



European
Commission



CASE STUDY

CANNED SPRAT IN THE EU



PRICE STRUCTURE IN THE SUPPLY CHAIN FOR CANNED SPRAT

FOCUS ON POLAND AND LATVIA

EUMOFA

European Market Observatory for
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Contents

SUMMARY	1
0 SCOPE AND CONTENT	2
0.1 CASE STUDY SCOPE	2
0.2 CONTENT OF THE DOCUMENT	2
1 DESCRIPTION OF THE PRODUCT	3
1.1 BIOLOGICAL AND COMMERCIAL CHARACTERISTICS	3
1.2 WORLD PRODUCTION OF SPRAT	4
1.2.1 Evolution of catches of European sprat	4
1.2.2 Evolution of catches of other sprat species	5
2 STRUCTURE OF THE EU MARKET	7
2.1 EU PRODUCTION OF SPRAT	7
2.1.1 Evolution of sprat catches by EU fleets	7
2.1.2 Evolution of sprat landings in the EU	9
2.2 EU MARKET FOR SPRAT BY MEMBER STATE	9
2.3 INTRA-EU TRADE	11
2.4 EXTRA-EU TRADE	12
2.5 CANNED SPRAT	13
2.5.1 EU production of canned sprat	13
2.5.2 Sprat canning process	14
2.5.3 Sprat processing yield	15
3 THE POLISH MARKET	17
3.1 STRUCTURE OF THE POLISH MARKET	17
3.1.1 Polish production	17
3.1.2 Polish trade for sprat	18
3.1.3 Consumption	20
3.2 SPRAT PRICES ALONG THE SUPPLY CHAIN	22
3.2.1 First sale prices	22
3.2.2 Ex-factory prices	24
3.2.3 Retail prices	24
3.3 PRICE TRANSMISSION FOR CANNED SPRAT ON THE POLISH MARKET	25
4 THE LATVIAN MARKET	28
4.1 STRUCTURE OF THE LATVIAN MARKET	28
4.1.1 Latvian production	28

4.1.2	<i>Latvian trade for sprat</i>	30
4.1.3	<i>Consumption</i>	32
4.2	PRICES ALONG THE SUPPLY CHAIN IN LATVIA	33
4.2.1	<i>Fist sale prices</i>	33
4.2.2	<i>Ex-factory prices</i>	33
4.2.3	<i>Import-export prices</i>	33
4.2.4	<i>Retail prices</i>	34
4.3	PRICE TRANSMISSION IN THE SUPPLY CHAIN.....	35
5	ANNEX: SOURCES AND CONTACTS	37

Summary

- This case study focuses on canned European sprat in Poland and Latvia, which are among the main EU producers of this product.
- In 2016, global catches of European sprat reached 584.577 tonnes, 76% of which was caught by EU fleet.
- Sprat accounts for most of the raw materials used by the processing sector. On the market, it is found mainly canned and smoked and to a lesser extent fresh (whole). In Denmark and Sweden, it is used mainly for production of fishmeal and fish oil.
- In 2017, EU catches of European sprat reached 370.858 tonnes; Denmark accounted for 35% of EU catches of European sprat (almost 130.000 tonnes on 2017). Other important countries are Poland (19%) and Sweden (16%), and, to a lesser extent, Latvia (10%) and Estonia (7%).
- In 2017, production of canned sprat amounted to 16.160 tonnes in Poland and 16.504 tonnes in Latvia. Production has increased in Poland and decreased in Latvia in recent years.
- The Russian ban has led to significant decrease of Latvian canned sprat exports.
- Labour is the main cost factor and sale price inflation in canned sprat production.
- The first sale price of sprat has minimal influence on the final product price as the share of the raw material cost in the final retail price is below 5%.

0 Scope and content

0.1 Case study scope

Reminder

The rationale for choosing canned sprat to analyze price transmission and distribution of value in some EU supply chains is described in the following table.

Products	Production method	Characteristics	Market and price drivers
Canned sprat	Catches (EU)	Canned product, example of a broadly caught species in Europe. EU is the largest producer of canned sprat.	Drivers affecting the market of this product are: <ul style="list-style-type: none"> • Supply/fishing quota • Size of the fish • Seasonality (affecting the quality of the fish for canning process) • Consumption patterns and trends for canned fish

Key elements of the analyses concern:

Species -Products	Main Member States (focus)
Canned wild-caught sprat (<i>Sprattus sprattus</i>)	Poland and Latvia

0.2 Content of the document

The document includes:

- A description of the product;
- An analysis of production and market trends at EU level;
- An analysis of the price transmission along the supply chain in Poland and Latvia.

1 Description of the product

1.1 Biological and commercial characteristics

The case study focuses on canned European sprat in Poland and Latvia, which are among the main EU producers of canned sprat.

European sprat is a small pelagic species found in the Northeast Atlantic, from North Sea and Baltic south to Morocco and in the Mediterranean and Black Seas. Sprat is a gregarious species usually found inshore in schools, sometimes entering estuaries (specially the juveniles) and tolerating low salinities. Significant migrations are observed between winter feeding and summer spawning grounds. Sprat mostly feeds on planktonic crustaceans. Its total length can reach 16 cm but usually 12 cm is a standard length.

In terms of stock status, North sprat stock is considered to be at a sustainable level. In the Baltic Sea, European sprat spawning occurs almost throughout the year, near to the coast or up to 100 km out to sea, mainly in spring and summer, the juveniles drifting inshore. Sprat move to the surface at night.¹

Sprat stocks are managed through TAC (Total Allowable Catches) and quotas.

Case study product

Name: common sprat (*Sprattus sprattus*)

FAO 3-alpha code: SPR

Presentation: Smoked, canned

Commercial size:

Wild: between 6 cm and 15 cm.

Related codes in the combined nomenclature:

European sprat is distinguished in the Combined Nomenclature² from 2012 onwards for both fresh and frozen:

- 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled;
- 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen.

For canned products, sprats are not distinguished and are included under the same code than sardinellas: 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

¹ <http://www.fao.org/fishery/species/2102/en>

² CN is a tool for designating goods and merchandise which was established to meet simultaneously the requirements both of the Common Customs Tariff and of the external trade statistics of the EU. The basic regulation is Council Regulation (EEC) No 2658/87; an updated version of the Annex I is published every year as a Commission regulation (latest version: Commission Implementing Regulation (EU) 2018/1602).

1.2 World production of sprat

Several species of sprat exist around the world: the European sprat, the Black and Caspian Seas sprat and the Falkland sprat.

