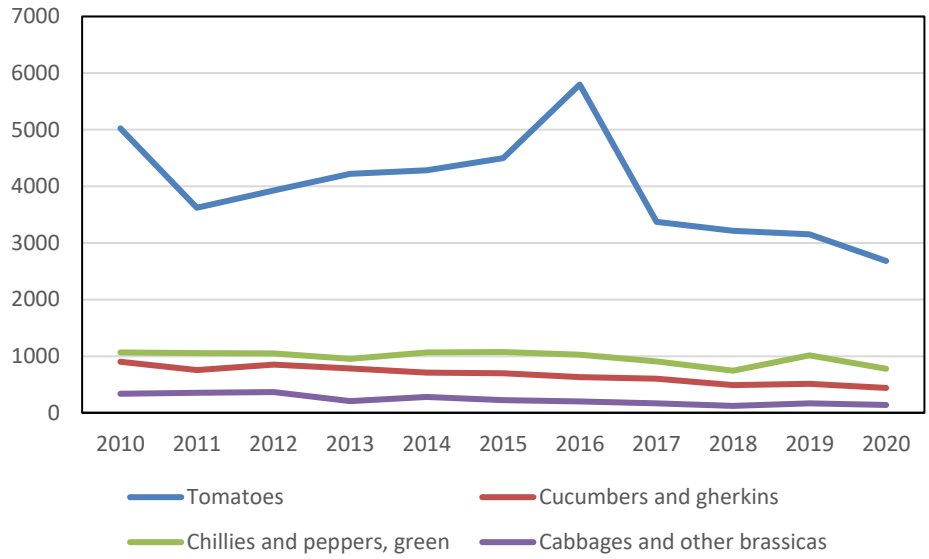

Figure 7-29. Gross Production Value of selected vegetables in Türkiye, current million EUR. Source: FAOSTAT.

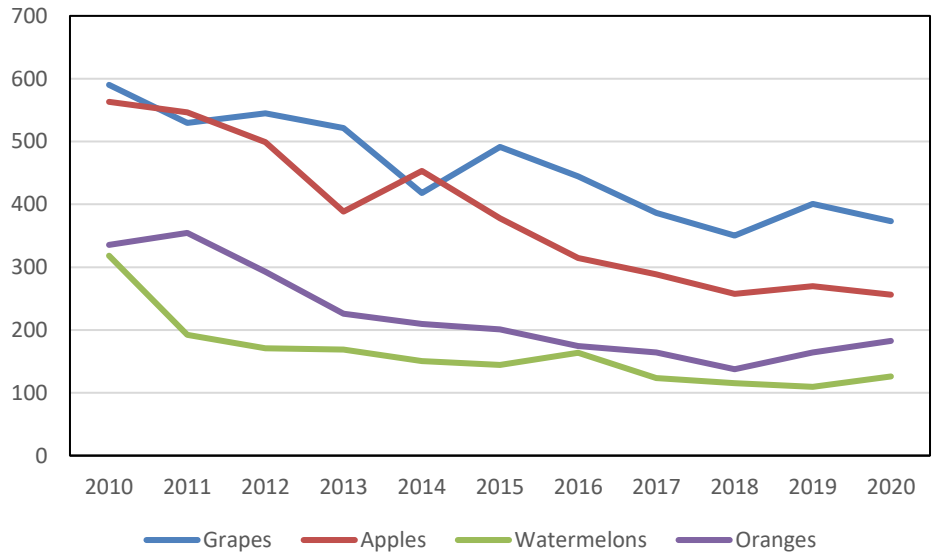

Figure 7-30. Producer prices of selected fruits in Türkiye (EUR/tonne). Source: FAOSTAT.

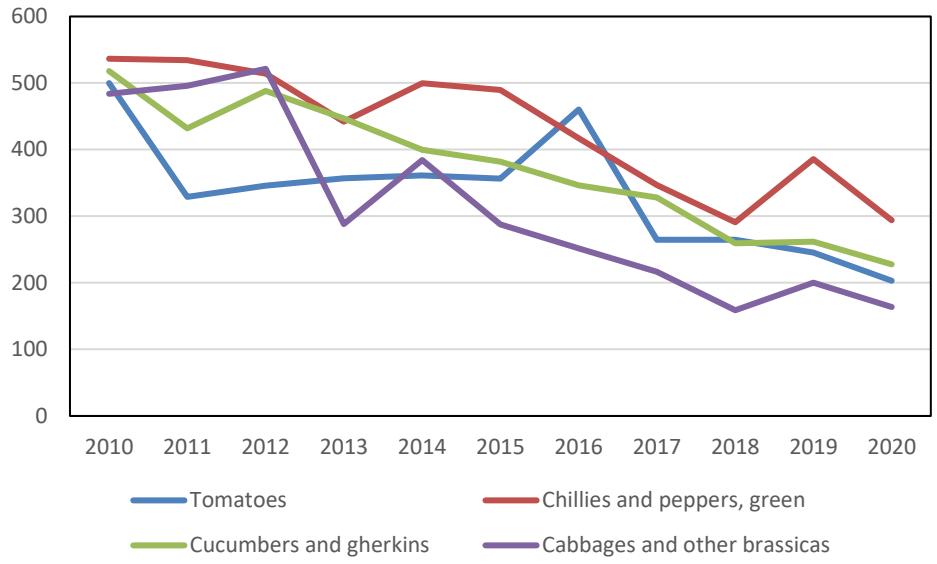

Figure 7-31. Producer prices of selected vegetables in Türkiye (EUR/tonne). Source: FAOSTAT.

7.7.2. Costs and revenues of apples and tomatoes

For apples and tomatoes, an estimation of costs and revenues is made by the National Expert using a combination of data published in secondary sources, databases and interviews. For Türkiye, the National Expert provided estimated costs and average market prices based on a data sample with a group of apple growers with 50 tons/ha average yield, and tomato growers with 180 tons/ha average yield. The costs and prices are presented per kg of product.

