THE SIGNIFICANCE OF THE TOBACCO PRODUCT MANUFACTURING TO POLAND'S ECONOMY

CASE – Centrum Analiz Społeczno-Ekonomicznych
CASE – Center for Social and Economic Research

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INFORMATION ICONS

In order to facilitate quick retrieval of the most important information, the report uses five types of icons. Their presence on a page margin indicates the occurrence of the relevant type of information in the text.

ABSOLUTE DATA
Absolute data – for example revenues from VAT on tobacco products.

PERCENTAGE DATA
Data that describe phenomena under study by comparing a part with the whole – for example, the share of revenues from VAT on tobacco products in the state's total revenues from VAT.

TREND
A change in the phenomenon under study over time – for example, a change in tax revenues or of consumption of tobacco products. Growth, decrease and stagnation are different types of trends.

SOCIAL DIMENSION
Refers to the impact of the phenomena under study on social issues, for example the labor market.

IMPORTANT FACT
Important information of another type.

TABLE OF CONTENTS

Executive summary

About the Report

This report, *The Significance of the Tobacco Product Manufacturing to Poland's Economy*, was developed by a team of CASE economists and commissioned by JTI Polska Sp. z o.o. to present an analysis of key information on the economic role played by the tobacco industry in Poland.

It is the first such comprehensive study in this country, comprising a description of the current state of affairs, a presentation the challenges facing the sector and a set of forecasts for its impact on the economy on the basis of various development scenarios.

Key Data:

- Annual harvests of tobacco in Poland since 2009 have reached a level of **about 30,000 tons** a year.
- Output of tobacco products in 2016 reached almost **158,000 tons (including about 175 billion cigarettes and about 27,000 tons of other tobacco products)**. Poland is the **second largest manufacturer of tobacco products** in the EU by value (PLN 33–35 billion contribution to GDP in 2016).
- The value of the legal market for tobacco products, according to CASE estimates, was **PLN 27 billion to 29 billion in 2016**.
- Production and consumption of tobacco products brought in **tax revenue of about PLN 24.4 billion** in 2016 from excise (PLN 18.5 billion), VAT (PLN 5.5 billion), personal income tax (about PLN 124 million), and corporate income tax (PLN 250 million). This constituted **8.9% of the state's total tax revenue**.
- The share of the tobacco industry in **gross value added of industry (its contribution to the economy) in Poland was about 1.1%** in 2016.
- **PLN 8.77 billion** was the value of Polish exports of tobacco and tobacco products in 2016. Output of tobacco products is steadily increasing, which is related to the high level of export production. Three out of four cigarettes produced in Poland are exported.
- In Poland **560,000 people** have jobs that are directly or indirectly related to the value chain of tobacco products, including **about 50,000 people** employed in tobacco cultivation, **10,000** in the manufacturing of tobacco products, and **around 500,000** in trade and distribution.
- Depending on the stability of the regulatory environment, the evolution of production costs, the size of the unregistered economy, and the condition of the domestic market, in the next few years the sector may follow a path of growth or of decline. Based on the results of the economic modelling performed by CASE, the benefits to the state budget under the growth scenario as opposed to the decline scenario were estimated at **PLN 17 billion over the next 10 years**.

About 30,000 tons

annual harvests of tobacco in Poland after 2009

PLN 27-29 billion

the value of the legal market of tobacco products in 2016 according to CASE estimates

158,000 tons

(**including about 175 billion cigarettes**) output of tobacco products in Poland in 2016

About PLN 24.4 billion

of tax revenue was brought in by production and consumption of tobacco products in 2016, including PLN 18.5 billion from excise, PLN 5.5 billion from VAT, PLN 124 million from personal income tax, and PLN 250 million from corporate income tax – constituting 8.9% of the state's total tax revenue

PLN

560,000

number of jobs directly or indirectly related to the value chain of tobacco products. About 50,000 people are employed in tobacco cultivation, 10,000 in the manufacturing of tobacco products, and around 500,000 in trade and distribution.

CHAPTER 1
INTRODUCTION

Introduction

This report presents the results of the first comprehensive analysis of the impact of tobacco product manufacturing on the Polish economy. The comprehensiveness of the study results from the subject range, covering the sector's entire value chain: from tobacco cultivation, through processing of raw tobacco and manufacturing of tobacco products, to the distribution and sale of ready products. The report includes an in-depth analysis of current conditions, discusses the challenges facing the sector and attempts to estimate the development of the branches of the economy related to manufacturing of tobacco products in the future.

The tobacco product value chain comprises four stages: cultivation, processing, production, and distribution.

The main purpose of this research was to analyze the economic significance of manufacturing of tobacco products. The economic effect of consumption of tobacco products was only a peripheral element of the research.

Conducting such complex research was made possible by advanced methodology. The analytical work was built on three pillars: analysis of existing data, expert interviews and a computable general equilibrium (CGE) model expanded to include production and consumption of tobacco products.

The analysis of existing data encompassed a review of the most important available sources, including industry reports, yearbooks from the Central Statistical Office (GUS) and information published by administrative bodies. For the purpose of deepening and giving a broader context to the information gathered, the CASE research team carried out 13 interviews with industry-related experts, including representatives of:

- tobacco growers' associations;
- tobacco processors;
- manufacturers of tobacco products;
- manufacturers of intermediate goods and other means of production;
- sellers and distributors of tobacco products;
- the Ministry of Agriculture and Rural Development (MRiRW);
- the Ministry of Development (MR).

The collected data made it possible to analyze the contribution of the tobacco sector to GDP, trade, tax revenue, and the labor market. Additionally, they facilitated isolating the sector and describing it mathematically in the general equilibrium model. They also enabled the preparation of credible assumptions for scenarios, whose consequences were estimated using the model. The use of this expanded mathematical tool, which reflects the most important interdependences of the entire national economy, allowed us to draw up meaningful estimates of the potential future impact of the tobacco sector on the variables of interest. These estimates concern the effect of the sector's development on GDP, trade, tax revenues, and the labor market.[1]

The structure of the report reflects the methodological approach. The introduction contains a description of the tobacco sector, along with a definition of its products, a description of its value chain and the entities engaged in it. The introduction ends with a description of the market for tobacco products

1 In this report, values in foreign currencies have been converted to Polish złotys using the National Bank of Poland's weighted average exchange rate (Narodowy Bank Polski, 2017).

in Poland and a presentation of key current trends. The next four chapters describe the sector's impact on the national economy, trade, budget revenues and the labor market. For the purpose of describing this impact, we used data available in the literature, information collected during expert interviews as well as original calculations performed by the CASE research team. In the future, the challenges described in the next two chapters will have a significant effect on the functioning of the tobacco sector. We concentrated on the two most important areas of uncertainty: the unregistered segment of the tobacco market (the shadow economy) and the regulatory challenges that originate in government policy and European Union directives. The last chapter of this report, "The future impact of the tobacco sector on the Polish economy," uses data gathered at earlier stages of the research to make forecasts for the sector and its continued impact on the Polish economy using a CGE macroeconomic model (a computable general equilibrium model). The results correspond to the conclusions from the previous, descriptive sections of the report, and allow us to describe the rough directions of the sector's development, depending on the scenario of growth or decline that is adopted.

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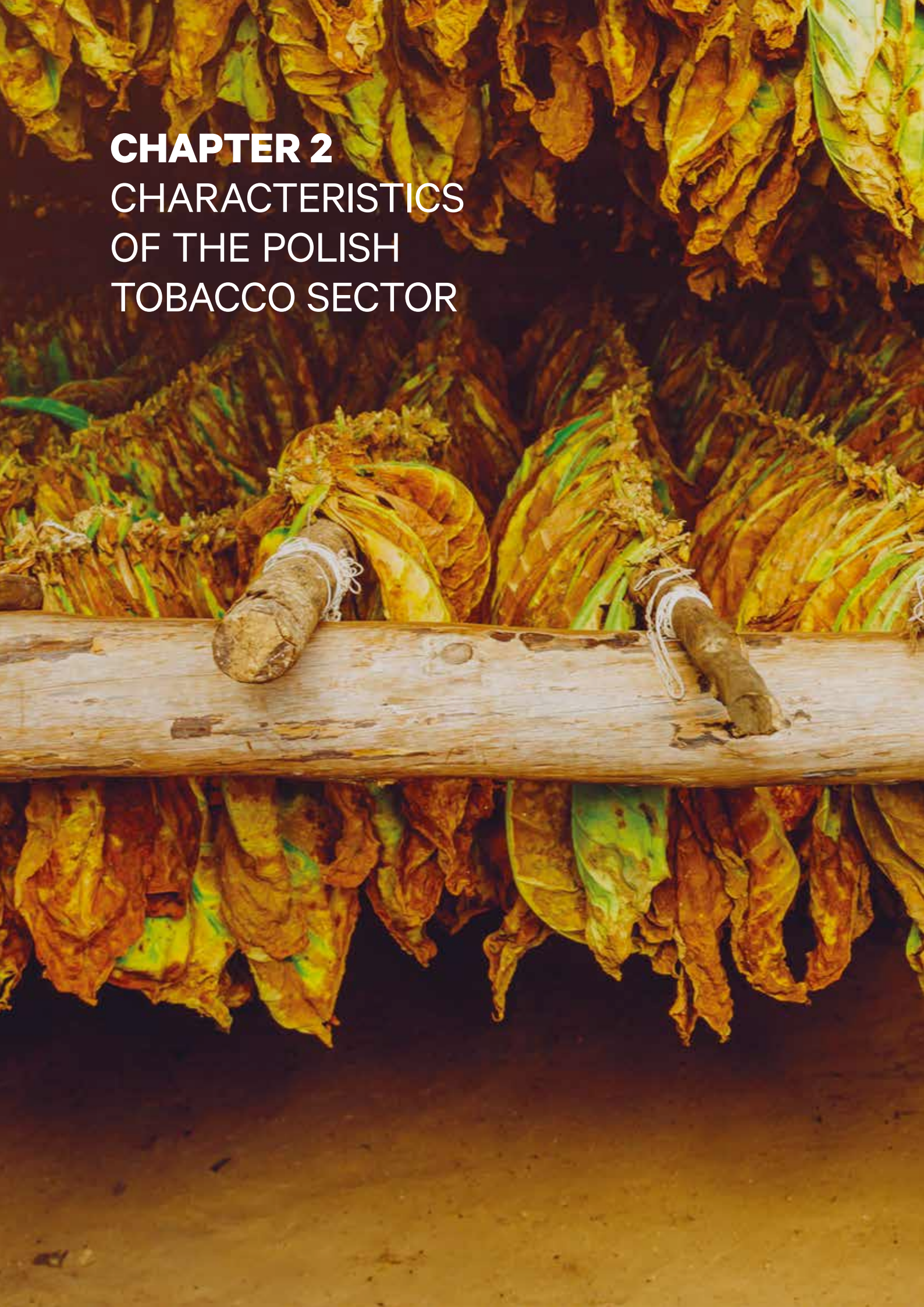


CHAPTER 2
CHARACTERISTICS OF THE POLISH TOBACCO SECTOR

Characteristics of the Polish Tobacco Sector

The tobacco sector comprises production of semi-products, i.e. raw tobacco and processed tobacco, and manufacturing of ready tobacco products that reach consumers. On the basis of the EU directive on tobacco products (the so-called tobacco directive),[2] we can distinguish the following main tobacco products and related products: cigarettes, rolling tobacco, pipe tobacco, cigars, cigarillos, smokeless tobacco products, electronic cigarettes, herbal smoking products, and innovative tobacco products.[3]

Production of tobacco products can be described using a value chain, which in its model form is divided into four stages: tobacco cultivation,[4] processing of the raw tobacco, manufacturing of tobacco products,[5] and distribution and sales.[6] Tobacco cultivation is performed by farmers (growers), who supply raw tobacco in the form of leaves. Tobacco processing, the next step in the value chain, encompasses curing,[7] which takes place on the plantations, as well as stripping, cutting, soaking, and drying of the tobacco, which are carried out in specialized facilities.[8] Processed tobacco is then used in factories to manufacture tobacco products. The end product reaches the consumers through sales points stocked in the the distribution process.

2 *Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC* (OJ L 127, 29.4.2014, p. 1, as amended).

3 The Polish Act Amending the Act on the Protection of Health from the Consequences of Using Tobacco and Tobacco Products from 22 July 2016 defines innovative tobacco products as "tobacco products other than a cigarette, rolling tobacco, pipe tobacco, water pipe tobacco, cigar, cigarillo, snuff, and chewing tobacco".

4 Polish statistical classification 01.15.Z: tobacco cultivation.

5 Polish statistical classification 12.00.Z: manufacture of tobacco products.

6 Cf. Union of Entrepreneurs and Employers, 2013.

7 Polish statistical classification 01.63.Z: post-harvest crop activities.

8 These processes belong to the same statistical classification as production, i.e. 12.00.: manufacture of tobacco products (cf. note 5).

FIGURE 1: TOBACCO PRODUCT MANUFACTURING IN POLAND

Source: CASE

Cultivation

Tobacco appeared in Poland in 1590, sent from Turkey by an emissary of King Sigismund III Vasa. The Polish word for tobacco, "tytoń," comes from the Turkish "tütün," which sets it apart from Western European terms such as "tabaco" (Spanish) or "tobacco" (English), whose etymologies may reach back to Caribbean countries.[9] Tobacco has been cultivated in Poland since the 18th century.[10]

According to FAOSTAT data, in 2014 Poland was the EU's second largest producer of raw tobacco.

Tobacco is cultivated by farmers, who often band together into producers' groups. The interests of tobacco growers are represented by unions, the largest of which are the National Union of Tobacco Growers (KZPT), based in Lublin, and the Polish Union of Tobacco Growers (PZPT), based in Kraków. Companies that buy tobacco from growers are known as Intermediate Tobacco Entities (PPT), and their activity is regulated by law. They were introduced in January 2013 in relation to the designation of raw tobacco as an excise product on the basis of an amendment to the act on excise tax.