1.2.1 Evolution of catches of European sprat

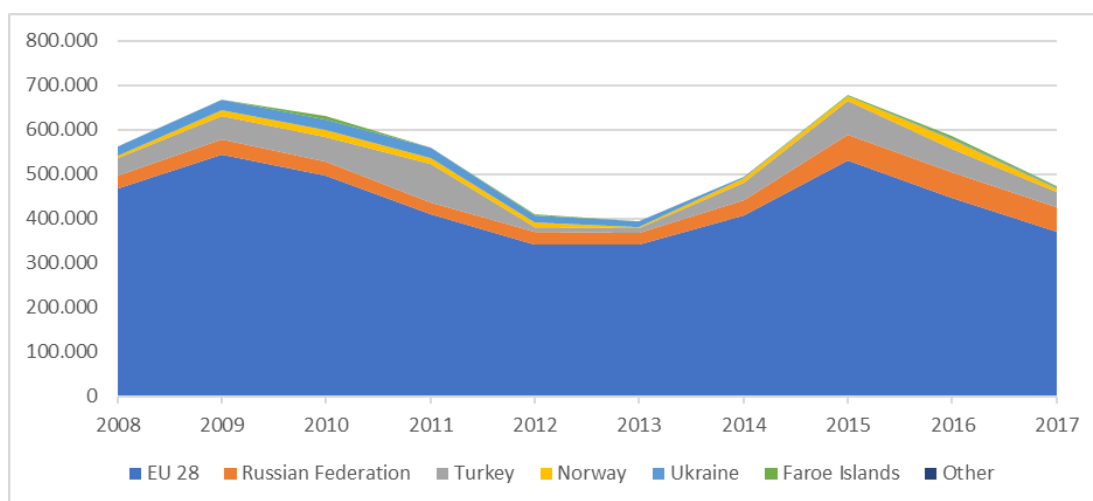
European sprat is mostly caught in the North and Baltic Seas by pelagic trawlers. In 2017, global catches of European sprat reached 472.082 tonnes, of which the EU fleet accounted for 79%. Other important countries were the Russian Federation and Turkey, respectively accounting for 11% and 7% of global catches. As for many small pelagic species, volumes of European sprat catches have experienced significant variations from one year to another due to changes in TACs and quotas.

Table 1: World production of European sprat (in tonnes) 2008-2017

Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
EU 28	468.140	543.478	495.094	410.639	340.155	342.225	406.108	530.380	446.538	370.858
Russian Federation	29.151	34.245	31.558	24.555	29.624	26.027	33.768	57.071	59.036	53.465
Turkey	39.303	53.385	57.023	87.141	12.092	9.764	41.648	76.996	50.225	33.950
Norway	4.453	11.469	14.647	12.357	10.364	2.936	10.725	9.700	21.703	10.229
Ukraine	21.111	24.604	24.652	24.379	15.751	12.866	2.114	2.237	1.745	2.159
Faroe Islands	-	-	7.326	237	467	510	185	644	5.251	1.399
Other	56	49	38	33	79	105	86	20	79	22
Totals	562.214	667.230	630.338	559.341	408.532	394.433	494.634	677.048	584.577	472.082

Source: FAO

Figure 1: World production of European sprat (in tonnes) 2008-2017



Source: FAO

1.2.2 Evolution of catches of other sprat species

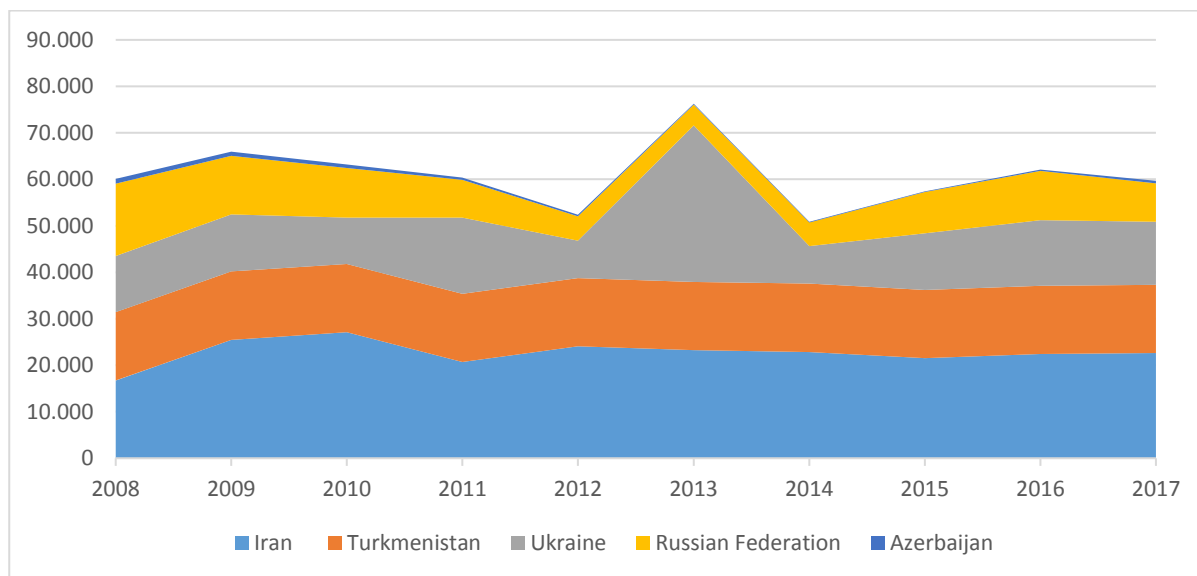
In the Azov and Caspian Seas, another species of sprat is caught, the *Clupeonella cultriventris*. Total catches of Azov and Caspian Seas sprat reached 59.712 tonnes in 2017 and have been generally stable over the last decade, despite significant fluctuations from one year to another especially in Ukraine in 2013 (see figure 2). The main countries involved in this fishery are Iran (38% of total volume caught in 2017), Turkmenistan (25%), Ukraine (23%) and the Russian Federation (14%).

Table 2: World catches of Azov and Caspian Seas sprat (in tonnes) 2008-2017

Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Iran	16.743	25.483	27.110	20.717	24.086	23.221	22.873	21.553	22.429	22.602
Turkmenistan	14.680	14.680	14.680	14.680	14.680	14.680	14.680	14.680	14.680	14.680
Ukraine	12.083	12.304	10.008	16.351	8.042	33.692	8.056	12.149	14.137	13.563
Russian Federation	15.542	12.624	10.657	8.159	5.216	4.465	5.098	8.920	10.542	8.308
Azerbaijan	1.020	839	708	485	372	206	164	139	316	559
Total	60.068	65.930	63.163	60.392	52.396	76.264	50.871	57.441	62.104	59.712

Source: FAO

Figure 2: World catches of Black and Caspian Seas sprat (in tonnes) 2008-20117



Source: FAO

Another sprat species, the Falkland sprat (*Sprattus fuegensis*) is caught in the Southern Atlantic, almost all catches being attributable to the Chilean fleet. The total volume of catches of Falkland sprat reached 19.293tonnes in 2017 and have followed a significant decreasing trend over the last ten years (-57%).

Table 3: World catches of Falkland sprat (in tonnes) 2008-2017

Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Chile	45.089	52.602	20.173	17.822	23.797	27.214	27.230	31.393	23.655	19.293
Others ³	0	1	0	4	49	12	25	145	1	0
Total	45.089	52.603	20.173	17.826	23.846	27.226	27.255	31.538	23.656	19.293

Source: FAO

³ Others: Falkland Islands (Malvinas), Argentina, Spain.