In Türkiye, there is governmental budgetary support of agriculture and rural development, which includes market and direct producer support. Although farms with apples and tomatoes did receive subsidy for their production, the estimation of subsidies specifically per kg of product is not given. Therefore, the subsidies could not be included in the estimation of costs and revenues.

Table 7-14. Estimated costs and revenues of apples and tomatoes in Türkiye, 2021

	For Apples, in EUR	For tomatoes, in EUR
Total costs per kg, of which	**0.07**	**0.21**
Fixed costs per kg of product	0.02	0.08
Variable costs per kg of product	0.05	0.13
Average price per kg of product	**0.12**	**0.23**
Net farm income per kg of product	**0.04 (38%)**	**0.02 (10%)**

The total estimated production costs per kg of apples are 0.07 euros. The total estimated production costs of tomatoes are 0.21 euros per kg. The cost calculation includes family labour opportunity cost. The estimated average price of apples is 0.12 euros per kg and the estimated average price of tomatoes is 0.23 euros per kg.

The net farm income per kg of apples is 38% of the market price. The net farm income per kg of tomatoes is 10% of the market price. The estimated cost and revenue items for apples and tomatoes are shown in Table 7-14.

7.7.3. Output, area, animals and yields

Table 7-15 shows the production and yield for main fruits and vegetables in Türkiye in 2010-2020. Overall, areas under fruits and vegetables remained rather stable in the last 10 years. The area under primary vegetables is the largest among all fruits and it was about 1.4 million ha in 2020. The next largest area is under grapes, followed by apples and citrus fruits. The yields of all fruits and vegetables except for total citrus fruits have been increasing over the years. The yield for citrus fruits has not decreased a lot however. The production of fruits and vegetables has increased for all fruits and vegetables.

Table 7-15. Production and yield for fruit and vegetables, Türkiye

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Citrus Fruit, Total	ha	118 105	132 912	135 643	140 003	143 670	174 251	158 084
	Fruit Primary	ha	1 329 278	1 392 191	1 374 462	1 360 264	1 354 240	1 375 198	1 348 595
	Grapes	ha	477 786	461 956	435 227	416 907	417 041	405 439	400 998
	Apples	ha	165 078	171 410	173 394	175 357	174 690	174 439	170 903
	Watermelons	ha	95 660	93 886	92 378	92 987	92 704	87 885	78 179
	Vegetables Primary	ha	656 866	688 476	726 228	737 995	704 075	720 039	744 527
	Tomatoes	ha	179 125	193 572	190 020	186 711	174 161	180 424	181 879
	Chillies and peppers, green	ha	81 162	80 823	89 014	92 734	90 641	92 114	91 491
	Cucumbers and gherkins	ha	39 456	38 636	37 909	37 382	38 385	39 338	38 246
	Cabbages and other brassicas	ha	25 326	25 875	26 416	26 027	25 180	26 640	27 346
Pro-duction	Citrus Fruit, Total	tonnes	3 572 376	3 975 873	4 293 007	4 769 726	4 902 052	4 301 415	4 348 742
	Fruit Primary	tonnes	19 229 237	20 296 003	21 781 240	23 152 733	23 604 491	23 320 686	24 153 128
	Grapes	tonnes	4 255 000	3 650 000	4 000 000	4 200 000	3 933 000	4 100 000	4 208 908
	Apples	tonnes	2 600 000	2 569 759	2 925 828	3 032 164	3 625 960	3 618 752	4 300 486
	Watermelons	tonnes	3 683 103	3 918 558	3 928 892	4 011 313	4 031 174	3 870 515	3 491 554
	Vegetables Primary	tonnes	20 655 850	23 696 207	24 421 408	24 923 427	24 172 654	25 382 178	25 960 714
	Tomatoes	tonnes	10 052 000	12 615 000	12 600 000	12 750 000	12 150 000	12 841 990	13 204 015
	Chillies and peppers, green	tonnes	1 986 700	2 191 888	2 457 822	2 608 172	2 554 974	2 625 669	2 636 905
	Cucumbers and gherkins	tonnes	1 739 191	1 822 636	1 811 681	1 827 782	1 890 904	1 959 849	1 926 883
	Cabbages and other brassicas	tonnes	693 002	766 675	785 971	778 887	765 276	819 667	851 648
Yield	Citrus Fruit, Total	hg/ha	302 475	299 136	316 493	340 687	341 202	246 852	275 091
	Fruit Primary	hg/ha	144 659	145 785	158 471	170 208	174 301	169 581	179 098
	Grapes	hg/ha	89 057	79 012	91 906	100 742	94 307	101 125	104 961
	Apples	hg/ha	157 501	149 919	168 739	172 914	207 565	207 451	251 633
	Watermelons	hg/ha	385 020	417 374	425 306	431 384	434 844	440 407	446 610
	Vegetables Primary	hg/ha	314 461	344 183	336 277	337 718	343 325	352 511	348 687

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
	Tomatoes	hg/ha	561 172	651 695	663 088	682 874	697 630	711 767	725 978
	Chillies and peppers, green	hg/ha	244 782	271 196	276 116	281 253	281 878	285 046	288 215
	Cucumbers and gherkins	hg/ha	440 793	471 746	477 903	488 947	492 615	498 208	503 813
	Cabbages and other brassicas	hg/ha	273 633	296 300	297 536	299 261	303 922	307 683	311 434

Source: FAOSTAT.

7.7.4. International trade

Table 7-16 presents import and export values of fruit and vegetables in Türkiye. Türkiye is a net exporter of these products. While both import and export flows grew in the in the period 2010-2020, the imports grew harder than exports. The largest product group in terms of import and export value in euros is fresh fruit and nuts.

Table 7-16. Export and import of fruit and vegetables, Türkiye, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Vegetables and certain roots and tubers; edible	835	1 135	1 195	1 139	1 055	1 135	1 256	1 479	0.8	7
Fruit and nuts, edible; peel of citrus fruit or melons	2 633	4 314	3 843	3 877	3 679	4 100	4 229	4 538	2.4	72
Preparations of vegetables, fruit, nuts or other parts of plants	1 125	2 051	1 739	1 728	1 672	1 862	2 066	2 274	1.2	102
Import										
Vegetables and certain roots and tubers; edible	238	598	708	750	392	469	552	618	0.3	160
Fruit and nuts, edible; peel of citrus fruit or melons	238	786	819	895	800	838	791	777	0.3	227
Preparations of vegetables, fruit, nuts or other parts of plants	47	177	117	114	98	133	130	127	0.1	169

Source: UN Comtrade, calculations WR.