According to the MRiRW ordinance of 14 March 2012,[11] it is permitted to cultivate the following types of tobacco in Poland: light tobacco, Virginia strains; light tobacco, Burley strains; air-cured dark tobacco; air-cured dark tobacco with the possibility of drying and roasting. **The main types of tobacco cultivated in the country are Virginia and Burley.**[12] On the basis of the same ordinance, tobacco cultivation is permitted in five regions of Poland:

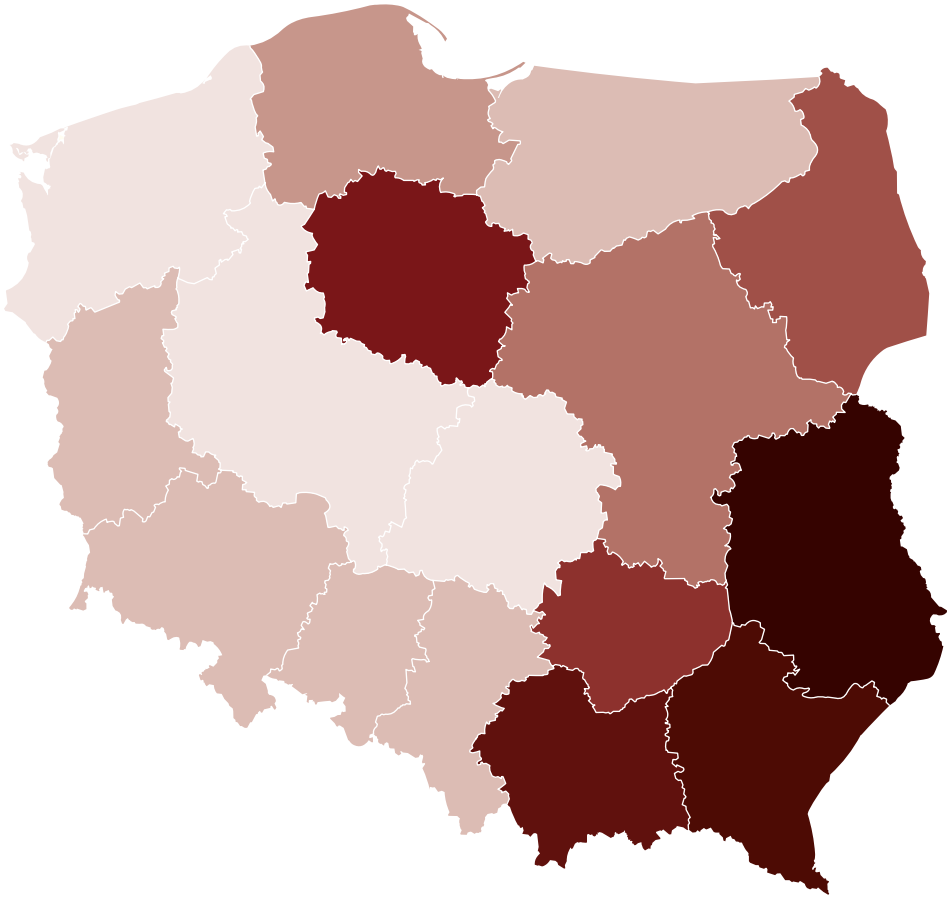
- lubelsko-podkarpacki;
- świętokrzysko-małopolski;
- kujawsko-pomorski;
- mazurski;
- dolnośląski.

The most tobacco is grown in the lubelsko-podkarpacki region, and the least in the dolnośląski region. Figure 2 presents the area sown in tobacco, by province.

9 Ernst, 1889.
10 Institute of Agricultural and Food Economics, 2016.
11 MRiRW, 2012.
12 MRiRW, 2017a.

FIGURE 2: AREA OF TOBACCO CULTIVATION IN POLAND, 2016

Source: CASE based on GUS data, 2017



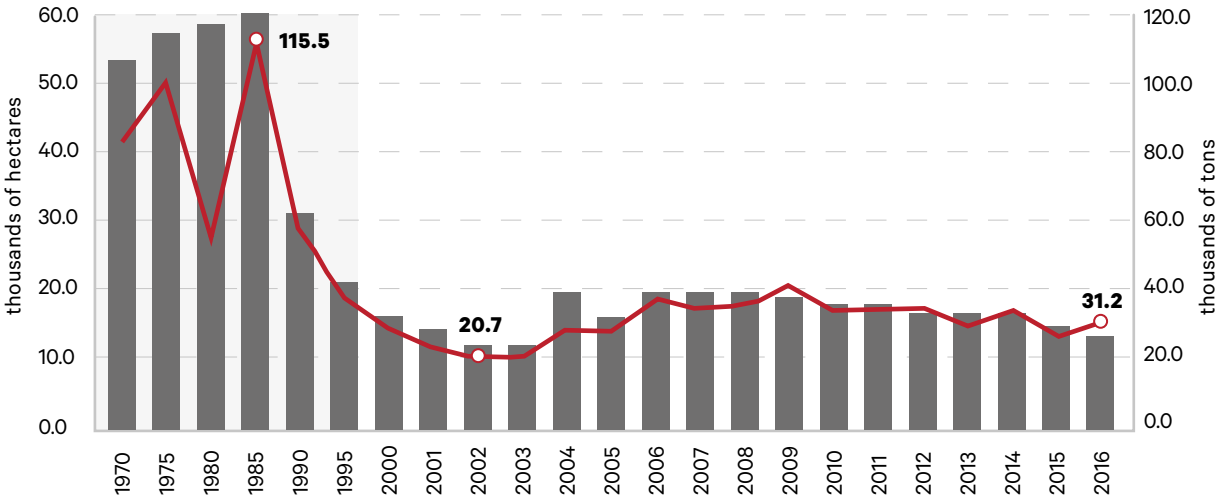
Area sown in tobacco

- no cultivation
- up to 100 hectares
- 100-200 hectares
- 300-400 hectares
- 600-700 hectares
- 800-900 hectares
- 900-1,000 hectares
- 1,000-1,100 hectares
- 1,200-1,300 hectares
- over 7,000 hectares

In 1970-1989 the total area of cultivation averaged 49 thousand hectares, with production of 90 thousand tons a year,[13] while in 2016 the area was 12.3 thousand hectares, with production of 31.2 thousand tons (see Figure 3).[14]

FIGURE 3: TOBACCO CULTIVATION AND HARVESTS IN POLAND, 1970-2016

Source: Institute of Agricultural and Food Economics, 2016 (1970-2015 data); GUS, 2017g (2016 data)



Data published by the European Commission and FAOSTAT, the UN agency that researches agricultural markets, show that production of tobacco not processed in Poland was about 30-35 thousand tons a year in 2010-2014.[15] The PZPT confirms that in recent years, production of raw tobacco in Poland has stabilized at about **30 thousand tons a year.[16] This level of production places Poland between second and fifth in the European Union, depending on the season** (see Table 1). According to FAOSTAT, in 2014 (the last season for which data are available), Poland was second in the EU, after Italy and ahead of Greece, Bulgaria and Spain in terms of output of unprocessed tobacco (see Figure 4).

13 Institute of Agricultural and Food Economics, 2016; GUS, 2017f.
14 According to PZPT estimates, the 2016 crop was 29,700 tons, including about 24,000 tons of Virginia tobacco and about 4,000 tons of Burley - PZPT, 2017.
15 Discrepancies between EC and FAOSTAT data arise from differences in the data collection methodologies of the respective organizations.
16 PZPT, 2017.

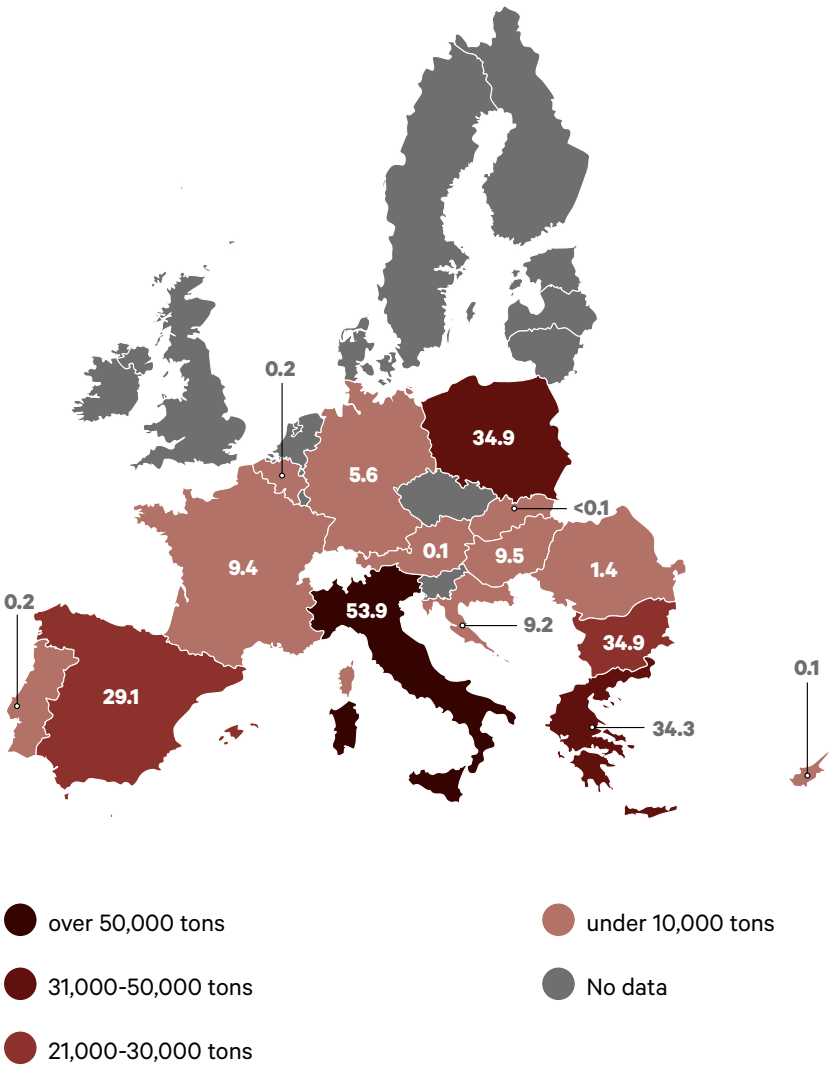
TABLE 1: POLAND'S TOBACCO HARVEST AND RANKING WITHIN THE EU BY OUTPUT OF UNPROCESSED TOBACCO, 2010-2014

Source: CASE based on European Commission, 2015 and FAOSTAT, 2017.

Year	European Commission Data		FAOSTAT Data	
	Harvest ('000 tons)	EU rank	EU rank	Harvest ('000 tons)
2014	31.9	4.	2.	34.9
2013	24.9	5.	4.	30.8
2012	31.6	3.	2.	35.3
2011	30.1	2.	3.	34.4
2010	31.3	4.	3.	34.8

FIGURE 4: OUTPUT OF UNPROCESSED TOBACCO IN THE EU, 2014 ('000 TONS)

Source: CASE based on FAOSTAT, 2017



Significant factors influencing the level of tobacco production include the scale of unregistered activity (and government excise policy, which influences it) and the development of new markets, including innovative tobacco products (see the section titled "The Polish Market for Tobacco Products").

Tobacco cultivation is marked by high labor intensity.[17] Additionally, the climate in Poland does not encourage tobacco cultivation: the country is the northernmost region in which tobacco is grown. This means that Poland, like other EU countries, lacks a competitive advantage in comparison with developing countries with low labor costs, especially those with favorable climates. As a result, although Poland remains one of the largest European producers of unprocessed tobacco, the production is falling, and the domestic tobacco industry is based mainly on imported raw tobacco. For example, according to PZPT estimates, in the 2015-2016 season Poland produced 27.3 thousand tons of tobacco, while it imported 116 thousand tons.[18]

Although Polish tobacco is not price-competitive in comparison to overseas crops, its advantage lies in its compliance with a range of rigorous quality standards (e.g. moisture, leaf structure and color, and nicotine content), the fertilizers used, employment conditions of agricultural workers and environmental protection. These characteristics give Polish tobacco a good export brand. Polish tobacco is also very price-competitive in comparison to Western European tobacco (e.g. German or Italian).[19]

For a certain time, Polish tobacco growers received subsidies for their crops as part of the European Union's Common Agricultural Policy. Until 2009, Polish growers were entitled to production support payments, and until 2015, for quality support.[20] These subsidies made it easier to compete with imported tobacco; when they ended, tobacco cultivation in Poland became less profitable.

Tobacco Processing and Manufacturing of Tobacco Products

Companies at the next stage of the value chain include processors of raw tobacco, manufacturers of tobacco products, and manufacturers of intermediate goods and other means of production. There are also shared services centers, which provide administrative and accounting services for the largest tobacco companies.

Large tobacco processing factories are found in Jędrzejów (Universal Leaf Tobacco Poland) and Krasnystaw (Fermentownia Tytoniu Krasnystaw); additionally, there are smaller, regional processors, whose number is difficult to estimate.

In 2016, Polish factories produced about 175 billion cigarettes and 27 thousand tons of other tobacco products.

17 PZPT, 2017.
18 GUS, 2017c; Institute of Agricultural and Food Economics, 2016.
19 Paragraph based on PZPT, 2017.
20 Additionally, there is also a domestic mechanism of supplementary support.

Poland's largest manufacturers of tobacco products[21] are companies that are part of international concerns: Philip Morris,[22] British American Tobacco,[23] Japan Tobacco International,[24] and Imperial Tobacco.[25] There are several active factories of tobacco products in Poland: Philip Morris in Kraków, British American Tobacco in Augustów, Imperial Tobacco in Radom and Tarnów Podgórny near Poznań, and JTI factory in Stary Gostków, near Łódź. Philip Morris also has offices in Warsaw and Leżajsk, as well as a European shared services center in Kraków, and British American Tobacco, Imperial Tobacco, and JTI have offices in Warsaw. The largest manufacturers of tobacco products are members of the National Association of the Tobacco Industry (KSPT), based in Warsaw, and other entities are members of the Lublin-based Polish Association of the Tobacco Industry (PSPT).

The production process uses intermediate goods such as filters, paper and packaging; most of these goods are produced domestically. Two large tobacco packaging factories operate in Poland: Amcor Tobacco Packaging Polska Sp. z o.o., which belongs to the global industry leader, and AR Carton Kraków Sp. z o.o. in Stanisławice. The process of manufacturing of tobacco products also requires the appropriate machinery. Manufacturing and maintenance of such machinery is performed by companies including International Tobacco Machinery Poland S.A. in Radom, one of the world's largest companies specializing in designing and supplying technological lines for the manufacturers of tobacco products. There is also a range of companies concentrated around the factories of tobacco product manufacturers and their service providers, e.g. servicers of machinery and IT equipment.

Poland is the second largest manufacturer of tobacco products by value of production in the EU .