2 Structure of the EU market

2.1 EU production of sprat

2.1.1 Evolution of sprat catches by EU fleets

European sprat is one of the most important commercial small pelagic fish in the EU. The species is important in the North Sea and Baltic Sea fisheries but also in the Black Sea where it is caught by Romanian and Bulgarian fleets and in the Mediterranean. Catches are done with pelagic trawlers using small-meshed nets. The sprat stock in the Baltic Sea is longer-lived than the North Sea stock. Sprat is subject to total allowable catches (TACs), which are shared among 12 Member States (in the North and Baltic seas)⁴.

In 2017, EU catches of European sprat reached 370.858 tonnes. Denmark accounted for 35% of EU catches of European sprat (almost 130.000 tonnes in 2017). Other important countries are Poland (19%) and Sweden (16%), and, to a lesser extent, Latvia (10%) and Estonia (7%). Over the last decade EU catches of European sprat have decreased slightly (-10%) affecting all main fishing countries except Poland (+26%) and Denmark (+2%). However, significant variations occurred within the decade, due to strong variations in TACs and quotas, especially for Denmark (catches decreased by 57% between 2015 and 2017, mainly due to the strong decrease of quotas in North Sea and Norwegian Sea). In 2018, quotas have kept following a decreasing trend and so catches have followed this trend.

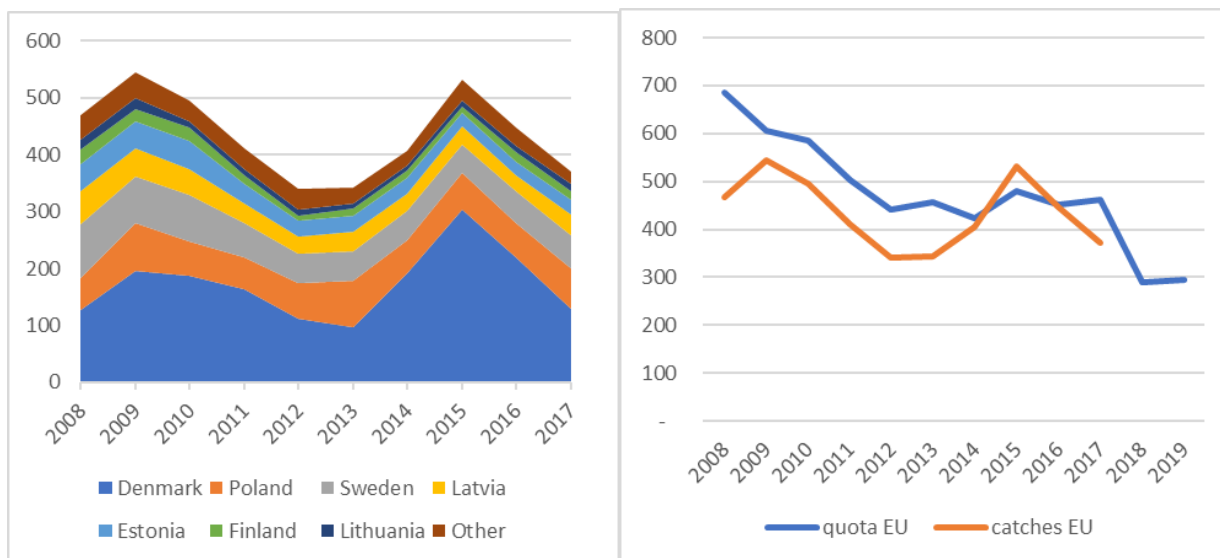
Table 4: EU catches of European sprat (in tonnes), 2008-2017

Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Denmark	126.693	195.174	187.021	163.220	111.706	96.386	190.354	302.821	219.217	129.480
Poland	55.557	83.416	59.277	56.490	63.115	80.988	58.588	64.173	60.057	69.972
Sweden	95.571	81.826	82.604	60.574	50.697	52.909	51.377	50.980	56.246	58.386
Latvia	57.301	49.550	45.851	33.441	30.719	33.310	30.761	30.501	28.103	35.744
Estonia	48.582	47.299	47.862	34.976	27.697	29.805	28.498	23.954	23.687	26.546
Finland	24.270	23.176	24.612	15.772	8.973	11.087	11.813	11.875	16.807	16.088
Lithuania	18.296	19.515	10.223	9.730	11.245	10.353	9.679	11.004	11.548	12.480
Other	41.870	43.522	37.644	36.436	36.003	27.387	25.038	35.072	30.873	22.162
Totals	468.140	543.478	495.094	410.639	340.155	342.225	406.108	530.380	446.538	370.858

Source: FAO

⁴ BE, DK, DE, EE, FI, FR, LV, LT, PL, NL, SE and UK.

Figure 3: Evolution of sprat catches in EU (left) and evolution of EU quotas (right), in 1000 tonnes



Source: FAO and DG MARE TACs and quotas Regulations⁵.

⁵ The TACs and quotas figure are the one fixed at the beginning of each year and can sometimes vary during the year depending on new scientific advice. For example, in 2015, sprat TAC in the North Sea has been considerably increased by 123.000 tonnes, of which 110.000 tonnes for Denmark. Source: <http://cphpost.dk/news/denmark-close-to-landing-extra-sprat-quota.html>

2.1.2 Evolution of sprat landings in the EU

In 2017, EU landings of European sprat amounted to 409.120 tonnes, of which 65% was attributable to landings in Denmark. The comparison between catches and landings shows that several EU fleets land (but also non-EU fleets, as Norwegian fleet) in Denmark. The main reason is that sprat is mostly used as raw material for the fish feed industry based in Denmark, needing significant volumes of fresh landings. In Denmark and Finland all landings are for non-food use (i.e. reduction in fish oil and fish meal) whereas in other country most of landings are for human consumption.

Over the 2008-2017 period, sprat landings in EU have decreased by 19%, with high variability between the main landing countries: increases in Poland (+79%), Finland (+17%), Germany (+438%), and to a lesser extent in the UK (+9%). There have been significant decreases in Latvia (-38%), Estonia (-45%), Sweden (-78%) and Bulgaria (-26%). These trends are driven by changes in landing strategies and fluctuations of TACs and quotas (especially in Baltic, North Sea and Norwegian Sea).

Table 5: Evolution of landings of sprat in EU (in tonnes) 2008-2017

Years	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Denmark	247.707	337.017	300.412	251.581	172.490	168.274	244.867	384.841	319.698	240.546
Poland	27.879	31.601	32.638	32.966	44.629	48.447	48.121	44.282	47.376	49.878
Latvia	55.643	43.765	40.662	31.315	34.106	36.585	32.074	31.610	27.281	34.710
Estonia	47.823	47.475	52.979	37.671	31.872	34.385	32.208	28.232	23.754	26.073
Sweden	100.253	102.534	96.888	58.394	43.218	32.870	24.210	18.182	20.588	21.751
Finland	13.745	7.849	6.707	6.879	4.103	5.101	5.814	4.793	8.488	16.088
Germany	1.410	2.751	3.734	998	946	1.365	635	753	463	7.586
United Kingdom	3.598	3.861	5.044	4.301	6.704	4.800	4.924	3.755	5.066	3.914
Bulgaria	4.306	4.550	4.037	3.955	2.830	3.794	2.287	3.297	2.296	3.189
Others	3.304	4.271	6.147	10.700	14.148	7.034	6.169	14.191	6.947	5.386
Totals	505.669	585.674	549.248	438.760	355.046	342.655	401.309	533.937	461.958	409.120

Source: EUMOFA

2.2 EU market for sprat by member state

In order to estimate the size of EU markets for sprat it is necessary to estimate the apparent consumption⁶ in the main EU MS in live weight equivalent. However, two main issues arise in the case of sprat:

⁶ The apparent consumption is built on the basis of the following equation, calculated in live weight equivalent: (catches for food use + aquaculture + imports) – exports (for food use only) = apparent consumption.