7.8. Cereals, potatoes and other crops

7.8.1. Production value and producer prices

Figure 7-32 shows 2010-2021 production values and Figure 7-33 shows producer prices for cereals and potatoes in Türkiye in 2010-2021. Production of cereals and wheat have been fluctuating the most, whilst sugar beet showed an overall stable trend. Wheat has the largest production value. Wheat and maize production values increased or were relatively stable up to 2015 and decreased after with an overall decreasing trend for both maize and wheat.

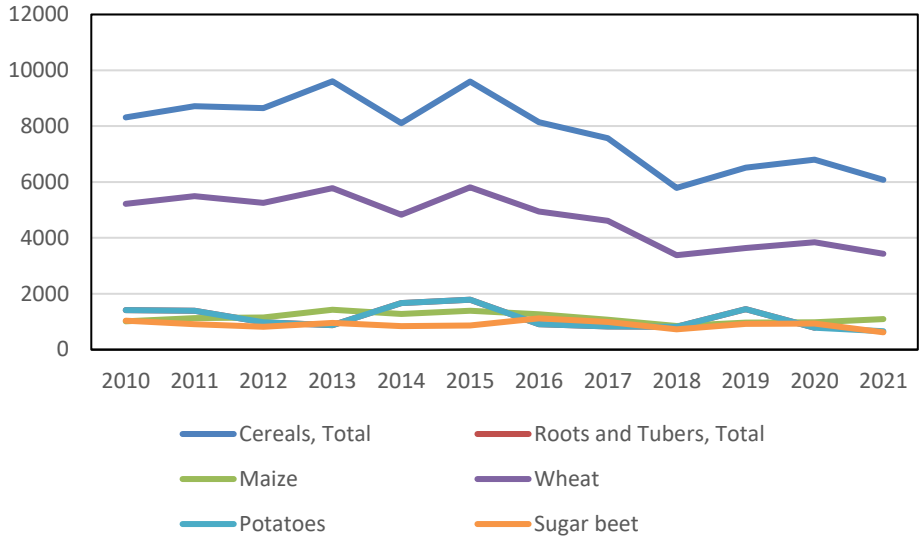

Figure 7-32. Gross Production Value of selected arable crops in Türkiye, current million EUR. Source: FAOSTAT.

Producer prices of potatoes in euros showed significant fluctuations in the 2010-2020 period (see Figure 7-33). Producer prices of wheat and maize show similar development over time with less fluctuations. All prices show an overall decreasing trend, mainly reflecting the depreciation of the Turkish lira.

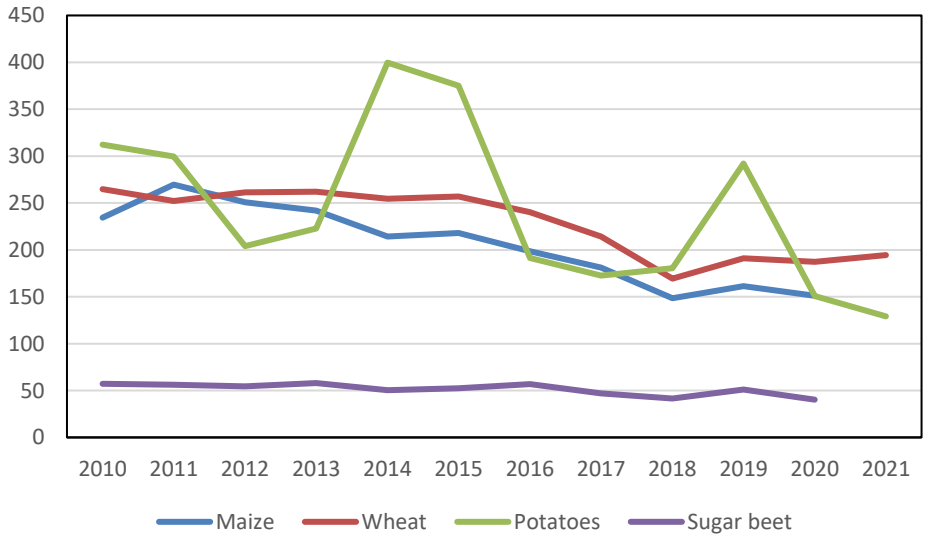

Figure 7-33. Producer prices of selected arable crops in Türkiye (EUR/tonne). Source: FAOSTAT.

7.8.2. Output, area, animals and yields

Table 7-17 shows the production and yield numbers for selected arable crops in Türkiye in 2010-2020. Cereals in this country take the largest share among the cash crops. Its total area was rather stable across the years at the level of about 11 million ha in 2020. Among cereals, a bit more than a half is occupied by wheat. Areas under pulses (0.9 million ha) and roots and tubers (0.140 million ha) are substantially lower and have been rather stable over the years. Yields of all crops have increased or remained at similar level. The production of all crops increased or remained more or less the same.