In Poland, growth in manufacturing of tobacco products is significant (from 96.2 thousand tons in 2005 to 157.7 thousand tons in 2016), including cigarettes (from 102.4 billion in 2005 to 174.9 billion in 2016) and smoking tobacco (growth from 6 thousand tons in 2006 to 38.5 thousand tons in 2015).[26] Figure 5 illustrates the trends in the Polish tobacco product manufacturing in 2005-2016.

21 According to the Tobacco Products Register, in 2016, 47 entities in Poland were licensed to manufacture tobacco products (https://bip.minrol.gov.pl/Rejestry-i-Wykazy/Rejestry/Rejestr-producentow-wyrobow-tytoniowych2).

22 Philip Morris International has four subsidiaries in Poland: Philip Morris Polska S.A., Philip Morris Polska Distribution Sp. z o.o., Philip Morris Polska Tobacco Sp. z o.o. and PMI Service Center Europe Sp. z o.o.

23 British American Tobacco has two subsidiaries in Poland: British-American Tobacco Polska S.A. and British American Tobacco Polska Trading Sp. z o.o.

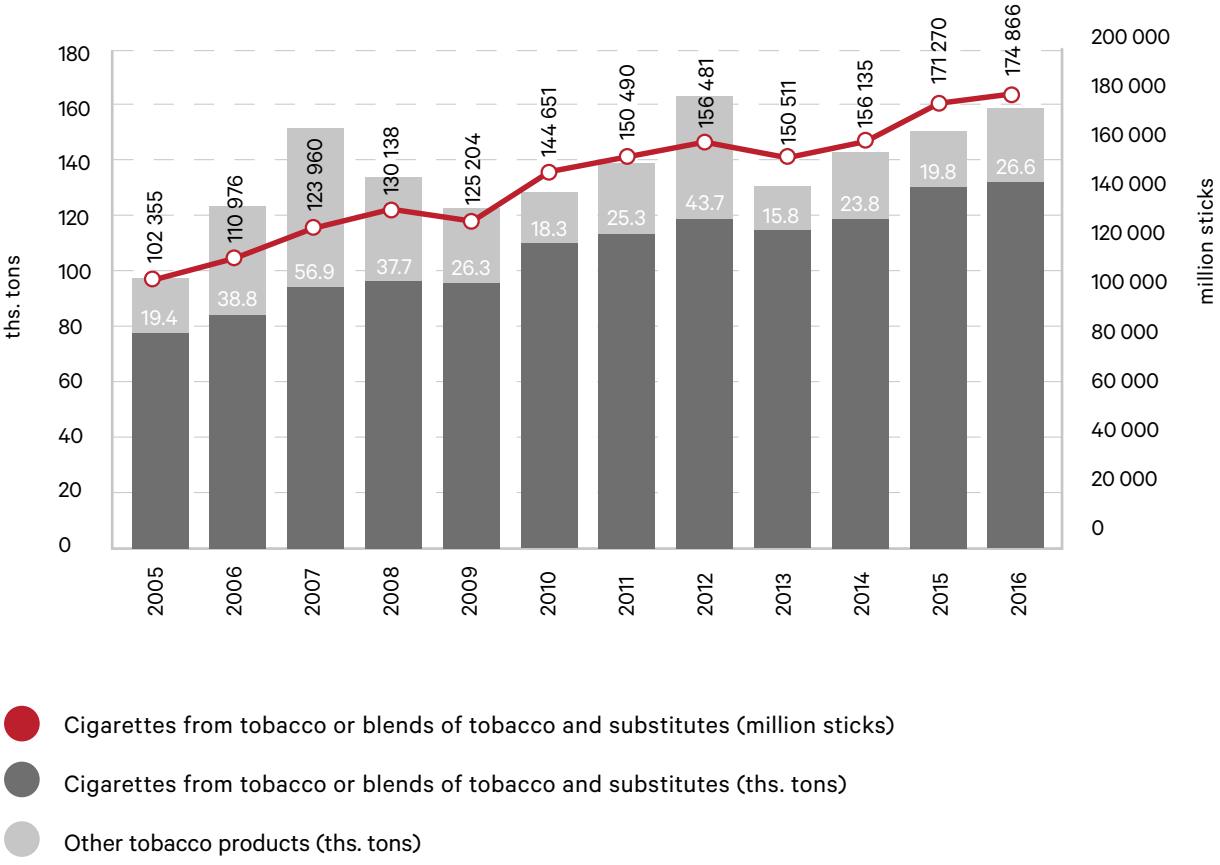
24 Japan Tobacco International has one Polish subsidiary, JTI Polska Sp. z.o.o.

25 Imperial Brands has two Polish subsidiaries: Imperial Tobacco Polska S.A. and Imperial Tobacco Polska Manufacturing S.A.

26 GUS, 2017c, and 2017f; Institute of Agricultural and Food Economics, 2016.

FIGURE 5: MANUFACTURING OF TOBACCO PRODUCTS IN POLAND, 2005-2016

Source: GUS, 2017c and 2017f

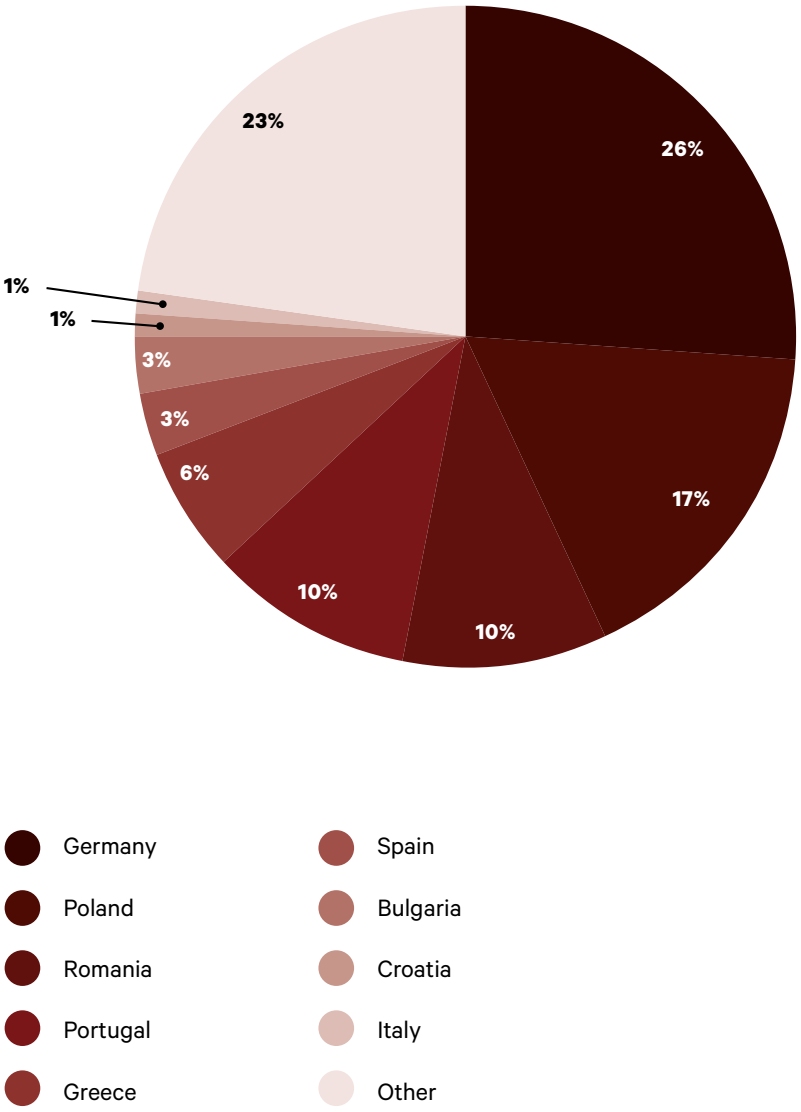


In recent years, a growth in the production of tobacco products has been observed, which can be attributed to high cost-efficiency of the Polish tobacco sector. As a result, **Poland has strengthened its position as one of the largest manufacturers of tobacco products in the European Union** (see Figure 6), and in 2016 it became number one manufacturer of cigarettes in the EU.[27] Producers of intermediate goods are also benefitting from the positive trend: For example, Amcor Tobacco Packaging in Łódź has doubled production within the last five years.[28]

27 Based on: Federal Statistical Office of Germany (Destatis), 2017 and GUS, 2017c.
28 Amcor Tobacco Packaging (2017).

FIGURE 6: SHARE OF THE LARGEST MANUFACTURERS OF TOBACCO PRODUCTS IN TOTAL EU PRODUCTION BY VALUE, 2016 (%)

Source: CASE based on Eurostat data, 2017.



Distribution and Trade

Tobacco products are sold in outlets such as kiosks, general stores, specialized stores, gas stations, and supermarkets. **The total number of tobacco product sales points is estimated at 100,000**[29] **to 120,000.**[30] Most of them are small and medium enterprises. Around 75% of them are traditional shops, 10% are supermarkets and hypermarkets, and the remainder is made up by gas stations, bars and restaurants, and convenience stores.[31] Sales points are supplied by wholesalers, of which there are about 500.[32]

Between 100,000 and 120,000 tobacco sales points operate in the country, and around three quarters of them are small and medium enterprises.

In 2012, sales of tobacco products in sales points represented by the Polish Trade Chamber (PIH) **accounted for an average of 10.3% of turnover, and in some as much as 40% of turnover**.[33] Additionally, according to PIH director Maciej Ptaszyński, tobacco products bring in 40% of income in as many as 80 thousand sales points.[34] This structure of retail trade is specific to Poland and different from Western European countries, where concentration is higher.

Representatives of the trade sector indicate that tobacco products are not high-margin goods. Nevertheless, **tobacco products have a significant impact on the functioning of small and medium enterprises, because they generate a large portion of their turnover**. Additionally, smokers tend to buy other products (e.g. chewing gum, batteries, candies) when they purchase tobacco products.

29 BCC, 2016; PIH, 2017.
30 POHiD, 2017.
31 JTI Polska, 2017.
32 Gazeta Prawna, 2017.
33 PIH, 2012.
34 Na Temat, 2015.

iStock, Nikada

CHAPTER 3
THE POLISH MARKET FOR TOBACCO PRODUCTS

The Polish Market for Tobacco Products

On the basis of the excise tax revenue data, CASE estimates that **the value of the legal market for tobacco products in Poland in 2016 was about PLN 27 billion-29 billion**. Since the beginning of the 21st century, a decline in domestic consumption of tobacco products has been observed. In 2015, total consumption of cigarettes in Poland amounted to 49.8 billion sticks,[35] and GUS estimated per capita cigarette consumption at 1,466.[36] According to the Institute of Agricultural and Food Economics,[37] legal consumption per capita was 1,295 in 2015 and about 1,270 in 2016. These are just over half the levels noted in the 1980s and 1990s, which hovered around 2,700 per capita.[38] Table 2 shows the share of expenses on cigarettes in net average income in years 2010-2015. Despite the steady increase of net average income and of disposable income in this period, that share was growing in the years 2011-2015 due to the increase in the price of cigarettes. The decrease in the amount of packs of cigarettes that could be purchased with net average income in the same period is even more pronounced. This is because the latter indicator does not capture the decrease in the consumption of cigarettes of an average smoker.

TABLE 2: AFFORDABILITY ANALYSIS

Source: GUS, 2016c, Wynagrodzenia.pl, 2017

Year	2010	2011	2012	2013	2014	2015
Share of expenses on cigarettes in net average income	10.6%	11.1%	11.3%	10.8%	9.6%	10.4%
Number of packs of cigarettes that could be purchased with net average income	255	243	231	220	210	215

In Poland, growth of the popularity of cigarette substitutes and related products has been observed, including both those that contain tobacco – such as cigars, cigarillos, and smoking tobacco – and tobacco-free ones, such as e-cigarettes. In recent years, sales of such products, particularly of e-cigarettes, have grown significantly.[39] Among e-cigarette users, 55-66% also use traditional tobacco products,[40] so the producers of the two categories are targeting similar groups of consumers.

In April 2017, the so-called innovative tobacco products appeared on the market; they use heating rather than burning of tobacco. The potential success of these products depends on consumers' reaction, which due to their short time on the market remains unknown for now.

35 Institute of Agricultural and Food Economics, 2016.
36 GUS, 2016b.
37 Institute of Agricultural and Food Economics, 2016.
38 GUS, 2016b.
39 Institute of Agricultural and Food Economics, 2016; Euromonitor, 2015.
40 Institute of Agricultural and Food Economics, 2016.

CHAPTER 4
SHARE IN GDP

Share in GDP

Cultivation

According to PZPT estimates, **the 2016 tobacco harvest was worth PLN 280.6 million**, with an average purchase price of PLN 9.7 for Virginia and PLN 6.5 for Burley per 1 kilogram.[41] On the basis of these figures as well as data published by GUS,[42] CASE estimates that **in 2016 tobacco cultivation in Poland generated gross value added – i.e. contribution to the domestic economy – of PLN 105 million.**

Tobacco Processing and Manufacturing of Tobacco Products

Based on CASE's estimate of the value of the legal market for tobacco products in Poland in 2016 and data on international trade, CASE estimates the sectoral contribution to GDP of those products at **PLN 33-35 billion** in 2016. In 2015, the tobacco industry's share in total industrial production was 0.6%.[43] According to the Central Statistical Office, **the tobacco industry's share in total gross value added of industry – its contribution to the economy – was higher, at 1.1%.**[44] The manufacturing of tobacco products also generates demand for intermediate goods and means of production, as well as related services. A significant proportion of these goods and services comes from domestic subcontractors and service providers.

The contribution of tobacco products to GDP in 2016 was PLN 33-35 billion.

In 2002-2015, investment outlays in the tobacco product manufacturing sector grew from PLN 260.7 million to PLN 887.3 million (per year).[45] For example, in June 2017 JTI Polska opened a new, 70,000-square-meter factory in Stary Gostków, near Łódź. As part of an investment worth about USD 200 million, more than 30 processing lines will be installed, which will produce and pack smoking tobacco in a volume equivalent to 30 billion cigarettes a year. This brought the company's investments in Poland in years 2007–2017 to around USD 700 billion.[46]

Value added (contribution to the economy) of tobacco product manufacturing in 2015 accounted for 1.1% of total value added of domestic industry.