- A large share of EU sprat catches is for **non-food use** (processed in fishmeal and fish oil). However, most of these processing activities take place in Denmark where very few companies involved, leading to confidentiality issues. So the exact share of catches aimed for non-food use is not precisely known. Concerning frozen sprat, trade flows are assumed to be mostly for fish processing purposes, specifically for the canning industry. But this breakdown (food use/non-food use) of frozen sprat trade flows is not available at country level. So, these breakdowns can be used for the calculation of the EU apparent market for sprat (food use only, in live weight equivalent) but not for apparent consumption at country level;
- The **prepared and preserved sprat** as the corresponding customs code does not allow isolating this specific species in the EU trade data (16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved). Sardinella is often used as a substitute for EU canners to replace sprat or sardine when they are short in supply for raw material. So, the share of sardinella/sprat may vary depending on the year and country.

As a consequence, the calculation of the apparent consumption for sprat is not complete and several outputs are unrealistic. So in the table below reported catches and trade flows for each preservation state in order to have a sense of the orders of magnitude of market size at country level. But no precise estimates of apparent consumption can be provided.

Overall it appears that most of trade flows concerns fresh sprat for non-food use in imported/landed in Denmark for processing (especially from Sweden) and frozen sprat exported from Poland, Sweden, Estonia and Latvia. Import flows are lower and correspond especially to frozen sprat imported in Baltic States as a supply for the canning industry.

Table 6: Catches (tonnes live weight) and trade flows (tonnes net weight) for sprat in main EU countries (2017)

Country	Catches	Export				Import			
		Fresh	Frozen	Prepared/ preserved ⁷	Totals net weight	Fresh	Frozen	Prepared/ preserved	Totals net weight
Denmark	129.480	55	231	1	286	23.071	451	3	23.525
Poland	69.972	5.733	13.475	1.972	21.180	2.223	760	518	3.502
Sweden	58.386	50.772	38.100	266	89.138	9.622	2	1.363	10.987
Latvia	35.744	8.046	19.793	13.438	41.276	2.716	2.362	392	5.470
Estonia	26.546	6.109	26.464	7.087	39.660	2.652	1.926	522	5.100
Finland	16.088	3.211	2.738	1.474	7.422	4.062	0	272	4.334
Lithuania	12.480	7.540	301	928	8.769	2.500	3.781	816	7.097
Others	22.162	9.694	12.461	903	23.058	425	8.367	6.671	15.464
Total EU 28	370.858	91.159	113.562	26.067	230.788	47.270	17.649	10.557	75.477

Source: Eurostat and COMEXT

⁷ There is no specific CN-8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

2.3 Intra-EU trade

Exports

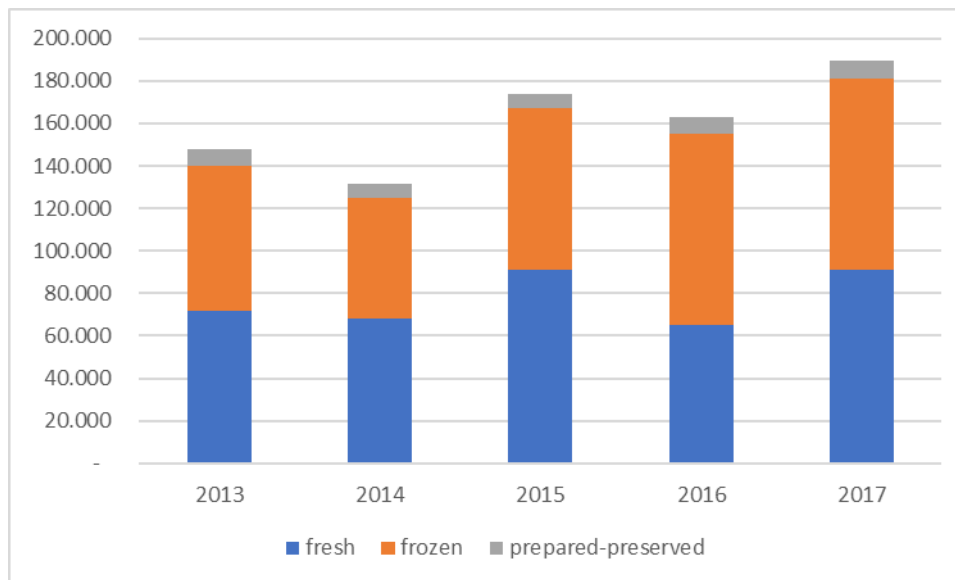
For **fresh** sprat, intra-EU exchanges are very high, with 91.118 tonnes exported in 2017. The main exporter was by far Sweden (56% of the total intra-EU volume, likely to consist in fresh landings for industrial purposes). Germany (11%), Latvia (9%) and Lithuania (8%) were also, to a lesser extent, major exporters.

For **frozen** sprat, Sweden is also the major intra-EU exporter, accounting for 42% of the total volume of 90.118 tonnes exported intra-EU. Latvia (18%), Poland (12%) and Estonia (12%) are also, to a lesser extent, major exporters of frozen sprat.

For **prepared and preserved** sprat and sardinella⁸, intra-EU exports reached 8.224 tonnes in 2017. Latvia is the main exporter, accounting for 67% of the total volume exported of prepared and preserved sprat and sardinella, followed by Poland (12%).

Intra-EU exports of sprat products have rather followed an increasing trend over the past five years, especially thanks to fresh (+27%) and frozen fish (+33%).

Figure 4: Intra-EU exports of sprat products (tonnes, in net weight)⁹



Source: COMEXT

⁸ There is no specific CN-8 code for prepared and preserved sprat, since it is mixed with other species: code 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

⁹ 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled; 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen; 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

Imports

The main intra-EU importer of **fresh sprat** by far was Denmark (49% of intra-EU imports of fresh sprat). Lithuania, Latvia and Romania are the main intra-EU importers of **frozen sprat**, accounting for respectively 22%, 14% and 14% of the total intra-EU imports of frozen sprat in 2017.

The main intra-EU importers of **prepared and preserved** sprat and sardinella were Sweden, Romania and Czech Republic, accounting for respectively 11%, 10% and 10% of the total intra-EU import volume of prepared and preserved sprat and sardinella. Overall, the main intra-EU importers are the Baltic and Eastern European countries.