Table 7-17. Production and yield for cereals, potatoes and other crops, Türkiye

	Item	Unit	2010	2015	2016	2017	2018	2019	2020
Area harvested	Cereals, Total	ha	12 014 528	11 679 276	11 359 619	11 090 361	10 871 307	10 746 739	11 128 065
	Pulses, Total	ha	897 190	740 811	746 543	827 288	869 737	899 359	871 009
	Roots and Tubers, Total	ha	140 743	153 855	144 749	142 903	135 904	140 766	147 965
	Maize	ha	593 552	686 169	679 537	637 726	591 544	638 065	690 553
	Wheat	ha	8 063 070	7 846 481	7 609 868	7 662 273	7 288 622	6 831 854	6 914 632
	Potatoes	ha	140 685	153 802	144 706	142 851	135 904	140 766	147 965
	Sugar beet	ha	328 651	275 262	321 953	338 883	290 698	310 100	336 348
Production	Cereals, Total	tonnes	32 764 875	38 632 438	35 276 615	36 126 157	34 395 628	34 398 698	37 184 688
	Pulses, Total	tonnes	1 344 882	1 142 890	1 134 575	1 197 951	1 225 220	1 230 272	1 296 867
	Roots and Tubers, Total	tonnes	4 549 256	4 760 786	4 750 636	4 801 031	4 550 000	4 979 824	5 200 000
	Maize	tonnes	4 310 000	6 400 000	6 400 000	5 900 000	5 700 000	6 000 000	6 500 000
	Wheat	tonnes	19 674 000	22 600 000	20 600 000	21 500 000	20 000 000	19 000 000	20 500 000
	Potatoes	tonnes	4 548 383	4 760 000	4 750 000	4 800 000	4 550 000	4 979 824	5 200 000
	Sugar beet	tonnes	17 942 112	16 462 000	19 592 731	21 149 020	17 436 100	18 085 528	23 025 738
Yield	Cereals, Total	hg/ha	27 271	33 078	31 054	32 574	31 639	32 008	33 415
	Pulses, Total	hg/ha	14 990	15 428	15 198	14 480	14 087	13 679	14 889
	Roots and Tubers, Total	hg/ha	323 231	309 433	328 198	335 964	334 795	353 766	351 434
	Maize	hg/ha	72 614	93 271	94 182	92 516	96 358	94 034	94 127
	Wheat	hg/ha	24 400	28 803	27 070	28 060	27 440	27 811	29 647
	Potatoes	hg/ha	323 303	309 489	328 252	336 014	334 795	353 766	351 434
	Sugar beet	hg/ha	545 932	598 048	608 559	624 080	599 801	583 216	684 581

Source: FAOSTAT.

7.8.3. International trade

Table 7-18 presents trade statistics (imports and exports) of cereals and other arable crops for Türkiye. For almost all products in this group holds that their import and export values increased in the period 2010-2021. Preparations of cereals and products of the milling industry have the largest export value. Unprocessed cereals and oil seeds have the largest import values.

Table 7-18. Export and import of cereals and other crops, Türkiye, 2010-2021, in million EUR

	2010	2015	2016	2017	2018	2019	2020	2021	share of total in 2021 (%)	growth 2010-2021 (%)
Export										
Cereals	263	319	413	399	322	308	254	352	0.2	33
Products of the milling industry; malt, starches, inulin, wheat gluten	543	1 060	1 159	1 115	1 094	1 169	1 040	1 217	0.6	123
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	138	330	449	363	383	471	391	490	0.3	255
Potatoes, fresh or chilled	7	2	22	25	23	38	21	41	0.0	453
Sugars and sugar confectionery	292	513	492	549	534	573	587	840	0.4	187
Preparations of cereals, flour, starch or milk; pastrycooks' products	607	1 366	1 365	1 440	1 495	1 708	1 820	1 833	1.0	202
Import										
Cereals	797	1 599	1 276	1 752	1 956	3 147	2 873	3 592	1.6	351
Products of the milling industry; malt, starches, inulin, wheat gluten	40	98	115	127	107	99	115	149	0.1	273
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plan	1 176	1 822	1 670	1 723	1 665	1 886	2 087	2 193	1.0	87
Potatoes, fresh or chilled	13	26	19	10	13	50	15	10	0.0	-20
Sugars and sugar confectionery	40	163	239	221	180	168	206	119	0.1	200
Preparations of cereals, flour, starch or milk; pastrycooks' products	128	214	198	204	202	196	185	223	0.1	75

Source: UN Comtrade, calculations WR.

7.9. Showcase product for Türkiye: world leading in sweet cherries

7.9.1. Description of cherries in Türkiye

Both in terms of production area and production volume, Türkiye is by far the leading country in the world. According to FAO data, Türkiye produced about 25% of world production during the 2017-2019 period. USA and Chile followed after Türkiye with 12% and 9% production share in 2018 and again 2019.

Cherry harvest season of Türkiye start in early-May and last until-mid August.

7.9.2. Cherry production developments

Cherry production reached 689.8 thousand tons in 2021 which is 87% higher than 2001 production and 307% higher than 2011 production record. During the last three decades, production has exhibited an upward trend constantly. As of 2017-2021 average, land used by cherry production is 83.4 thousand hectare and annual production is 669 thousand metric tons (TurkStat, Crops Production Statistics, 2021).

7.9.3. Cherry supply chain

Average land size of cherry farm is 1.46 hectare (varies from 2.4 to 0.8 hectare) which is an average of seven survey-based cherry family enterprise analysis in different locations (Bilgili et al. 2019; Celik and Sarialtin, 2019). Dividing total land area used by cherry production (83400) by average cherry production lot (1.46 hectare), a rough number of growers is obtained as 57 thousand. According to Farm Registry System (ÇKS) of Ministry of Agriculture and Forestry, as of 2021, 66,322 cherry growers were registered with 45 455 hectare land area.

7.9.4. Wholesale market

Wholesale market is operating in almost every province and main vegetable-fruits growing districts in Türkiye. Growers have several options to market their product; sell at farmgate to traders (local buyers, exporters, other traders), transport to wholesale market and sell through broker and sell at traditional markets (bazars) to consumers. Türkiye has also highly developed food processing industry including fruits juice and food preserving (jam, frozen food) plants. Cherry production locations in Türkiye.

As of 2017-2021 average, 75% of production is realized by 14 provinces, among them Izmir province has been the biggest and supplied 12% of total production. Kemalpasa District in Izmir province is the main production location.

7.9.5. Cherry trade developments

In parallel to production growth, cherry export has also increased during last two decades. In the fact that, while volume and value of export was 27.3 thousand tons and 51.9 million US Dollar in 2001, it has jumped to 80.2 thousand tons and 206 million US Dollar in 2021. Although the significant growth of export has been recorded since 2001, it is still about 11% of production.