Poland is an attractive investment location thanks to its proximity to large markets (including the domestic market), qualified workforce, high quality, and labor costs lower than in the West. The successive investments fit into the trend of relocating production to Central and Eastern Europe. Significant investment outlays mean the output of the country's tobacco product manufacturing plants and their suppliers is at a high technological level, which is attested to by its export successes (see the chapter titled "International Trade") and other international successes. For example, International Tobacco Machinery Poland has won a range of awards at the industry fair in Geneva for developing

41 PZPT, 2017.
42 GUS, 2017d.
43 GUS, 2017c.
44 GUS, 2017c.
45 GUS, 2017c.
46 MR, 2017.

innovative solutions in the area of tobacco product manufacturing.[47] Packages for tobacco products are produced using the most advanced technologies, e.g. rotogravure printing, to meet high quality and precision standards, and are often produced in short series of high complexity. Technological development is translating into growing productivity in the tobacco sector, which is attested to by the steady growth in the wages of production workers (see the chapter titled “The Labor Market”).

47 International Tobacco Machinery Poland, 2017.

iStock, bdspn

CHAPTER 5
INTERNATIONAL TRADE

International Trade

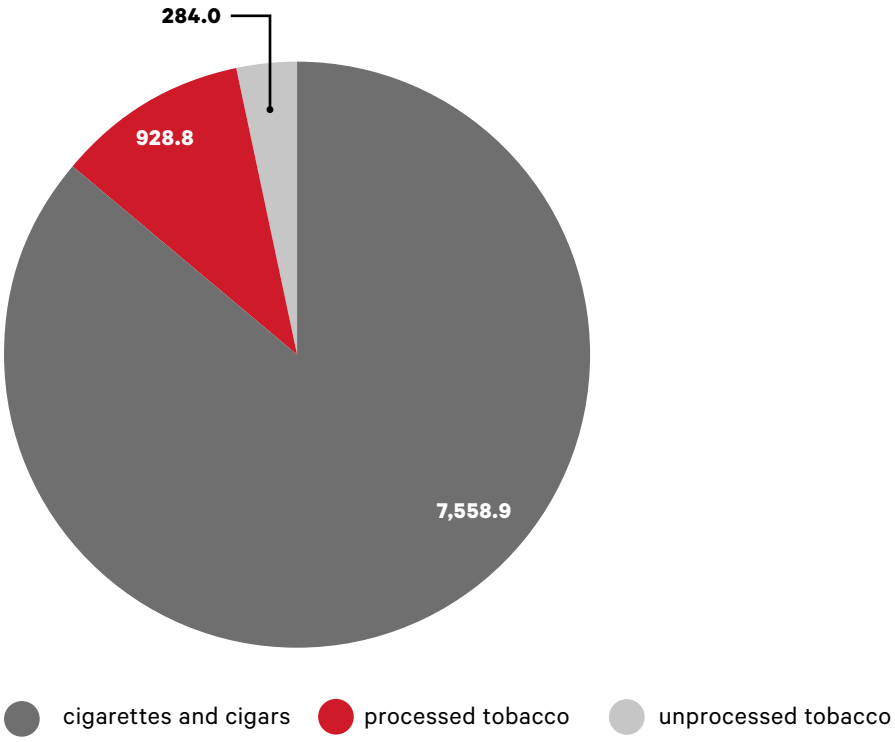
Despite the declining domestic consumption, Poland's output of tobacco products is growing steadily as a result of the significant scale of exports, particularly of cigarettes and (to a much lesser degree) cigars. According to Ministry of Finance data cited by the Institute of Agricultural and Food Economics,[48] **the value of exports of tobacco and tobacco products in 2016 stood at EUR 2.01 billion (PLN 8.77 billion)**, of which **cigarettes and cigars accounted for EUR 1.73 billion (PLN 7.56 billion), or 86%; processed tobacco for EUR 212.9 million (PLN 928.9 million), or 11%, while unprocessed tobacco for EUR 65.1 million (PLN 284 million), or 3%** - see Figure 7.[49] **In 2016, a total of 128.4 billion cigarettes were exported.** Of the 4,454 cigarettes per capita produced in Poland in 2015, the internal market absorbed only 1,466 cigarettes per capita,[50] which is a good illustration of the scale of exports. The Institute of Agricultural and Food Economics[51] estimates that the total value of exports of tobacco products in 2017 will grow to EUR 2.32 billion (PLN 9.91 billion – up 15.4% from 2016), and the number of exported cigarettes will reach 142.5 billion (up by 11% in comparison to 2016).

PLN 8.77 billion – this was the level of Polish tobacco and tobacco products exports in 2016.

128.4 billion – the Polish tobacco industry exported this many cigarettes in 2016.

FIGURE 7: THE POLISH TOBACCO SECTOR'S EXPORTS BY PRODUCT TYPE, 2016 (PLN MLN)

Source: CASE, based on Institute of Agricultural and Food Economics, 2016.



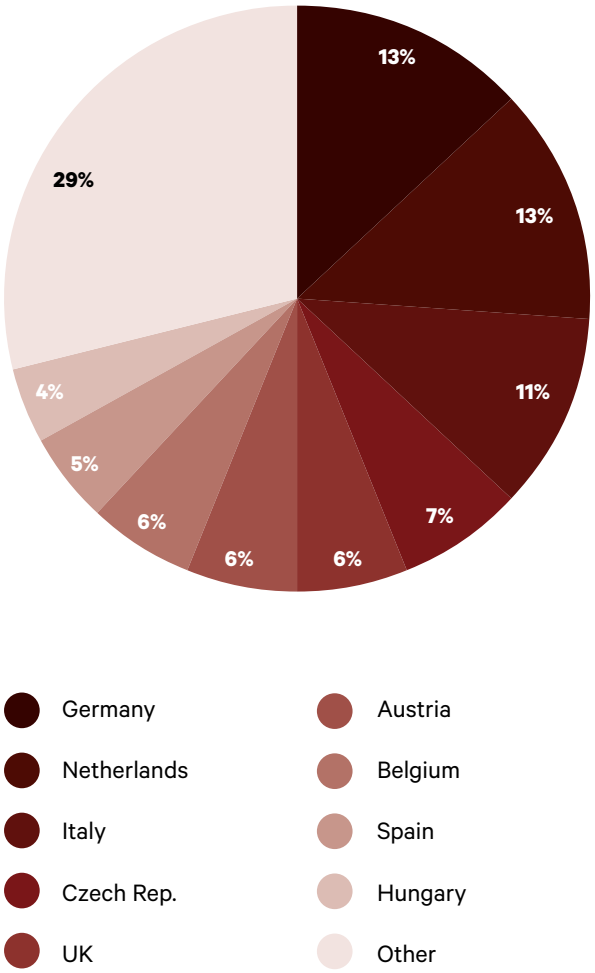
48 Institute of Agricultural and Food Economics, 2017.
49 Figures include exports outside the EU and intracommunity supplies of goods.
50 GUS, 2016b and 2017c.
51 Institute of Agricultural and Food Economics, 2017.

According to the Institute of Agricultural and Food Economics, in 2016 tobacco products constituted 8.3% of all agricultural and food exports.[52] That puts them in the fourth place, behind meat and meat products (20.7%), sugar and confectionary products (9.5%), and grain and grain products (9%). According to the classification of Harvard University's Center for International Development,[53] tobacco products have for years had the largest share in Polish food processing products. In 2010-2014, this share fluctuated from more than 18% in 2013 to almost 25% in 2011. According to the same classification, the share of tobacco products amounted to 1.03% of Poland's total exports in 2016. The main export market remains the European Union, and the largest purchasers are Germany, the Netherlands, and Italy (Figure 8).

Three of every four cigarettes produced in Poland are exported.

FIGURE 8: MAIN PURCHASERS OF POLISH TOBACCO AND TOBACCO PRODUCTS, 2016 (% OF EXPORTS BY VALUE)

Source: CASE based on GUS, 2017b



52 Institute of Agricultural and Food Economics, 2017.
53 Harvard University, 2017.

Available analyses stress the export orientation of Poland's tobacco industry.[54] For specific tobacco product manufacturers and suppliers of means of production, foreign clients are the main customers, generating 60-90% of turnover each year.

Imports of tobacco and tobacco products reached EUR 722.1 million (PLN 3.15 billion) in 2016.[55] Imports are mainly of unprocessed tobacco, which is related to the labor costs and climatic conditions discussed in the Introduction. In 2016, import of raw tobacco stood at 111 thousand tons, with a value of EUR 474.8 million (PLN 2.07 billion), or 66% of the sector's total imports by value. In addition to unprocessed tobacco, EUR 124.9 billion (PLN 544.9 million – 17%) of tobacco products were imported into Poland, along with processed tobacco valued at EUR 122.4 million (PLN 534 million – 17%). The raw tobacco, which was mainly (64.8%) imported from developing countries, generated a deficit in international trade of EUR 409.7 billion (PLN 1.79 billion).

In trade of tobacco and tobacco products, it is impossible not to notice that Poland designates most of its production for export, supplying itself with raw tobacco via imports. **According to CASE's estimates, three of every four cigarettes produced in Poland are exported.** With exports at a level of EUR 2.01 billion (PLN 8.77 billion) and imports of EUR 722.1 million (PLN 3.15 billion), the Polish **tobacco industry posted a surplus in international trade in 2016 of EUR 1.29 billion (PLN 5.62 billion).**

54 E.g. Union of Entrepreneurs and Employers (2013).
55 Data in this paragraph are from the Institute of Agricultural and Food Economics, 2017.

CHAPTER 6
TAX REVENUES

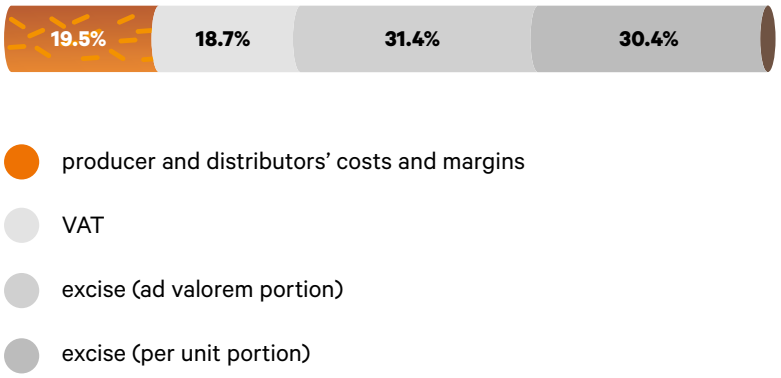
Tax Revenues

Tax revenues related to the production and consumption of tobacco products are a significant component of the Polish budget. Consumption of tobacco products contributes revenue from excise tax and value added tax (VAT), and production via personal income tax (PIT) and corporate income tax (CIT).

According to CASE's calculations, the share of consumption taxes in the price of cigarettes in 2017 was **about 80.5%**. Costs and margins of producers and suppliers, which are subject to further taxation (CIT and PIT), amounted to **around 19.5%** of the final price of cigarettes.

FIGURE 9: PRICE BREAKUP OF THE WEIGHTED AVERAGE PRICE OF CIGARETTES IN 2017

Source: CASE.



Revenue from excise taxes on tobacco products in Poland in 2016 totalled PLN 18.46 billion and accounted for 28% of total budget revenues from excise; motor fuels were the only category with a higher share. Receipts from excise tax on tobacco products reached a record high in 2012. Growth in excise revenues from 2008-2012 can largely be attributed to growth in tax rates, but the pace of increases affected the growth in the shadow economy (see the chapter titled "The Shadow Economy").

This growth resulted from regulations prepared by the European Commission. Three EU directives imposed on Poland the obligation to increase excise taxes to a minimum of EUR 90 per 1,000 cigarettes: Council Directive 92/84/EEC of 19 October 1992, Council Directive 2011/64/EU of 21 June 2011 and Council Directive 2003/96/EC. Although the EU regulations foresaw a seven-year adjustment period (expiring in 2018), Poland reached the minimum excise tax already in 2014.[56]

56 CASE, 2015.

In 2012-2013, despite the increase in rates, **revenues fell** (see Table 3). During this period, total budget revenues from excise rose (see Figure 10). In **2016 growth in receipts from excise tax returned**, which may be attributed to a decline in the size of the shadow economy, which was encouraged by more frequent controls and the maintenance of a moratorium on rate increases.

FIGURE 10: SHARE OF EXCISE TAX ON TOBACCO PRODUCTS (IN PERCENTAGE) IN TOTAL EXCISE REVENUE, 2008-2016 (PLN BILLION)

Source: CASE, based on Ministry of Finance and EC data.

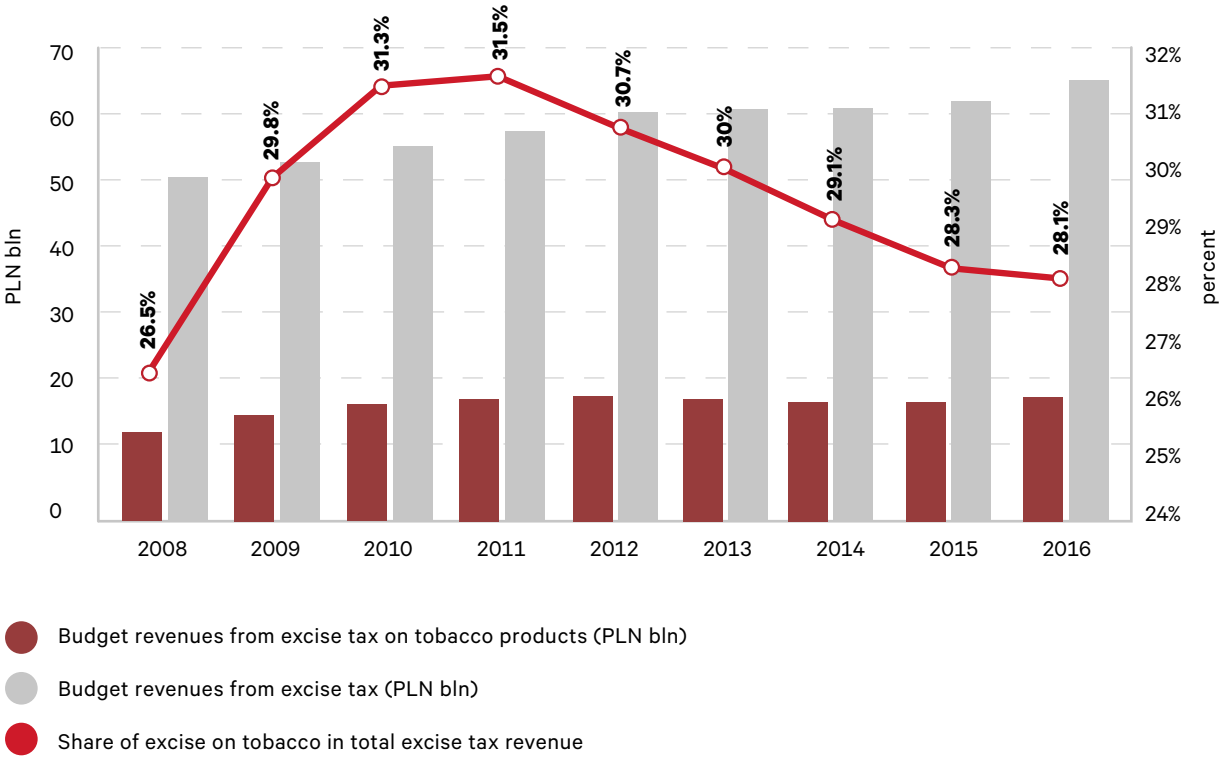


TABLE 3: RECEIPTS FROM EXCISE TAX ON TOBACCO PRODUCTS, 2008-2016 (PLN BLN)

Source: GUS, 2017; EC, 2016a

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Receipts (PLN bln)	13.4	16.05	17.43	18.26	18.58	18.21	17.92	17.79	18.46

Trends in revenue from excise taxes on tobacco products indicate a significant relationship between three components: the effective tax rate, the base (i.e. consumption) and tax enforcement. On the basis of these data, it can be stated that a key factor in increasing tax revenues is reducing the shadow economy. Simultaneously, a sharp increase in rates is counterproductive, because it may lead to a reduction in revenue through the growth of illegal sales.