2.4 Extra-EU trade

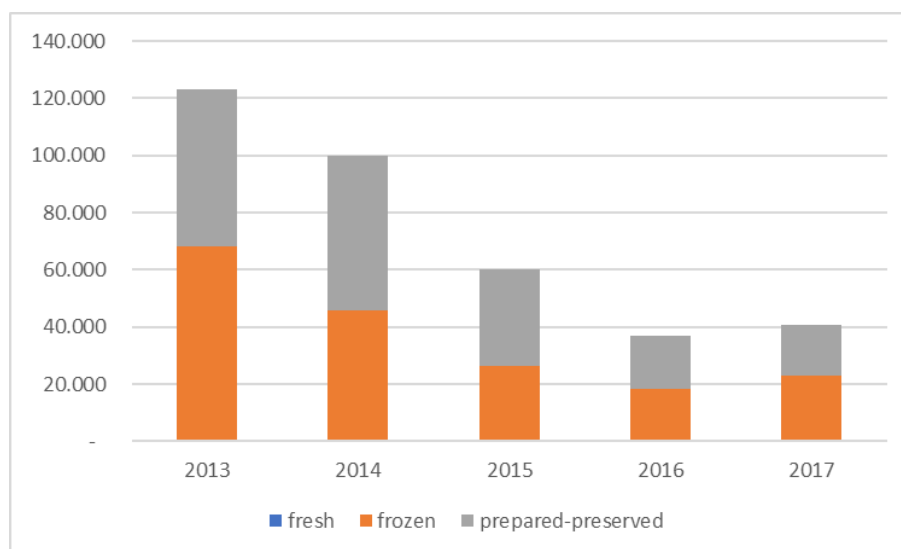
Extra-EU trade of **fresh** sprat is very limited with only 41 tonnes exported and 212 tonnes imported in 2017.

Exports

Extra EU-trade of **frozen** sprat is more active with 22.900 tonnes exported in 2017 and the biggest exporter is by far Estonia (67% of the total volume of frozen sprat) and to a lesser extent Latvia (15%) and Poland (10%). The main extra-EU destinations were Belarus (33% of total export volume), Ukraine (27%), and Kazakhstan (15%). For **prepared and preserved** sprat and sardinella¹⁰, extra-EU exports reached 17.937 tonnes in 2017. Latvia and Estonia are the main exporters, accounting for respectively 44% and 38% of the total volume exported of this product. The main extra-EU destinations were Ukraine (54% of the total volume of extra-EU exported of prepared and preserved sprat and sardinella) and to a lesser extent Russia and Moldova (9% each).

Overall, extra-EU exports of sprat products have rather followed a decreasing trend over the past five years, especially because of frozen fish (-66%) and prepared-preserved products (-67%).

Figure 5: Extra-EU exports of sprat products (tonnes, in net weight)¹¹



Source: COMEXT

¹⁰ There is no specific CN8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

¹¹ 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled; 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen; 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

Imports

Extra-EU imports of **frozen sprat** are very low, being only 63 tonnes in 2017 (mostly recorded by Estonia).

Extra-EU imports of **prepared and preserved** sprat and sardinella reached only 1.805 tonnes in 2017, the main origins being Thailand (27%) and Morocco (26%), and they should concern canned sardinella.

2.5 Canned sprat

Sprat is widely used for canning, smoking, and preserved production. Sprat is a popular fish in many EU countries and is usually caught by purse seine or pelagic trawls in fisheries specialized in catching this species. Sprat is usually smoked or fried and is a traditional and important fish in Baltic countries, especially Latvia and Poland, where they are mostly eaten as canned fish.

2.5.1 EU production of canned sprat

In the PRODCOM database, the code¹² concerning canned sprat also includes sardinellas and sardines but, depending on the producing country, it is possible to assume which species are included. Overall the EU production of canned sprat, sardines and sardinellas totaled 80.748 tonnes in 2017, significantly decreasing by 23% during period the 2009-2017.

In 2017, the main producers of sprat were Latvia (20%, assumed to be sprat) and Poland (20%, sprat). Also Spain and Portugal report production of “canned sprat, sardines and sardinellas”, but in these countries it is assumed that the production consist only in sardines and sardinellas and not sprat. Over the 2009-2017 period, Latvian production fell sharply (-43%) while Polish production rose by 44%.

Table 6: EU production of canned sprat and sardinella (tonnes net weight)

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Latvia	29.101	33.544	39.907	47.148	52.552	48.342	28.260	16.378	16.504
Spain	21.302	18.332	19.081	16.870	15.299	16.237	15.991	14.065	16.269
Poland	11.241	12.191	12.321	12.765	13.321	11.960	13.130	14.347	16.160
Portugal	16.453	17.874	19.607	17.704	14.054	11.665	12.057	12.185	10.064
France	9.171	-	-	12.165	8.206	8.305	8.368	9.472	9.277
Croatia	8.874	6.620	7.510	6.549	5.222	6.365	4.928	5.196	4.673
Estonia	3.738	3.663	4.016	5.912	5.611	5.820	4.776	3.114	3.184
Other	4.712	4.490	3.918	4.322	4.346	4.419	4.402	4.076	4.617
Totals	104.592	96.714	106.360	123.435	118.611	113.113	91.912	78.833	80.748

Source: PRODCOM

¹² 10202530 - Prepared or preserved sardines, sardinella, brisling and sprats, whole or in pieces (excluding minced products and prepared meals and dishes).

2.5.2 Sprat canning process

Most sprat for canning is caught from January to March/mid-April using active gears (trawls). On many trawlers, a Refrigerated Sea Water (RSW) system is used: sprat is transported with water into tanks on board and during landing operation, the fish is then transported to tanks with ice water. This should guarantee good fish quality.

During the winter period, sprat is rich in fat (up to 13% in January), while in April fat content is as low as 5-6%. From January to March sprat do not feed, and the abdominal cavity is almost empty. From April sprats start to feed and the abdominal cavity is filled, and the taste of the fish may be bitter.

Sprat for human consumption is then transported (by trucks) into primary processing plants. In primary processing plants sprat is:

- **Sorted;**
- **Headed** (which is sufficient for winter sprat that does not feed; therefore, gutting is not needed);
- **Nobbed** (headed with gutting without cutting abdominal cavity).