7.9.6. Cherry price developments

Bilgili et al., (2019) analysed to cherry production cost and profitability using survey data of 2015 production year obtained from 62 growers in January 2016. According to the result of this research labour cost consist of 58.7% variable cost. Input material (fertiliser and pesticide) and water cost share in variable cost was found about 30% and transportation cost share was consisted about 10% of variable cost. They found that variable cost was 46% of total production cost of cherry. Positive gross margin and profit reported in the study. Variables costs constituted 53% of total cost, while labour cost constituted 77% of variable cost, input material (fertiliser and pesticide) and water cost were about 20% of variable cost in 2019 and 2020. According to cost, revenue and price data, gross margin and profit are positive.[15]

7.9.7. Strengths and weaknesses

As noted by Çelik and Sarialtin (2019), strengths of cherry industry in Türkiye are as follows: relatively long harvest period (up to 90 days) due to richness of production location in various regions, existence of domestic varieties with desirable attributes and better-quality attributes than competitor countries, relatively low labour cost and organic production potential in highland areas. Weakness of the industry are small scale

[15] Data from Kemalpasa District Directorate of Ministry of Agriculture and Forestry.

of cherry gardens, low yield, lack of corporation among growers, water scarcity, lack of knowledge of growers and insufficient extension/advisory services.

7.10. Rural-urban disparities

In the final part of the country factsheet for Türkiye, we are describing the differences between rural and urban areas within the country. The agricultural sector is concentrated in rural areas. The development of rural areas is therefore crucial for the advance of agriculture. The focus of the research is on socio-economic disparities between rural and urban areas. In addition, the quality of infrastructure and quality and use of ICT are discussed.

7.10.1. Population

Figure 7-34 shows that in the last decade the population in urban Türkiye was significantly increasing, but the population in rural areas has been declining at a very slow rate. From this graph it can be seen that Türkiye is highly urban.

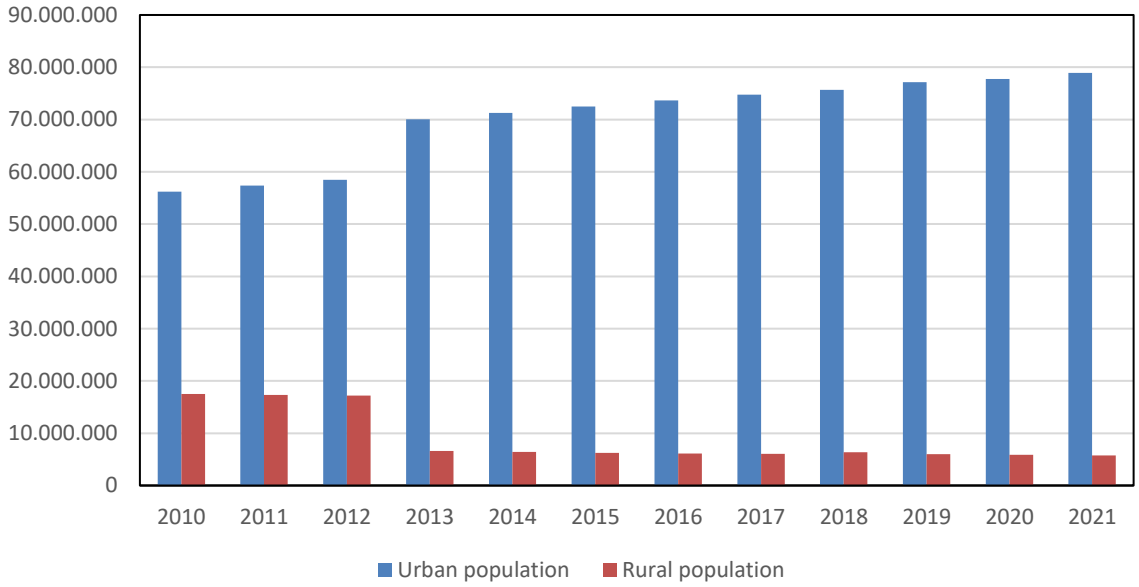

Figure 7-34. Rural and urban population in Türkiye, persons. Source: Turkstat

7.10.2. Education

According to Table 7-19 the literacy rate was 4,4% higher in the urban areas in 2015. In 2014 there was a huge difference in the percentage of persons in rural areas that completed upper secondary education, compared to those in urban areas, namely 24%. There is no data available on higher education.

Table 7-19. Rural-urban education statistics, Türkiye

	2010	2011	2012	2013	2014	2015
Adult literacy rate, population 15+ years, rural, both sexes (%)	87	90	92	91	92	92
Adult literacy rate, population 15+ years, urban, both sexes (%)	95	96	96	96	96	96
Completion rate, upper secondary education, rural, both sexes (%)				25	37	
Completion rate, upper secondary education, urban, both sexes (%)				46	61	

	2010	2011	2012	2013	2014	2015
Educational attainment rate, completed upper secondary education or higher, population 25+ years, rural, both sexes (%)	14	15	16	17	17	18
Educational attainment rate, completed upper secondary education or higher, population 25+ years, urban, both sexes (%)	37	38	39	36	38	40
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, rural, both sexes (%)						
Educational attainment rate, completed Bachelor's or equivalent education or higher, population 25+ years, urban, both sexes (%)						

Source: UNESCO.

7.10.3. Employment

For Türkiye, the last data published in regard to employment was in 2013, in that year urban areas accounted for 65% of total employment and rural areas for 35% (Source: ILO). Data on unemployment is only available until 2013, in rural areas the unemployment rate was 11,48% and in urban areas 6,15% (ILO).

7.10.4. Income

According to Oztornacı and Sengul (2019) the average multi-dimensional (income) poverty rates are approximately 40% in urban and 51% in rural areas, making the rural poverty rate at least 11%-point higher than the urban poverty rate.

7.10.5. Health

Both rural and urban population can access to well-developed first step health services in their vicinity area and almost all district in all regions have a state hospital. The more comprehensive health infrastructures are available in almost all provinces. Both public and private hospitals are providing more comprehensive and advance health service to population in many provinces and also in big districts.