Revenue from excise tax on tobacco products does not come only from taxes on cigarettes, although they are definitely the main source of revenues. In 2016 revenues from excise on raw tobacco were just PLN 68,000, compared with PLN 18.46 billion in total revenue from excise on tobacco.[57] Cigars and cigarillos, accounting for just 0.5% of the market for tobacco products[58] and subject to a low rate, do not play a key role either.

Excise tax rates as of January 1, 2017 stood at:[59]

- cigarettes: PLN 206.76 per 1,000 + 31.41% of the maximum retail price;
- smoking tobacco: PLN 141.29 per kg + 31.41 % of the maximum retail price;
- raw tobacco: PLN 229.32 per kg;
- cigars and cigarettes: PLN 393 per kg.

Additionally, since 2010 Poland has had a so-called minimum excise rate, which is applied to keep cigarette producers' price reductions from lowering budget revenues as a result of reduction in the tax base. The level of the minimum excise duty (MED) is set at the level of excise due on cigarettes at the weighted average price (WAP) on the market for the previous year. According to the Ministry of Finance, cigarettes covered by the MED rate had a share of about 53% of the market in 2016.[60]

Recently, the Ministry of Finance has also begun work on an amendment to the act of December 6, 2008 on excise tax (Dz. U. Journal of Laws 2017, position 43, as amended),[61] whose purpose is to introduce excise on liquids for e-cigarettes and innovative products. The proposed changes in the regulations cover:

- taxation of liquids for e-cigarettes and innovative products with the application of the general regulations concerning taxation of goods subject to excise;
- obligation to manufacture these products in a tax warehouse, or outside a tax warehouse with prepayment of excise tax;
- application of exemptions from excise taxes as part of the regulations in force in the case of imports from European Union countries, and outside the EU, of liquids for e-cigarettes and innovative products by travelers;
- obligation to place excise stamps on e-cigarette liquid and innovative products.

The excise tax on e-cigarette liquids will be charged per volume (in milliliters), and on innovative products per weight of the raw tobacco and percent of the weighted average retail price of smoking tobacco.

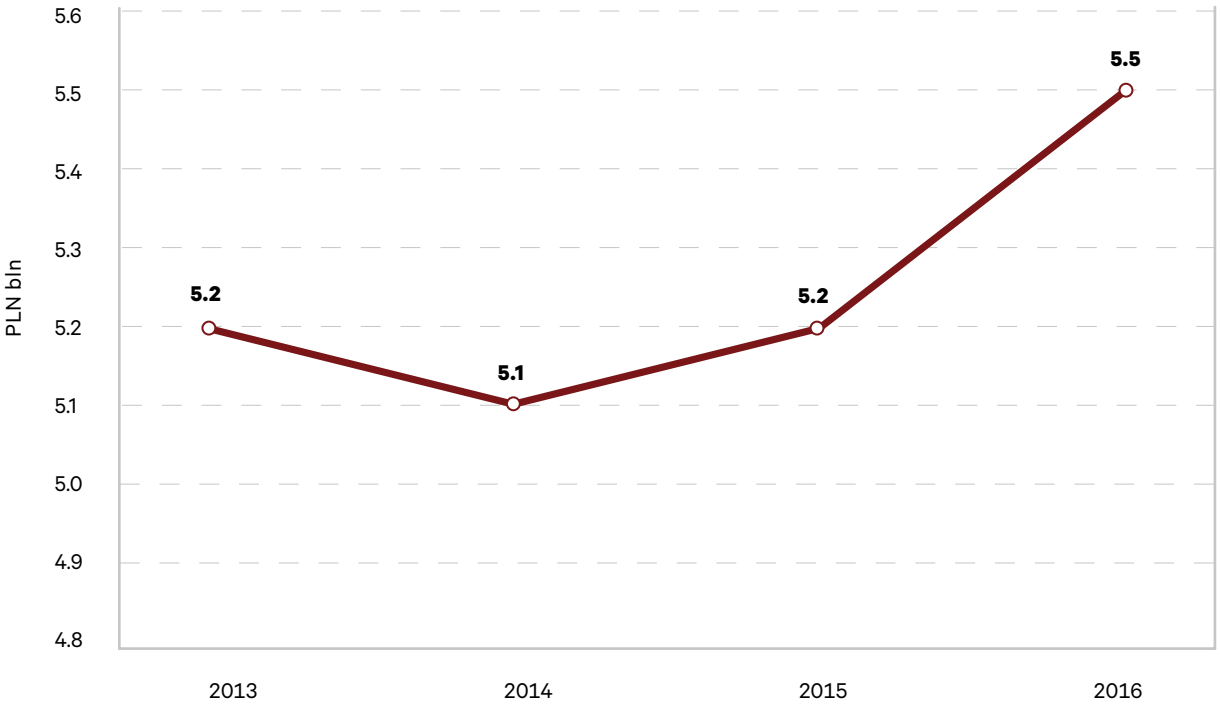
57 Institute of Agricultural and Food Economics, 2017.
58 Euromonitor, 2015.
59 Ministry of Finance, 2017c.
60 CASE, 2017.
61 https://legislacja.rcl.gov.pl/projekt/12299602

The Analysis of the Effects of Regulation[62] for the bill indicates that the purpose of the proposed regulations is increasing the safety of users of e-cigarettes and innovative products, as well as tightening up the tax system and ensuring analogous tax treatment of substitute products relative to traditional tobacco products. The Ministry of Finance predicts growth in the administrative burden on entities that are covered by the new regulations, and most likely growth in prices of e-cigarettes and innovative products. It is forecast that budget revenues from the new rates will reach PLN 100 million per year.

The second largest source of tax revenues related to tobacco products is the value-added tax. The VAT rate in Poland is proportional to the retail price, and since 2011 has stood at 23%. Data on VAT revenues from tobacco products are not published by GUS or the Ministry of Finance, nor are they available in the literature. Using the constant component and the ad valorem part of the excise tax rate on tobacco products, the data concerning budget revenues from excise on cigarettes and the weighted average price of a package of cigarettes, we estimated **revenues from VAT on cigarettes** for 2013-2016. According to our calculations, these revenues **stood at PLN 5.5 billion in 2016 – PLN 300 million more than in 2015 and PLN 400 million higher than in 2014**. Figure 11 illustrates the trend in these tax revenues in 2013-2016.

FIGURE 11: VAT REVENUE FROM TOBACCO PRODUCTS, 2013-2016 (PLN BLN)

Source: CASE.



62 Ministry of Finance, 2017a.

Revenues from indirect taxes on tobacco products in 2016 constituted 7.6% of total budget revenues and 8.9% of total tax revenue. By comparison, in Germany these revenues are about 2.6% of total budget revenue; meanwhile, a high value for this indicator can be observed in countries with low GDP, e.g. in Bulgaria, where it was 7.9% in 2013.[63]

Similarly to the data concerning receipts from VAT on tobacco products, the data for receipts from PIT paid by individuals employed in the tobacco industry are not provided in available sources. CASE estimated the receipts from PIT by using data concerning the number of people employed at particular stages of the tobacco product value chain, and data on average wages.[64] CASE's estimates indicate that the tobacco industry generates significant receipts from PIT, which in 2009-2016 grew year by year. **Budget revenues from PIT related to manufacturing and distribution of tobacco products totaled PLN 123.7 million in 2016.** Tobacco growers' work generated PLN 4.8 million in PIT, and the activity of trade employees related to sales of tobacco totaled PLN 10.5 million. **In 2016, employees of the tobacco industry contributed PLN 108.4 million in PIT**. According to CASE forecasts, tax revenues from this group of employees will grow again in 2017, reaching PLN 144 million. Figure 12 presents the development of these revenues in 2008–2016, along with CASE's forecast for 2017.

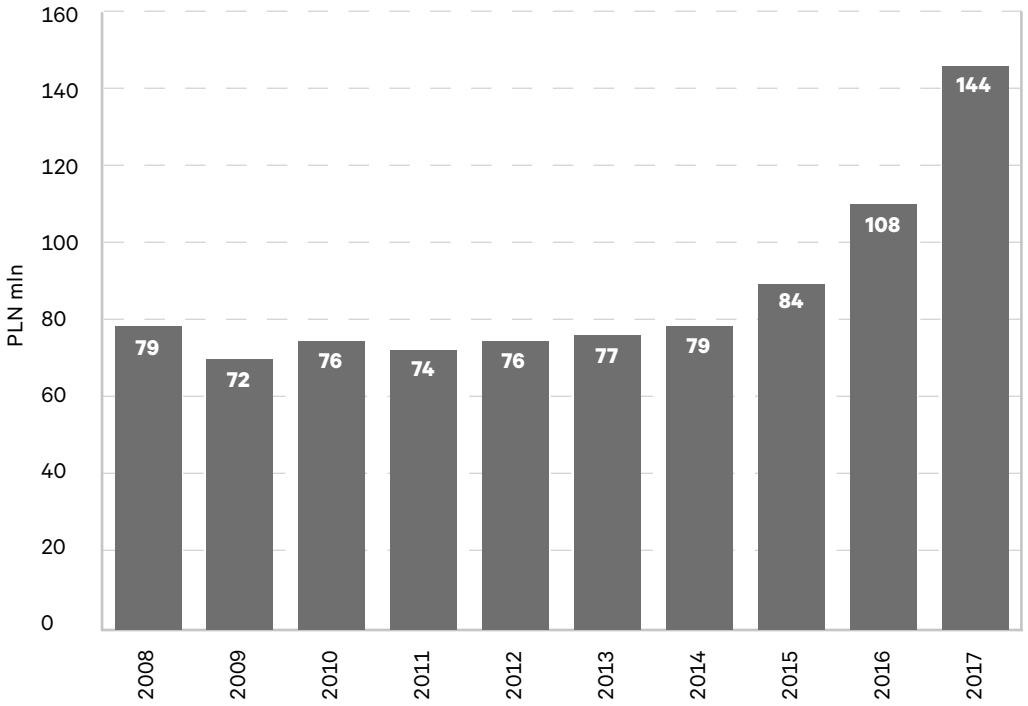
Receipts from corporate income tax (CIT) are difficult to estimate because of limited availability of data. Using the share of the tobacco sector in total industrial production, the share of tobacco products in total turnover of sales points and total budget revenue from CIT (assuming identical profitability of all sectors of the economy), **CASE estimates tax receipts from CIT in the sectors of the tobacco product value chain at PLN 250 million in 2016**.

63 CASE, 2015.

64 Because the average values of wages were used for the calculations, the estimates do not take into account the effect of the second, higher tax bracket, which lowers the estimates.

FIGURE 12: RECEIPTS FROM PIT ON EMPLOYEES OF TOBACCO PROCESSORS, MANUFACTURERS OF TOBACCO PRODUCTS AND THEIR SUPPLIERS, 2008-2017

Source: CASE.



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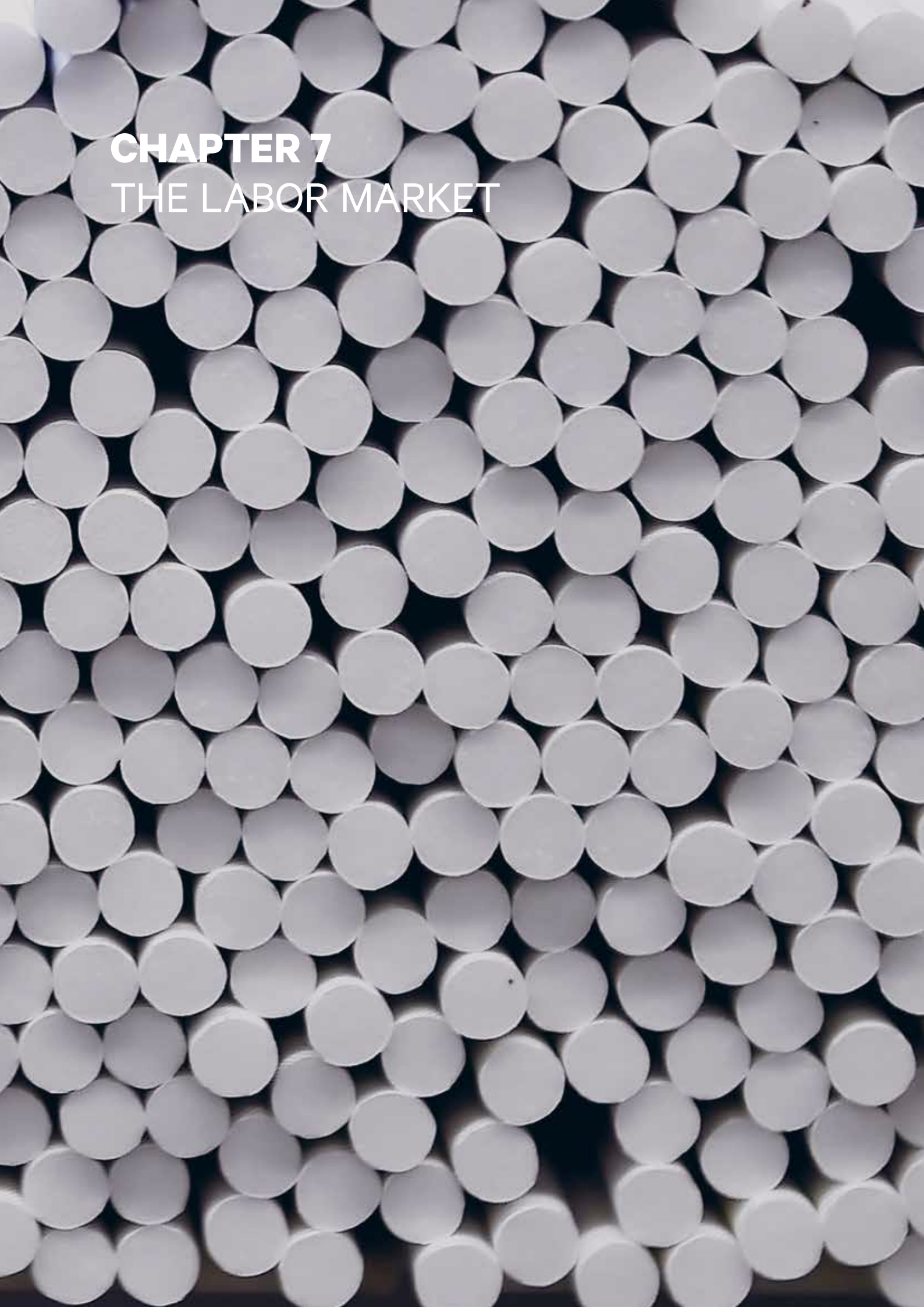