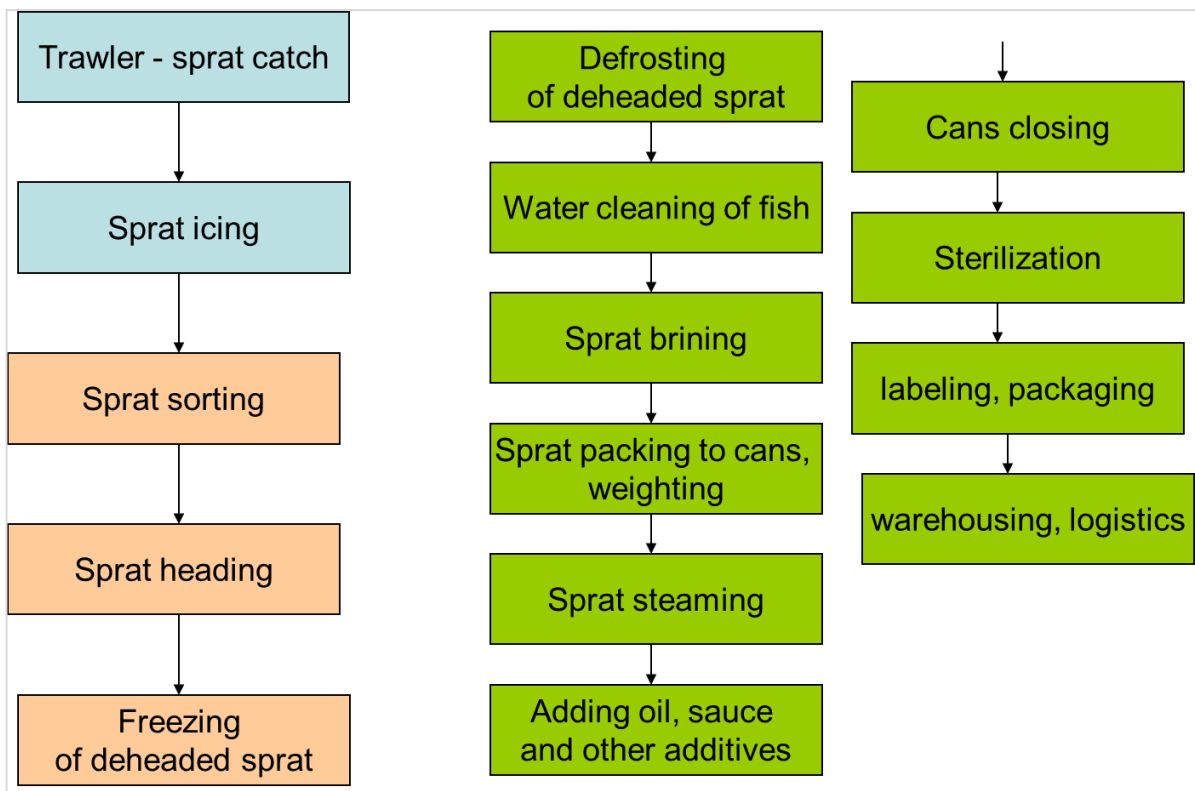
According to some processors, heading without gutting is commonly used when sprat is destined for canning, even for non-winter sprat.

With increasing labor costs, many processors are starting to invest in automatic heading or nobbing equipment (up to 300-400 fish per minute).

Headed sprat (and defrosted, if frozen raw material is used) is then packed into cans (in most of cases manually, with weighing), and then steamed. After steaming, oil or tomato sauce is added (automatically), cans are closed (automatically) and then sterilized in steam autoclaves. If cans without lithography are used, then automatic labelling is used. Finally, cans are manually packed into collective packaging. Before shipping to the stores, preserves usually ripen for a minimum of one month.

Alternatively, some sprats are used for smoking and then canning. Smoked sprats usually are manually laid, especially in small round and Dingley cans.

Figure 6: Steps of the sprat canning process



Source: EUMOFA elaboration according to interviews and literature review (in blue on boat, in orange preliminary processing phase just after landing, in green processing phases in canneries).

2.5.3 Sprat processing yield

Heading losses for sprat amount to 20%-26%. The conversion rate for headed sprat to full sprat is 1,28. Additionally, minimum 10% of weight is lost in optimal conditions, during freezing and defrosting. Conversion rate for defrosted headed sprat to full sprat is 1,42.

During steaming, before canning, weight losses amount to 14-20%. Anyhow most of producers declare on label "fish meat weight before steaming".

During hot smoking of sprat, then used for canning, weight losses amount to minimum 20%. In traditional smoking at less than 60°C, which is linked to Regulation 853/2004¹³ - weight losses amounted up to 30-35%. The conversion rate for smoked headed sprat to full sprat is 1,78.

¹³ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:139:0055:0205:en:PDF>

Based on the Polish example (surveyed Polish factories), average fish (headed sprat) content in products usually amounts to:

- 60-70% in case of sprat in oil,
- 50-55% in case of sprat in tomato sauce.

	Unit	Sprat in oil	Sprat in tomato	Smoked sprat in oil
Fish content (%)	percentage	60%	55%	60%
Smoked headed sprat used	per 1 kg of product	-	-	600 g
Gutted raw sprat used	per 1 kg of product	600 g	550 g	750 g
Full sprat used	per 1 kg of product	852 g	781 g	1068 g

Source: EUMOFA survey among Polish sprat producers

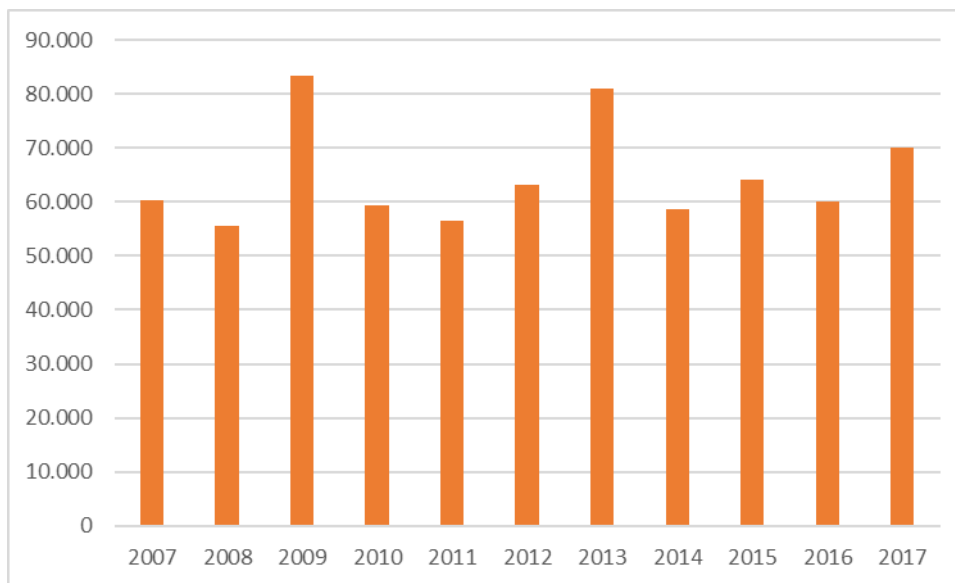
3 The Polish market

3.1 Structure of the Polish market

3.1.1 Polish production

In 2017, the Polish fleet caught 69.971 tonnes of sprat in 2017. This was a 17% increase against 2016 catches and a 16% increase compared to 2008. Overall sprat catches have experienced significant fluctuations over the past decade with peaks in 2009 and 2013 at respectively 83.416 tonnes and 80.988 tonnes.

Figure 7: Polish sprat catches (in tonnes live weight equivalent)



Source: EUROSTAT

In terms of first sales, the main Polish ports for sprat are Hel and Kolobrzeg and to a lesser extent Wladyslawowo and Ustka. In 2017, these four ports accounted for almost all sprat landings in Poland with more than 42.000 tonnes sold.