7.10.6. Gender

On behalf of Credit Registry Office (KKB, 2021) a survey was conducted in 2019, which showed that only 2.7% of farmers are women. In 2021, 46% of agricultural employment consistent out of women. Women constitute 74.2% of unpaid family labour.

7.10.7. Migration

Since 1980s emigration from rural areas to urban areas has been very high, in particular since mid-2000s. From rural areas to other countries has been very low or negligible. Reasons for low out of country migration are low education and qualification, lack of foreign language competency and also the cost of mobility.

There is a high number of immigrants, particularly from Afghanistan and there are also Syrian refugees in the rural areas. Afghan immigrants work as sheep shepherds and as agricultural workers in crops harvest. Syrian temporary asylum seekers are engaged in crop production as agricultural workers and as farmers. Afghans immigrants fulfil the employment gap in the livestock sector. Syrians have been substituting natives and fill in the employment gap in vegetable and fruits production, particularly greenhouse production in Mediterranean coastal regions. This trend further forces natives to move to urban areas and non-agricultural sector employment.

7.10.8. Infrastructure and ICT

Türkiye’s road and transport infrastructure are well developed in almost each part of country.

Only a few high-land and mountainous areas are not well connected, this mainly in wintertime due to heavy snow. But they can access to health and emergency services through mobile health service system.

In rural areas all households have access to fresh supply water, except a few villages in very remote areas. Water quality in both rural and urban area is very high. With regard to access to internet there is almost no gap between rural and urban areas, particularly via mobile phone except for some remote location and marginal areas. Only computer ownership in urban areas is much higher.

According to the survey conducted in 2021 by Credit Registry Office (KKB, 2021), mobile phone and computer ownership of farmers are 80% and 29% respectively. Mobile network infrastructure is better in urban areas. There are still some rural areas (remote and disadvantage with a small population) that have poor network quality.

7.11. Conclusions

From analysis of macro-economic indicators and the agricultural sector it can be concluded that agricultural sector is the third important sector for the economy of Türkiye generating approximately 9% of the country's GDP.

The analysis of social and macro-economic developments in Türkiye shows that the population has been gradually growing over the recent years from 73.7 million in 2010 to 84.7 2021 with vast majority of population leaving in urban areas. Between 2016 and 2019, Türkiye shows increasing immigration and emigration trend, with a positive net-migration obviously contributing to the increasing population numbers. In the years 2018-2020, the (un)employment and earnings trends in Türkiye have been mixed, where the employment to population ratio increased from 43% up to 47%, but in 2019 and 2020 this ratio decreased and increased again in 2021. At the same time, the unemployment ratio (% of labour force) has been declining in the years 2018-2020 indicating a decreasing share of labour force in the population. The same ratio increased to 45% in 2021. The mean nominal monthly earnings of employees increased to 694 euros in 2018 but decreased to 619 euros in 2020.

With respect to education level index of adult population, in Türkiye this measure relatively low, but have increased from 0.4 to 0.5 in the 2010-2021. Meantime, adult literacy rate of population older than 15 years increased up to 97.1% in 2021. The education attainment rate of completion of upper secondary education or higher for population older than 25 years increased from 28.4% in 2010 to 45% in 2021.

In relation to the overall logistics performance index, Türkiye scores relatively high (3.15) with the lowest scores (2.71) attributed to both, the quality of trade and transport-related infrastructure, and for efficiency of customs clearance process.

With regards to income distribution inequality, this has been fluctuating in Türkiye in the recent years, where first it has seen a decline from 41 to 39 (2010-2014) and again increase to 41. In 2021, Gini index ended at 39.1.

The analysis of agricultural sector indictors revealed that agriculture is of key importance to Türkiye, in both social and economic terms. It employs about 17-22% of the workforce. According to EC (2022), the farm structure in Türkiye shows similarities with some of the new EU countries. Türkiye is an exporting country in agri-food products. The share of agri-food in the exports of all products is rather constant at 10-12%. The share of agri-food in the imports of all products was also stable at the level of 6-8%. Agri-food trade was increasing in the past 10 years while the value of agricultural production declined.

The production value of milk in Türkiye varies over the years. The depreciation of local currency clearly had a negative impact on the production value in euros, although the

production volume faced an increase from 14 million tons to 22 million tonnes between 2010 and 2020. The exports of dairy products increased substantially, with 134% in the same period, with cheese and curd being the most exported products. Likewise, the production of eggs and of honey has also been steadily increasing throughout the years. Türkiye shows increasing imports in hetching eggs with and at the same time, the exports of eggs in shell almost doubled in the 2010-2020 period. With the value of 23 million in 2020, the exports of honey were significant as well. An increased production is seen in the meat sector over the years, but there is a decrease in 2021. The imports and exports of poultry meat were growing, putting Türkiye in active position among poultry traders.

In fruit and vegetable sector, the area under primary vegetables is the largest. The next largest area is under grapes, followed by apples and citrus fruits. The yields of all fruits and vegetables except for total citrus fruits have been increasing over the years. The production of fruits and vegetables has increased for all fruits and vegetables.

Cereals in Türkiye take the largest share among the cash crops., where wheat occupies a bit more than a half of the total area. Wheat has also the largest production value. Preparations of cereals have the largest export value and products of milling industry the second largest exports value.

According to national expert cherries is the most important product which can offer a competitive advantage to Türkiye. This is due to fact that both in terms of production area and production volume, Türkiye is by far the leading country in the world. According to FAO data, Türkiye produced about 25% of world production during the 2017-2019 period offering and competitive advantage for a country.