CHAPTER 7
THE LABOR MARKET

The Labor Market

The impact of the tobacco product sector on the Polish labor market can be divided into four categories, according to the value chain: tobacco growers, tobacco processors, manufacturers of tobacco products, and distributors.[65] It is impossible to estimate data on workers in these areas of the economy using PKD statistical classifications and GUS data. However, both the PZPT and the Agricultural Development Agency provide estimates on the number of people working in the sector. According to the available information, **the entire value chain of tobacco products – encompassing tobacco cultivation, processing, manufacturing of products and distribution and trade – is associated directly and indirectly with about 560,000 jobs** (growth by about 60,000 in comparison with 2012[66]). This number accounts for 3.7% of total employment in the country in 2015[67] – in comparison with 3.53% in 2012. This means that both the number of people employed in the business chain connected with the tobacco industry, as well as their share in the total number of workers is growing. On the basis of GUS data on production, value added and jobs in agriculture, industry and trade, CASE estimates that **the number of jobs generated independently by the tobacco product sector is equivalent to 33,000 full-time positions**.[68]

The number of jobs related directly or indirectly to the tobacco product value chain stands at 560,000, and the number of jobs that can be attributed exclusively to the tobacco product sector is equivalent to 33,000 full-time positions.

Cultivation

The Agricultural Markets Department of the Ministry of Agriculture and Rural Development and the PZPT estimate that **the number of tobacco growers in Poland as of 2017 stands at about 11,000,**[69] **while the total number of people employed in cultivation (including farmhands and seasonal workers) reaches 50,000 people**.[70] Along with the drop in both cultivated area and tobacco production, the number of growers is also consistently declining (from 14,400 growers in 2007), and as a result, so is employment in cultivation.

The number of tobacco farms, which are found mainly in the poorest regions of Poland, as well as their profitability, is steadily declining.

The regions where tobacco is cultivated are mostly in provinces with relatively high unemployment rates[71] and higher poverty rates. These are regions that are less developed, where frequently low soil quality does not allow for the cultivation of other crops (cf. Figure 2). Tobacco cultivation is the main source of income for growers, especially in the eastern parts of the country, or an additional source of income, and the plantations are generally small family farms with an average area of tobacco cultivation of 1.5 hectares.

The key challenge for Polish tobacco growers is the profitability of cultivation, which is lower than it was a few years ago, when EU subsidies allowed them to compete with imports. The Ministry of Agriculture and Rural Development[72] reports that **the profitability of tobacco cultivation is declining, which is causing the number of tobacco farms to shrink, while simultaneously increasing**

65 Union of Entrepreneurs and Employers, 2013.
66 Adam Smith Centre, Warsaw, 2013.
67 CASE calculations based on GUS, 2016a.
68 Estimate based on 2016 data.
69 PZPT, 2017.
70 PZPT, 2017; Ministry of Agriculture and Rural Development, 2017b. Other sources mentions 40,000 (BCC, 2016) or 45,000 (Ministry of Agriculture and Rural Development, 2013) people employed in tobacco cultivation and 9,000 farms producing tobacco (BCC, 2016).
71 GUS, 2017e.
72 Ministry of Agriculture and Rural Development, 2017a.

the area under cultivation of an average plantation. Another problem mentioned by the growers' association is the government's excise tax policy (see the chapter titled "Regulatory Challenges").

Additionally, the labor-intensity of tobacco cultivation and its high costs (mainly labor costs) mean that tobacco production in Poland and elsewhere in Europe is not very competitive in comparison with developing countries, where climatic conditions are better.

These problems may lead to a further reduction in the number of tobacco growers in Poland, especially as people who stop cultivating the crop rarely decide to take it up again.[73] The Ministry of Agriculture and Rural Development[74] points to the need to reduce production costs (including through mechanization) to increase the competitiveness of Polish tobacco and maintain domestic cultivation. The ministry also predicts that the trend of consolidation of tobacco farms will continue.

Tobacco Processing and Manufacturing of Tobacco Products

According to GUS data, 5,400 people were employed in manufacturing of tobacco products in Poland in 2015, working for 11 economic entities.[75] **Currently (in 2017) employment in manufacturing of tobacco products is estimated at about 9,000 people**, at the following companies: British American Tobacco: 3,200; Philip Morris: 3,000; Imperial Tobacco: 1,400; JTI: 1,200. About half of Philip Morris's employees work in a shared services center in Kraków, which provides financial, procurement, IT and HR services for Philip Morris International subsidiaries in Europe, Asia and Africa.

As of 2017, International Tobacco Machinery in Radom employs 400 people. The Amcor Tobacco Packaging factory in Łódź employs 500, including 40 in a research and development center. Additionally, companies that provide specialist services for factories, e.g. servicing their machinery and IT equipment, may provide employment to several hundred people. Along with tobacco processing factories and manufacturers of tobacco products, this gives a figure of **more than 10,000 people employed in the tobacco industry**.

Employment in manufacturing of tobacco products in Poland is growing along with output. For example, the number of British American Tobacco employees grew from 1,100 to 3,200 over the last few years. Most manufacturers of tobacco products and their suppliers also plan further hiring. For example, JTI plans to employ another 400 people in a new production plant in Stary Gostków. International Tobacco Machinery in Radom also plans more hiring.

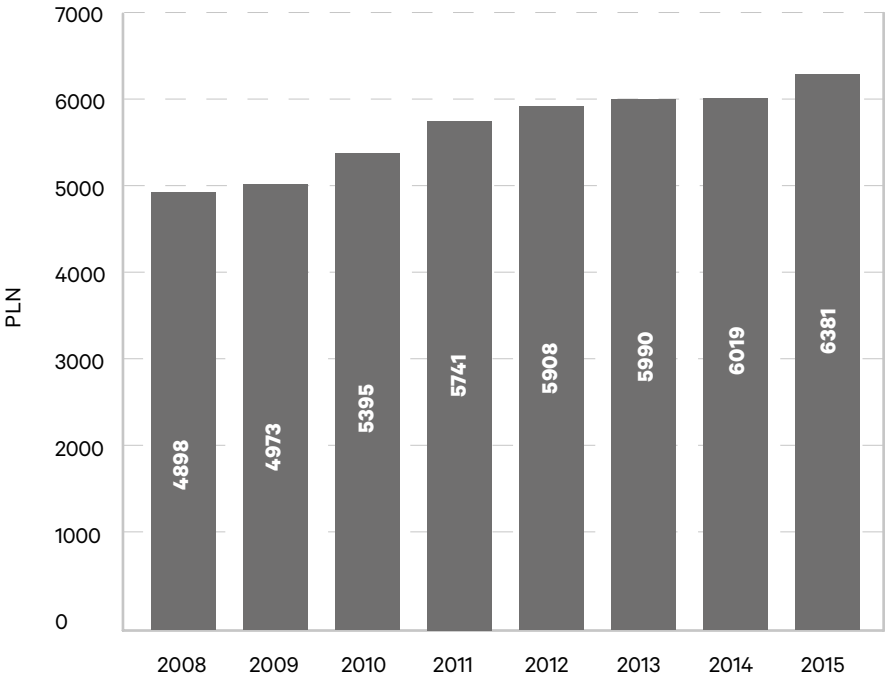
Simultaneously, **growth was observed in the salaries of workers employed in tobacco product manufacturing** in 2008-2015 (Figure 13), which is accompanied by growth in labor productivity in this segment.[76]

Both employment in the tobacco industry and labor productivity are steadily growing, with a positive effect on the results of industry as a whole.

73 PZPT, 2017.
74 Ministry of Agriculture and Rural Development, 2017a.
75 GUS, 2017d.
76 GUS, 2016, Outlays and results of industry in 2015.

FIGURE 13: AVERAGE GROSS MONTHLY WAGE OF EMPLOYEES IN TOBACCO PRODUCT MANUFACTURING (PLN)

Source: CASE based on GUS (2012, 2013, 2014b, 2015, 2017c).



Distribution and Trade

According to estimates from the Polish Trade Chamber (PIH),[77] the Polish Trade and Distribution Organization (POHiD)[78] and the Business Centre Club,[79] **in Poland about 500,000 people[80] are engaged in wholesale and retail trade of tobacco products**. Existing distribution channels comprise primarily small retail and wholesale outlets, where the share in turnover accounted for by tobacco products reaches about 40% of the value of turnover from the entire assortment of products.[81]

77 PIH, 2017.
78 POHiD, 2017.
79 Business Centre Club, 2016.
80 The Union of Entrepreneurs and Employers (ZPP, 2013) estimated that trade in tobacco products generates 450,000 jobs.
81 Adam Smith Centre, Warsaw, 2013.

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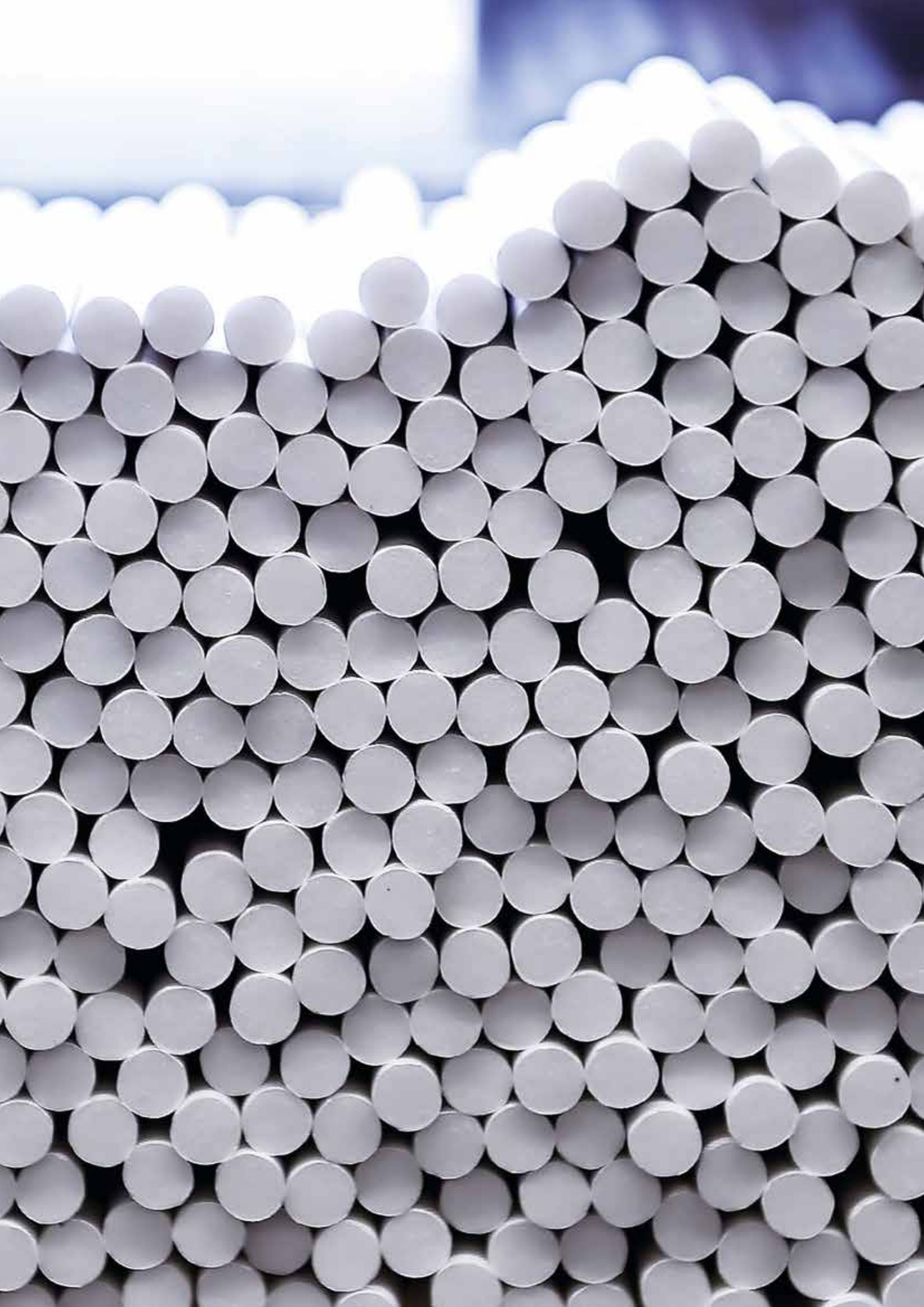

CHAPTER 8
CHALLENGES FOR TOBACCO PRODUCT MANUFACTURING

Challenges for Tobacco Product Manufacturing

The Shadow Economy

Before 2016, a declining trend could be observed in legal sales of cigarettes. This was caused not only by falling consumption, but also by purchasers shifting into the shadow economy as a result of growing prices of legal tobacco products.[82] The available research indicates that the shadow economy in the market for tobacco products in Poland grew in 2006-2013, reaching 25% of the market in the final year of that period.[83] The PIH also estimates the size of the shadow economy around 2013 at **25%**.[84] Polityka Insight[85] confirms that the size of the shadow economy according to various sources hovered around 13 billion-15 billion cigarettes per year, or 25% of the market.