Table 8: Sprat first-sale volumes in main Polish ports (in tonnes net weight)

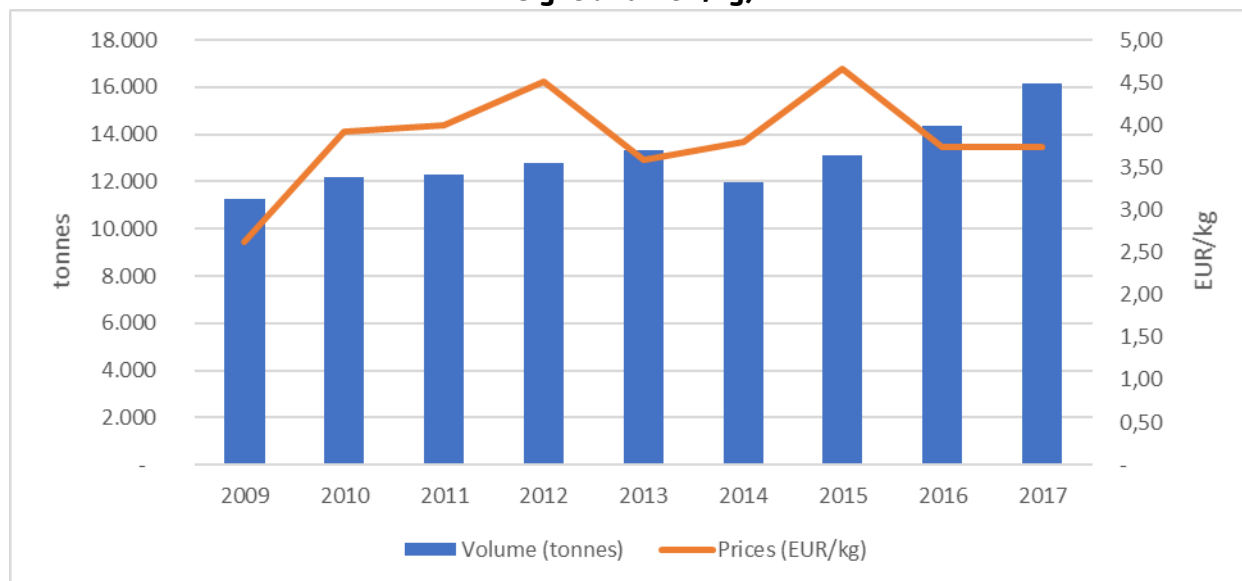
Port	2016	2017
Hel	22.771	20.429
Kolobrzeg	11.296	12.319
Wladyslawowo	2.279	5.261
Ustka	4.804	4.226
Others	1.409	667

Source: EUMOFA

Processing plants in Poland produced 60.200 tonnes of canned fish in 2016. This was a 14% increase compared to 2015. The production of canned fish is concentrated in 5 factories covering more than 90% of Polish production of canned sprat. The rest (10%) of the production is carried out by no more than 5 other factories. More than 95% of the production is carried out in Pomerania Region.

In 2017, the production of canned sprat in Poland has reached 16.160 tonnes net weight, which represents a significant increase compared to 2016 (+13%) and even more compared to 2009 (+44%). In the meantime, the average ex-factory price has experienced strong fluctuations but rather increased (+42%) from 2009 to 2017, ending at 3,73 EUR/kg in 2017¹⁴.

Figure 8: Polish production of canned sprat¹⁵ and average ex-factory price (tonnes net weight and EUR/kg)



Source: PRODCOM

3.1.2 Polish trade for sprat

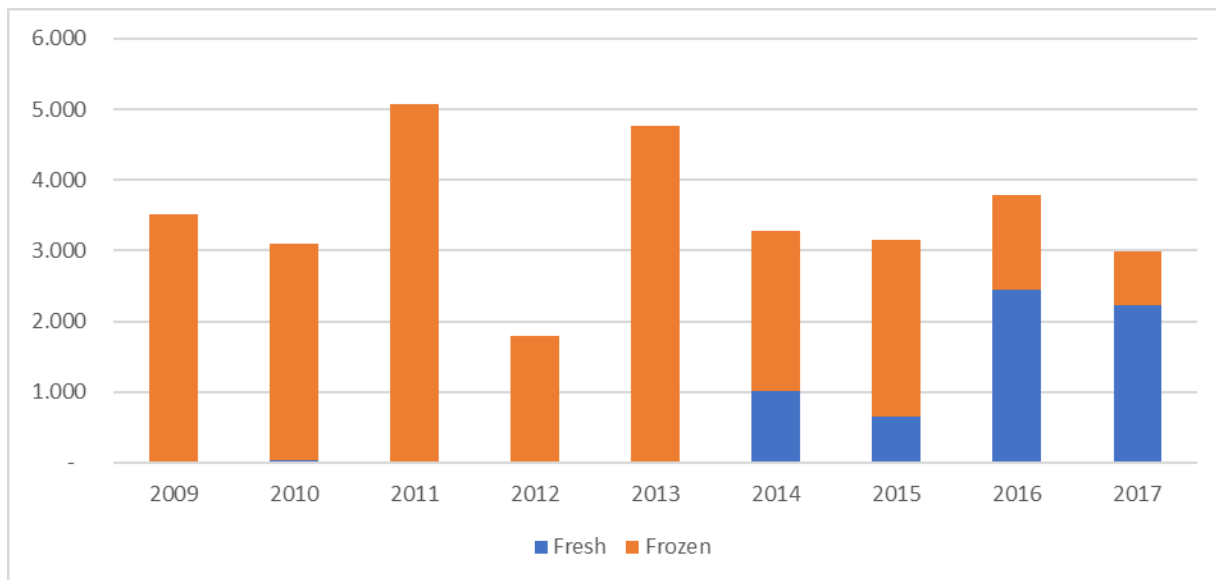
Fresh and frozen whole fish

In 2017, imports of whole sprat reached 2.984 tonnes net weight (75% fresh, 25% frozen). In recent years, imports of whole sprat have experienced significant fluctuations for all preservation states. Imports reached peaks in 2011 and 2013 at around 5.000 tonnes. Then they strongly decreased in 2014 and fluctuated around 3.000-3.500 tonnes in 2015, 2016 and 2017. All preservation states included, the main import partners in 2017 were Latvia (23%), Estonia (22%) and then the UK (15%) and Ireland (12%).

¹⁴ PRODCOM.

¹⁵ These figures may include canned sardinella.

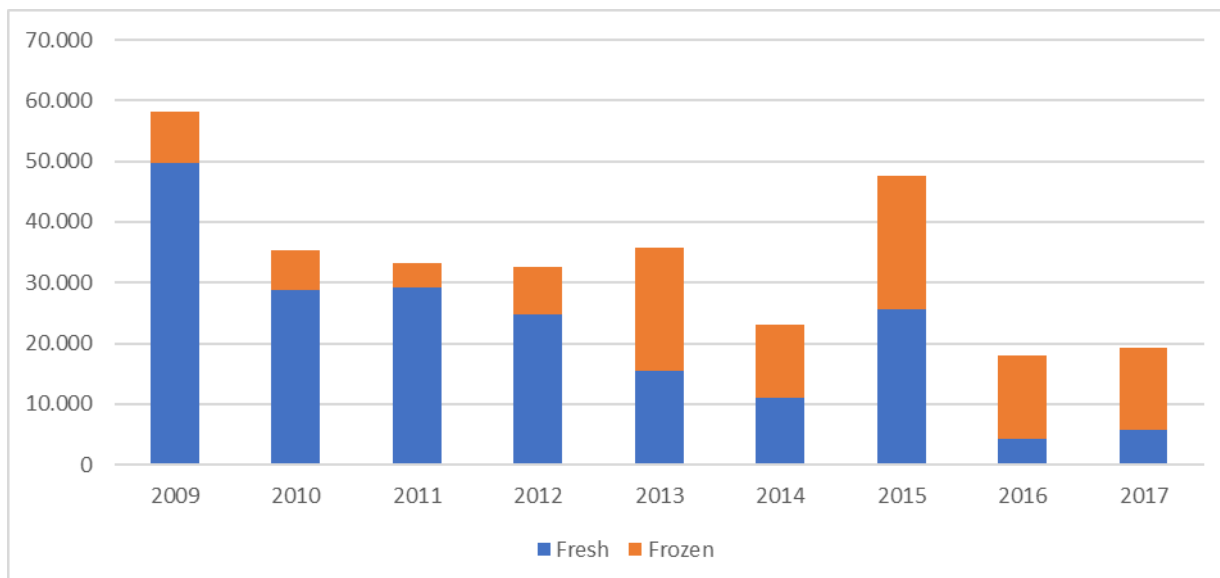
Figure 9: Evolution of imports in Poland of sprat, whole, by preservation state (in tonnes net weight)