Analysis of urban-rural disparities revealed the following trends:

- In terms of urban vs rural population, it was found that that, although in the last decade the population in urban Türkiye was increasing, the population in rural areas has been declining at a very slow rate.
- The adult literacy rate was 4.4% higher in the urban areas compared to rural in 2015. In 2014 there was a large difference (24%) in the percentage of people in rural areas completing upper secondary education, compared to those in urban areas.
- In relation to poverty rates, it was found that, the poverty rate is approximately 40% in urban and 51% in rural areas, making rural poverty rate at least 11% higher than urban poverty rate.
- Health access is well developed and both rural and urban population can access to well-developed first step health services in their vicinity area and almost all district in all regions have a state hospital.
- According to a survey conducted in 2019, only 2.7% of farmers were women, while in 2021, 46% of agricultural employment consists out of women. Women constitute 74.2% of unpaid family labour.
- Since 1980s emigration from rural areas to urban areas has been very high, in particular since mid-2000s. From rural areas to other countries has been very low or negligible. Reasons for low out of country migration are low education and qualification, lack of foreign language competency and also the cost of mobility.
- Infrastructure and ICT: Türkiye’s road and transport infrastructure are well developed in almost each part of country, with only a few high-land and mountainous areas being not well connected. With regard to access to internet there is almost no gap between rural and urban areas, particularly via mobile phone except for some remote location and marginal areas. There are, however, still some rural areas (remote and disadvantage with a small population) that have poor network quality.

7.12. Data gaps

For Türkiye, the data for macro-economic developments are readily available between 2010-2020 for most of the considered indicators. The data on migration are the least updated among the available data (2016-2019 only). For population and employment, the Gini-index, exchange and interest rates, consumer price index and several indicators from national accounts (total GDP, GDP per capita, Gross Value Added) data are updated with year 2021. Other national account statistics (taxes, salaries, share of food in total households' expenditures) are not available for the year 2021 but otherwise are complete. The education statistics and government finances are also rather completed for the period 2010-2021.

For agricultural sector, the key agricultural statistics (gross value added for agriculture, employment in agriculture, agricultural trade, agricultural land, value of production, share of crop and livestock outputs, producer price index) are complete for the years 2010-2020. For all studied agricultural sectors, data availability for the case of Türkiye is rather good. For the sectors of dairy, meat, eggs, fruits and vegetables, arable crops the data on production value, producer prices, outputs, areas and livestock numbers, as well as international trade of products from these sectors are available for the years 2010-2020 and only miss the update of the year 2021 (Except for livestock production value, all other data is available for 2021 at TurkStat). Data on costs and revenues are not available from statistics and have been separately collected using expert estimates, interviews, national statistics and literature studies for two product categories only: dairy and fruits and vegetables. The estimated data are provided for one year only (2021). Otherwise, data on the costs of production in Türkiye of meat, eggs, arable crops are not available.

Data gaps analysis for rural urban disparities shows that in Türkiye with the exception for population and employment in rural and urban areas, other characteristics of disparities has no complete data and thus are collected from literature sources. This results in few sporadic values and does not represent the entire dynamics over the years 2010-2021. For Türkiye, the last data published in regard to rural-urban employment was in 2013. There is no data on exact poverty rates in rural areas. Rural to urban migration numbers are missing for Türkiye. There is no official data on internet and mobile access in rural and urban areas. Data on education (educational attainment rates, completion rates for secondary education and adult literacy) in rural-urban areas are reported for years 2010-2015 and do not continue after 2015.

REFERENCES

References Albania

ABA Online (2022). Cultivation of watermelon in greenhouses. Available online at https://www.abaonline.al/Article/SingleArticle?articleId=3da66f7d-8858-4399-bf24-9d9f2e8eff42 Last accessed 04.05.2022.

Adhami et al (2013). Distribution of primary health care physicians in urban and rural areas of Albania during the period 2000-2012. Albanian Medical Journal 3 2013, p. 50. http://ishp.gov.al/wp-content/uploads/2013/11/2013.3.08-AMJ-Adhami.pdf

AGT SpA & DSA (2021). Fruit and Vegetables Sector Report.

EC (2022). The status of enlargement countries. Accessed from https://ec.europa.eu/info/food-farming-fisheries/farming/international-cooperation/enlargement/agriculture-eu-enlargement/candidates_en.

EC (2022a). AGRI-FOOD TRADE STATISTICAL FACTSHEET. European Union - Albania. Directorate-General for Agriculture and Rural Development Unit G.1. https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agrifood-albania_en.pdf

ETF (2021). ALBANIA: Education, training and employment developments 2020. European Training Foundation. https://www.etf.europa.eu/sites/default/files/document/Country%20Fiche%202020%20Albania%20Education%20Training%20and%20Employment%20Developments.pdf

FAO (2019). Smallholder and family farms in Albania, https://www.fao.org/3/ca7450en/CA7450EN.pdf

INSTAT (2018), Albania: Demographic and health Survey 2017-2018. Institute of Statistics, Institute of Public Health, Tirana, Albania. The DHS Program ICF Rockville, Maryland, USA https://dhsprogram.com/pubs/pdf/FR348/FR348.pdf

INSTAT (2021). Agriculture Statistical Yearbook 2020. http://www.instat.gov.al/al/temat/bujq%C3%ABsia-dhe-peshkimi/bujq%C3%ABsia/publikimet/2021/statistikat-e-bujq%C3%ABsis%C3%AB-2020/

INSTAT (2022). Causes of Deaths, 2021. Institute of Statistics, Albania. http://www.instat.gov.al/en/themes/social-condition/health/#tab1

Jorgoni, E., 2018, Access to essential services for low-income people-Albania, a report for EUROPEAN SOCIAL POLICY NETWORK (ESPN)available at https://ec.europa.eu/social/BlobServlet?docId=22825&langId=en

Maynard, D.N. (2001). Watermelons Characteristics, Production, and Marketing. ASHS Press. Alexandria, VA.

Selina Wamucii (2022). Albania Watermelon Prices. Retrieved from https://www.selinawamucii.com/insights/prices/albania/watermelon/. Last accessed 5.5.2022.

Serrano, I. (2018). The process of alleviating poverty in Albania. The Borgen Project. Accesses on: June 10, 2022 via https://borgenproject.org/tag/poverty-in-albania/

Skreli, E. & Imami, D. (2019). WATERMELON AND MELON SECTOR STUDY. Albania Agribusiness Support Facility (AASF). Institute of Economics Studies and Knowledge Transfer, Agricultural University of Tirana Tirana, 2019.