Although in 2016 law enforcement uncovered close to 740 million illegal cigarettes and 729 tons of illegal tobacco, experts agree that **in recent times the shadow economy in trade in tobacco products in Poland has fallen**.[86] In the light of the newest research carried out by the "empty package method," the shadow economy in the cigarette market in Poland was 16.4% in the third quarter of 2016,[87] and the declining trend has continued in 2017 (13.8% in the second quarter).[88]

The existence of the shadow economy means that the state budget loses tax revenues in the billions of złotys every year. In the light of available publications, the so-called tax gap related to the shadow economy on the tobacco product market is responsible for PLN 4.6 billion[89] to PLN 7 billion[90] of tax losses annually. CASE estimates that **tax losses from uncollected excise tax, VAT, CIT and PIT stood at PLN 4.8 billion in 2016**, assuming that the shadow economy accounted for 16.4% of the market.

Additionally, the PIH[91] estimates that in light of the ending of production of menthol cigarettes from 2020 (see the subchapter titled "Regulatory Challenges"), 20% of the cigarette market may end up in the shadow economy.

The source of untaxed tobacco and cigarettes in Poland is illegal production in factories located inside the country, and smuggling. In 2016, the Central Investigative Bureau uncovered a record 26 illegal cigarette factories, and shut down 46 cut tobacco factories.[92] Smuggling to Poland is particularly strong in eastern provinces, in light of the proximity of the border, which is the European Union's longest land border. The main sources of smuggling are Belarus, Ukraine, Russia, and Moldova. There are a number of factories specializing

82 Institute for Research on the Market Economy, 2013.
83 Pracodawcy RP (Employers of the Polish Republic), 2014.
84 PIH, 2017.
85 Polityka Insight, 2016.
86 JTI, 2017.
87 Almares, 2016; Institute for Research on the Market Economy, 2013.
88 Almares, 2017.
89 Pracodawcy RP, 2014.
90 Polityka Insight, 2016.
91 PIH, 2016.
92 Policja.pl, 2017.

in manufacturing tobacco products specifically for smuggling and evading the tax system of the target country – so-called "illicit white." Simultaneously, the record-low exchange rate for the Ukrainian hryvnia since 2014 increases the profitability of smuggling tobacco and products from Ukraine.

Excise tax contributed to the expansion of the shadow economy through multiple increases in excise rates (in 2010-2014). The relationship of cause and effect between the jumps in the level of excise tax on tobacco products and growth in the shadow economy is unanimously noted by experts,[93] as well as producers, sellers of ready products, distributors and tobacco growers. POHiD[94] reports that in 2010-2014, excise was increased by a total of close to 45%, causing the legal cigarette market to shrink by as much as 10% a year. The existence of a causal relationship between the excise rate and the size of the shadow economy is also attested to by the fall in excise receipts in 2013-2015 and their return to growth in 2016, after the announcement in 2015 of a moratorium on increases in excise tax. According to representatives of the trade industry, a predictable and long-term excise policy that takes into account consumers' price sensitivity is key to reducing the shadow economy. Experts point to the need for comprehensive solutions encompassing a more predictable excise policy, creating a mandatory registry of tobacco growers and a system for monitoring the movement of tobacco, as well as increasing the effectiveness of law enforcement.[95]

One step in this direction is the act of March 9, 2017 on the system of monitoring the road transport of goods (Dz. U. Journal of Laws 2017 position 708). This law introduces a mandatory system of registration and monitoring of the transport of certain goods, including raw tobacco; describes the entities responsible for meeting this obligation (the sender, recipient and transporter); and introduces penalties for violations.[96]

Since June 2017 work has been under way on the so-called "tobacco legislative package," a government plan to amend the law on excise tax and the law on the Agricultural Market Agency and organization of certain agricultural markets.[97] The purpose of the bill is to tighten up control of trade in raw tobacco, while simultaneously reducing regulatory barriers for entities operating legally. The bill calls for the introduction of monitoring of tobacco cultivation and the sale of raw tobacco, extending excise tax to cover sales of raw tobacco by farmers in intracommunity supplies or exports, reducing the upper limit on the bond pledged by Tobacco Intermediary Entities from PLN 30 million to PLN 15 million and introducing mortgages as a form of excise bond.

93 E.g. Polityka Insight, 2016.
94 POHiD, 2017.
95 E.g. Polityka Insight, 2016.
96 In July this year work began on an amendment to the law on the road transport monitoring system. The purpose of the bill being developed by the Ministry of Finance includes expanding the system to cover transport by rail, and expanding the regulations to include transmission of geolocation data. Cf. https://legislacja.rcl.gov.pl/projekt/12300650/katalog/12447052#12447052
97 Ministry of Finance, 2017b; Government Legislation Center, 2017; Sejm.pl, 2017.

Regulatory Challenges

The regulatory challenges that representatives of the tobacco sector are facing have their source in EU and domestic legislation. The most important document regulating the tobacco industry in the European Union is the Tobacco Products Directive,[98] which introduces regulations in the area of production, exposition and sale of tobacco products and related products. The directive requires that **65% of the front and back portions of the packaging of cigarettes and smoking tobacco be covered with health warnings containing graphic and text warnings, and that cigarette packages have a cuboid shape and contain no fewer than 20 cigarettes**.

The tobacco directive also introduced a ban on sales of flavored cigarettes. This means that after a four-year transition period, which ends in 2020, **the sale of menthol cigarettes, popular in Poland, will end**. Menthol cigarettes are estimated to account for from 20%[99] to 30% of the Polish market,[100] and their withdrawal may result in consumption shifting to the shadow economy.

The tobacco directive also affected **the regulation of the market for e-cigarettes by the Polish legislature**.[101] Poland banned advertisement and promotion of e-cigarettes, the sale of these products to people under 18 and distance sales (including via the Internet), as well as their usage in public places. A requirement was introduced for the testing and registration of e-cigarette liquids in a specially created registry overseen by the Chemical Substances Bureau. The new regulations may affect the price of these products and demand for them.

The tobacco products directive also calls for **the introduction by the European Commission of an EU system for tracking movement and origin – the so-called track and trace (T&T) system** – replacing the current systems of this type that are based on bilateral understandings between producers and the European Commission.[102] The new system is to enable the monitoring of products at the level of individual packs in each member state, and at each stage of the supply chain, from producers, through wholesalers to the final entity before the first retail seller. The main purpose of T&T is to prevent the diversion of legal product to illegal channels. The European Commission's plans have provoked fear among distributors, for whom the regulation means additional costs related to hiring new workers to operate the system and potential purchases of software and new scanners to read additional bar codes.[103] The European Commission estimates the operating costs of the future system at 0.9-1.1 eurocents per pack.[104] The new regulations are to take effect on 20 May 2019 in the case of cigarettes and rolling tobacco, and 20 May 2024 in the case of other tobacco products.

98 *Directive 2014/40/EU of the European Parliament and of the Council of 3 April 2014 on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC* (OJ L 127, 29.4.2014, p. 1, as amended), note 2
99 PIH, 2012; Union of Entrepreneurs and Employers, 2013.
100 PIH, 2017.
101 *The Act of July 22, 2016 amending the law on protecting against the health consequences of the usage of tobacco and tobacco products* (Journal of Laws Dz. U. z 2016 r. position 1331).
102 Euractiv, 2017.
103 Gazeta Prawna, 2017.
104 EC, 2016b.

A significant question that is within the scope of national legislation and is raised by the associations of growers, tobacco product manufacturers and representatives of the trade industry is the government's excise policy. **A jump in excise tax on tobacco products translates into the expansion of the shadow economy at the cost of the legal market for cigarettes and unprocessed tobacco**. Additionally, the growers stress that requiring Intermediary Tobacco Entities to pledge financial security related to excise tax on raw tobacco significantly shrank the group of buyers on the market for raw tobacco.

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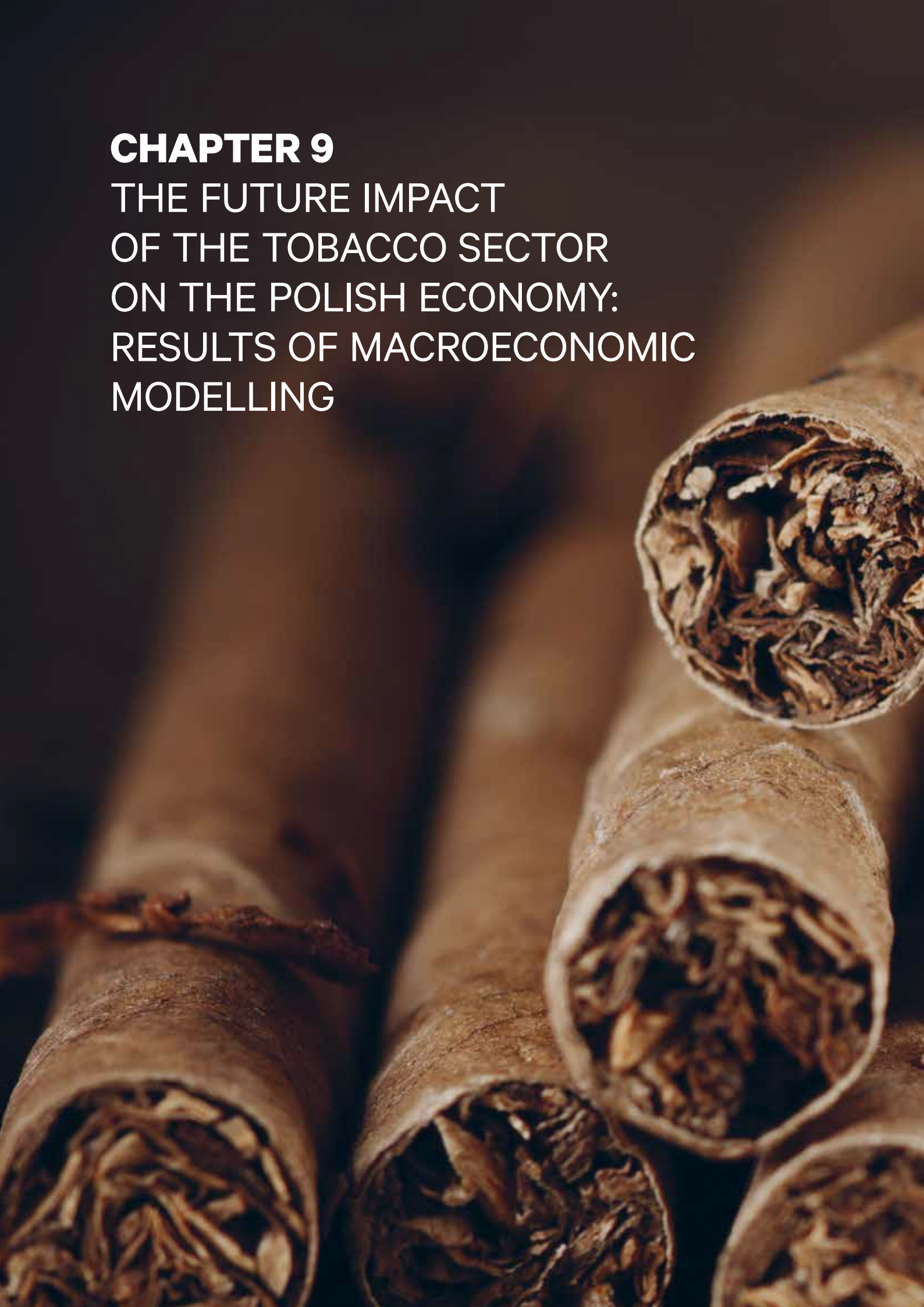


CHAPTER 9
THE FUTURE IMPACT OF THE TOBACCO SECTOR ON THE POLISH ECONOMY: RESULTS OF MACROECONOMIC MODELLING

The Future Impact of the Tobacco Sector on the Polish Economy: Results of Macroeconomic Modelling

The earlier portions of this report described the significance of the tobacco sector for the national economy, including its share in GDP, in tax revenues and in the labor market (the chapters titled "Share in GDP," "International Trade," "Budget Revenues" and "The Labor Market"), as well as presenting the challenges the tobacco sector is facing at the moment (the chapters "The Shadow Economy" and "Challenges for Manufacturing of Tobacco Products"). In the final section of the report, the authors take up a more difficult task: **estimating the future impact of the tobacco sector on the Polish economy, depending on its expected development trajectory**.

Based on the simulation and the variance of the growth and decline scenarios from the "business as usual" scenario, over 10 years the decline scenario would cause the loss of about PLN 17 billion of GDP in comparison with the growth scenario.

For this purpose, CASE used a so-called advanced computable general equilibrium (CGE) model for an open economy. This is a model comprising more than 1,000 equations describing the functioning of the main branches of the Polish economy, including the tobacco sector, on the basis of input-output tables published by GUS.[105] In describing the flows of goods, the model takes into account the optimizing behaviors of households and companies. Households make decisions on consumption and use of factors of production, i.e. labor and wages, while companies decide on the size of production, the quantities of factors of production employed and the structure and size of intermediate consumption. The CGE model also takes into account the government sector, which makes decisions on taxation, subsidies and social transfers, and is also a purchaser of goods and services.[106]

The CGE model takes into account a broad spectrum of mechanisms that result from the decisions of economic entities and are illustrated by a range of mathematical identities. Because of this, the model allows us to simulate the effects of scenarios with regard to the hypothetical reference scenario. The effects are visible both in the tobacco products sector, as well as in other sectors of the economy, households, and the government sector. We can distinguish two basic types of effects: direct and indirect. Direct effects involve the growth of productive activity in the tobacco product sector, while indirect effects appear in sectors that supply investment goods and factors of production to this sector, and in sectors of the economy that benefit from consumption demand from people employed in the tobacco product value chain.

For the purpose of adjusting the CGE model to the tobacco sector, we carried out a range of methodological steps, of which the first was distinguishing the tobacco product sector and the product category that corresponded to it. This process required the use of available sources and our own calculations concerning data such as imports of intermediate goods, exports and taxation of final goods.

It also was essential to calibrate the parameters, for example the elasticity of consumption of tobacco products. For this purpose we used both our own estimates, based on interviews with experts and industry stakeholders, and data from other studies.

105 GUS, 2014a. GUS publishes tables of inter-sector flows at five-year intervals.
106 Complete structure of the model is illustrated in Annex.