World Bank (2022). Rural population, Albania. https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=AL.

Zhllima, E., Xhoxhi, O., & Imami, D. (2021). Feminisation in agriculture in a transition economy: Women's role in family farms. Sociologia Ruralis, 61(2), 422-441.

Zhllima,E., Merkaj,E., Tahsini,I., Imami,D., Cela,E., 2016, National study on Economic Diversification for Women Living in Albanian Rural Areas, https://www.un.org.al/sites/default/files/UNWomen-RuralStudy-EN-PRINT_0.PDF

Websites Albania:

EUROSTAT (2022). EUROSTAT Database. Retrieved from http://epp.eurostat.ec.europa.eu/newxtweb/ Last accessed 5.5.2022.

FAOSTAT (2022). FAOSTAT Database. Retrieved from https://www.fao.org/faostat/en/#data/QCL. Last accessed 4.5.2022.

INSTAT Health | Instat

References for Montenegro

EC (2022b). AGRI-FOOD TRADE STATISTICAL FACTSHEET. European Union - Montenegro. Directorate-General for Agriculture and Rural Development Unit G.1. https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agrifood-montenegro_en.pdf

Mitevska L, Stanculescu MS, Stikova E. Performance of the public health care sector in the Republic of Macedonia. South East Eur J Public Health. 2016;6 Web-reference Available from: www.seejph.com/index.php/seejph/article/view/104).

WAPI (2021). Montenegro digital transformation strategy 2022-2026 with action plan 2022-2023. Ministry of Public Administration, Digital Society and Media. https://wapi.gov.me/download/59dcab9b-b0e8-48b7-830b-6e4eab690521?version=1.0

WHO (2017). Governing for health equity and sustainable development in Montenegro. Current progress and opportunities for cross sectoral action on social determinants to improve equity in health. World Health Organisation. https://www.euro.who.int/__data/assets/pdf_file/0014/340205/montenegro-report.pdf

References for North Macedonia

Dimitrievski, D., Drichoutis, A., Georgiev, N., Gjoshevski, D., Janeska Stamenkovska, I., Kotevska, A., Martinovska-Stojcheska, A., Nacka, M., Nayga, R., Simonovska, A., Tuna, E. (2019) Measuring Women's Empowerment in Agriculture with Survey-based and Experimental Economics Method. Skopje: Faculty of Agricultural Sciences and Food-Skopje and UN WomenGRM (2018) National transport strategy 2018-2030. Government of the Republic of Macedonia, Ministry of transport and communications.

EC (2022c). AGRI-FOOD TRADE STATISTICAL FACTSHEET. European Union - North Macedonia. Directorate-General for Agriculture and Rural Development Unit G.1. https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agrifood-north-macedonia_en.pdf .

LFS (2012) Labour Force Survey. Skopje: State Statictical Office of the Republic of Macedonia.

SSO (2022). MakStat Database. Skopje: State Statistical Office of the Republic of North Macedonia.

Tuna, E. and Petrovska-Mitrevska, B. (2017) Multidimensional poverty analysis Republic of Macedonia. Skopje: Federation of Farmers of the Republic of Macedonia.

World Bank, GovData 360, GCI 4.0: Quality of roads https://govdata360.worldbank.org/indicators/hb16043d6?country=BRA&indicator=41362&viz=line_chart&years=2017,2019

References for Serbia

Beker, K., et al (2018). Shadow Report to the Committee for the Elimination of All Forms of Discrimination against Women regarding the fourth reporting cycle of Serbia SITUATION OF RURAL WOMEN IN SERBIA Report submitted by the members of an informal network of women's organisations dealing with the situation of rural women. https://tbinternet.ohchr.org/Treaties/CEDAW/Shared%20Documents/SRB/INT_CEDAW_ICO_SRB_31556_E.pdf

EC (2022d). AGRI-FOOD TRADE STATISTICAL FACTSHEET. European Union - Serbia. Directorate-General for Agriculture and Rural Development Unit G.1. https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agrifood-serbia_en.pdf

STAT (2020). Statistical Yearbook of the Republic of Serbia. Statistical Office of the Republic of Serbia. https://publikacije.stat.gov.rs/G2020/Pdf/G20202053.pdf

UN DESA, 2017 - International Migration Report 2017 (available at: https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf

References for Türkiye

Bilgili, G., Ozcıngırak G., Guler, D., and Engindeniz, S., (2019) "Cost and Profitability Analysis in Cherry Production: A Case Study for Kemalpaşa District of Izmir Province.", TEAD, 2019; 4(1);1-8, Araştırma Makalesi (Research Article).

Çelik, Y., and Sarialtin, H. K. (2019). Türkiye'de Kiraz Üret iminin Yapısal Analizi. Türk Tarım ve Doğa Bilimleri Dergisi, 6(4), 596-607.

EC (2022e). AGRI-FOOD TRADE STATISTICAL FACTSHEET. European Union - Türkiye. Directorate-General for Agriculture and Rural Development Unit G.1. https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agrifood-turkey_en.pdf

KKB (2021). Türkiye tarımsal görünüm saha araştırma raporu 2021 (in Turkish). Kredi Kayıt Bürosu-KKB (Credit Registry Office).

https://www.kkb.com.tr/Resources/ContentFile/KKB_2021_TARIMSAL_GORUNUM_SAHA_ARASTIRMASI.pdf

Oztornacı and Sengul (2019). Multidimensional Rural Poverty in Türkiye [in Turkish]. Turkish Journal of Agricultural Economics. Volume: 25 Issue: 2 Page: 201-206. https://dergipark.org.tr/tr/download/article-file/925813

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service: – by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls), – at the following standard number: +32 22999696, or – by email via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications

You can download or order free and priced EU publications from: https://publications.europa.eu/en/publications. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: http://eur-lex.europa.eu

Open data from the EU

The EU Open Data Portal (http://data.europa.eu/euodp/en) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.

KF-09-23-315-EN-N

Publications Office
of the European Union

doi:10.2762/649475
ISBN 978-92-68-05377-5