Another challenge was to lay out scenarios for the development of the sector. They were constructed on the basis of expert interviews and forecasts, taking into account variables such as domestic and foreign demand, government and EU regulatory policy and general economic performance. We laid out **two general scenarios: a decline scenario, reflecting changes that are disadvantageous for the sector, and a growth scenario, describing how the sector would progress with a beneficial set of variables**. Changes in consumption were not included in the set of assumptions in either of the development scenarios that were analyzed for the sector.

The model also distinguishes **two time horizons: short-term and long-term** (because we used a static model, it was possible to distinguish only these two perspectives). The short-term perspective covers the first two years after the introduction of the changes, and illustrates the period in which the economy is reacting sharply to them. In the short-term perspective, the interest rate adjusts to constant capital resources; real wages and household consumption follow employment; and government spending is exogenous (not resulting from the model). The long-term perspective covers the period exceeding two years from the introduction of changes. This perspective illustrates the condition of the economy after it has adjusted to the sudden changes caused in the sector's environment.[107]

In the simulations we adopted the following assumptions stemming from the experts' and stakeholders' expectations:

- The short-term perspective calls for a decline (by 80%) or growth (by 30%) of investment as a result of producers' expectations of a production decline (in the negative scenario) or growth (in the development scenario).

- In the long-term perspective, investments are adjusted to the maintenance of growth or decline in productive capital as a result of changes in the investment rate. Capital resources are expected to decline by 20% in the negative scenario, or to grow by 30% in the positive one.

- The expected change in the size of exports is the same for both time perspectives, standing at -20% in the negative scenario and 40% in the positive scenario. In the positive scenario, the tax rate remains unchanged, while in the negative one the share of VAT and excise taxes in the cost of a pack of cigarettes rises by 10%: from 80% to 88%.

- Additionally, it is assumed that as a result of higher costs of compliance with domestic and EU regulations in the negative scenario, production falls by 5%. In the positive scenario it is assumed that regulatory compliance costs remain at the current level.

Table 4 summarizes the assumptions adopted for both categories of scenario (growth and decline) for both time horizons (short-term and long-term).

107 In the long-term perspective, capital is adjusted to the interest rate, the relationship of investment to capital is constant, the level of employment (to which wages are adjusted) is fixed and government spending is a function of consumption.

TABLE 4: ASSUMPTIONS FOR THE SCENARIOS FOR THE TOBACCO SECTOR IN TERMS OF THE REFERENCE SCENARIO

Source: CASE

	Short-term perspective, decline scenario	Long-term perspective, decline scenario	Short-term perspective, growth scenario	Long-term perspective, growth scenario
Investment	–80%	0	+30%	0
Capital resources	0	–20%	0	+30%
Exports	–20%	–20%	+40%	+40%
Tax rate	+10%	+10%	0	0
Productivity	–5%	–5%	0	0

To sum up, the changes in the economy in the growth scenario are the result of ensuring regulatory and fiscal stability for the sector. Meanwhile, the results of the decline scenario coming to pass are close to the effects of the introduction of changes that will lead to growth in uncertainty and in production costs and prices of tobacco products. These changes will lead to a reduction in the investment rate and the share of exports in production, an increase in the marginal tax rate and higher administrative and compliance costs. Potential growth in administrative costs and compliance costs will negatively impact the sector's productivity. The estimated growth in the costs of engaging labor and capital in operations that are simply unrelated to product manufacturing will cause a reduction in productivity by about 5% in the decline scenario.

The results of the simulation show the complex effects of the changes for the entire economy. This effect takes into account mechanisms such as substitution of goods in the consumption basket and the multiplier effects of changes in the investment rate. The effects of the two scenarios on aggregate variables covering consumption, investment, exports, wages and GDP is presented in Figures 14 and 15.

FIGURE 14: EFFECT OF THE SCENARIOS ON AGGREGATE MACROECONOMIC VARIABLES IN THE SHORT TERM

Source: CASE

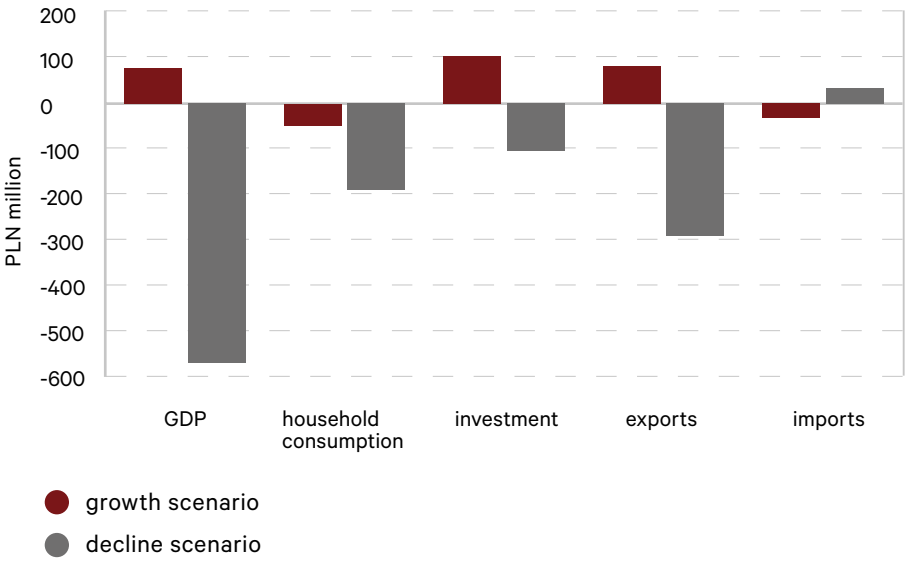
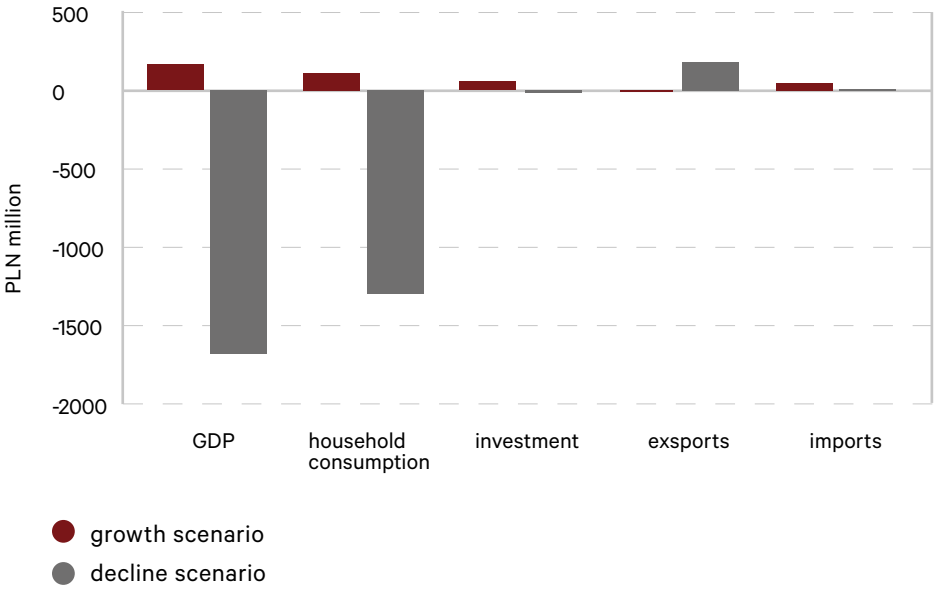


FIGURE 15: EFFECT OF THE SCENARIOS ON AGGREGATE MACROECONOMIC VARIABLES IN THE LONG TERM [108]

Source: CASE



108 Among the analyzed components of GDP, i.e. household consumption, investment and the trade balance, in the decline scenario exports grow, which is caused by a decline in the purchasing power of domestic households.

In the short term, in the growth scenario, the value of investment rises, and exports grow as a result of the increase in tobacco product manufacturers' productive capacities (Figure 15). Additionally, consumption declines in comparison with the "business as usual" scenario, which is caused by the crowding-out effect: growth of prices in the economy caused by investment demand temporarily reduces household consumption.

The decline scenario assumes a reduction in investments. Additionally, household consumption shrinks, which results from growth in the effective tax rate on tobacco products. Exports of tobacco products also fall, which has a negative impact on GDP (growth slows by 0.3 percentage points and about PLN 560 million annually).

Over the long term, the differences between the two scenarios are even more visible. Growth in investment, consumption and the balance of foreign trade results in GDP growth 0.1 percentage point faster than in the "business as usual" scenario and 1.1 percentage point faster than the decline scenario. The only factor of economic growth in the decline scenario is exports. However, growth of exports is unrelated to productivity growth, but rather to the decline in domestic households' purchasing power and in total demand. **In the growth scenario, the Polish economy will produce PLN 180 million more each year than in the base scenario, and almost PLN 2 billion more than in the decline scenario.**

Based on the simulation and the variance of the growth and decline scenarios from the "business as usual" scenario, over 10 years the decline scenario would cause the loss of about PLN 17 billion of GDP in comparison with the growth scenario.

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CHAPTER 10
CONCLUSION

Conclusion

The study confirms the significance of tobacco product manufacturing for the Polish economy. Harvests of tobacco have for years exceeded 30,000 tons a year, manufacturing of tobacco products in 2016 reached almost 158,000 tons and trade in these products involves between 100,000 and 120,000 sales points.

The Polish tobacco industry's production reached PLN 33-35 billion in 2016. CASE research indicates that in the next few years, this trend will be maintained, and the tobacco industry will invest more than PLN 1 billion in Poland. **Production of tobacco products in Poland is increasing steadily, which is caused by growth in exports: three of every four cigarettes produced in Poland are exported. Because of the size of the sector, 560,000 people in Poland have jobs directly or indirectly connected with the value chain of tobacco products. Production and consumption, according to CASE's estimates, in 2016 brought in about PLN 24.4 billion from excise tax, VAT, PIT, and CIT, or 8.9% of the budget's total tax revenue.**

In the next few years, the sector's development will be dependent on a range of regulatory challenges. In the pessimistic scenario for the sector's development – growing production costs, instability in the legislative environment and a drop in the value of the domestic market – investment will decline, as will the economic benefits related to the production of tobacco products. In the scenario of a stable legislative environment, including stability of the tax burden, investment in the sector will continue, and the share of exports in global production will continue to grow. Thanks to the development of the tobacco sector, others will also develop, including agriculture, construction and machine-building. **The benefits of the growth scenario compared with the decline scenario are estimated at PLN 17 billion over 10 years**.

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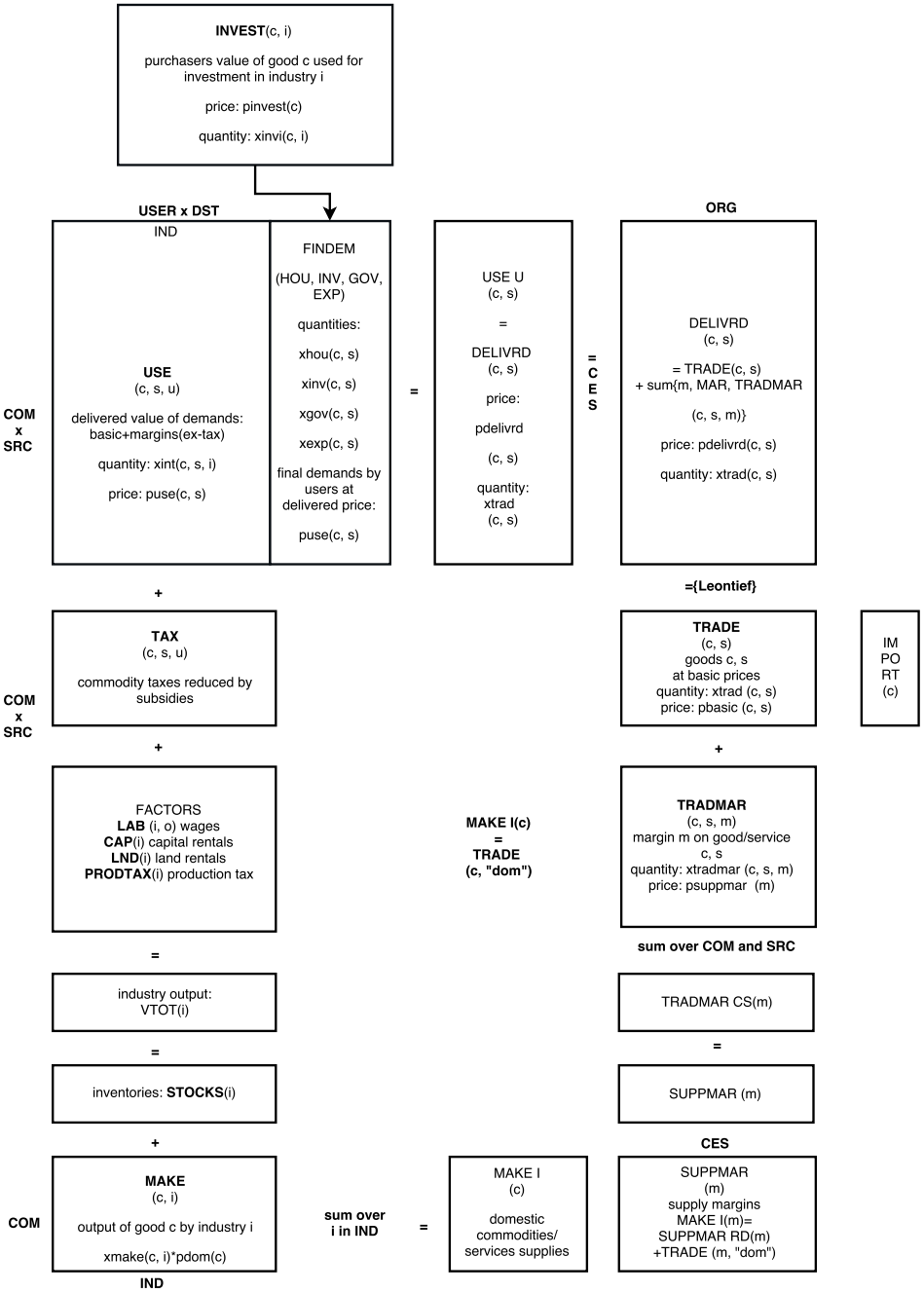
Annex: Structure of the CGE Model

Source: Own, based on Horridge et al. (2004)



Index	Description
c COM	Commodities
s SRC	Domestic or imported (ROW) sources
m MAR	Margins (transportation, trade, distribution)
f FINDEM	Final demanders (HOU, INV, GOV, EXP)
i IND	Industries
u USER	Users = IND union FINDEM