Source: EUMOFA

In 2017, exports of whole sprats reached 19.208 tonnes (30% fresh, 70% frozen). In recent years, exports of whole sprats have experienced significant fluctuations for all preservation states. Exports have followed a declining trend from 2009 to 2014. Then sprat exports bounced back in 2015 (to reach almost 50.000 tonnes net weight) and fell back to 2014 level in 2016 and 2017 (below 20.000 tonnes). All preservation states included, the main export partners in 2017 were Denmark (63% of total export volume) and to a lesser extent Sweden (10%), Serbia (9%) and Croatia (6%).

Figure 10: Evolution of Poland exports of sprat, whole by preservation (in tonnes net weight)

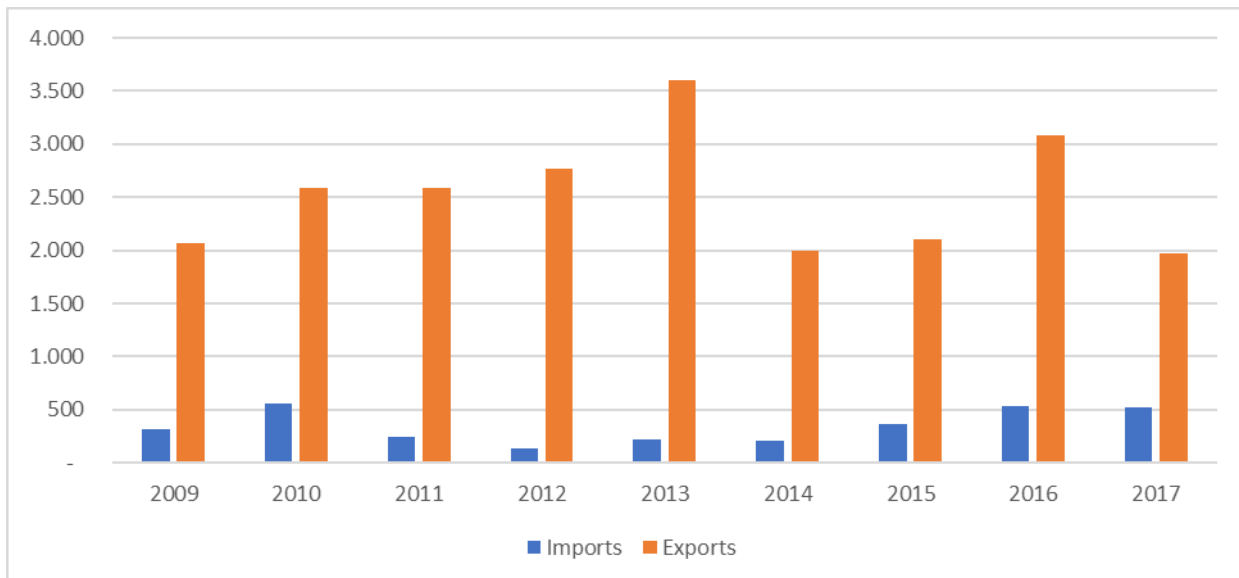


Source: EUMOFA

Canned fish

In 2017, Polish exports of canned sprat and sardinella reached 1.972 tonnes net weight, 36% less compared to 2016 but only 5% less compared to 2009. Main destinations were the US (22%), Australia (20%), Romania (19%) and Hungary (15%). By comparison, imports of canned sprat and sardinella were lower, with 508 tonnes net weight imported in 2017, mostly from Latvia (97%).

Figure 11: Evolution of imports and exports of canned sprat and sardinella in Poland (in tonnes net weight)



Source: COMEXT

3.1.3 Consumption

The canned sprat market is conservative in terms of product variety, which is relatively low, and product life cycle which is relatively long. According to fish processors, 80% of the market is covered by “traditional” products, which consumers already knew 20 or 30 years ago:

- sprat in oil (sometimes in aromatized oil),
- sprat in tomato sauce (sometimes called "Popular sprats in tomato sauce"),
- smoked sprat in oil (usually called "Popular smoked Winter Sprat" - which is the name used for the last 50 years).

An interesting fact about the market is the naming of some of the canned sprats: it is probably one of the very rare cases of food in the communist era (before 1989) that had a name in English (Popular smoked Winter Sprat).

The rest of the market is composed of:

- sprats sold as "sardines" in oil or in tomato (the same product as canned sprat with just a different trade name — which complies with *Commission Regulation*¹⁶);
- sprats in oil “Caro” (traditional product - sprats in oil with carrot and peas, cut in diamonds);
- some "innovative" products with small market share, as: e.g. *Sprats in oil with basil*, *Sprats in spicy oil* etc.

¹⁶ (EC) No 1345/2008 of 23 December 2008 amending Council Regulation (EEC) No 2136/89 laying down common marketing standards for preserved sardines and trade descriptions for preserved sardines and sardine-type products).

The market, up to late 1990s, was dominated by steel cans. From 1990/2000, the market evolved into a market dominated by aluminum cans. The market is dominated by one can supplier (domestic production).

Raw materials used for production of canned sprat in Poland originated at almost 100% from Baltic sprat landings in Polish ports. Due to their high fat content, only sprat caught from January to March (mid-April) is suitable for canning and is a guarantee of high organoleptic quality, which, moreover, reflects the traditional name of the product – “*winter sprats*”. Anyhow, the production of canned sprat is almost continuous all-year, then canners use frozen raw material for the production of canned fish, but also sprats fished out of the winter season are used resulting in lower quality.

In 2017, fish consumption in Poland amounted to 12,4 kg per capita, about half of the EU consumption average. Sprat was the 6th most consumed fish product with annual consumption per capita estimated at 0,7 kg (6% of the total)¹⁷.

In Poland most popular cans used for sprat canning are:

- Hansa 170 g - the most popular size;
- Dingley 1/4 Club from 110 to 125 g - used mostly for sprats traded as “sardines” and winter sprat in oil,
- round can 300 g - used mostly for cheaper sprats in tomato sauce or oil.

The 300 g can size is becoming less and less popular, as consumers generally prefer smaller packages. This can be explained by the growing number of single-person and two-person households, as well as the large variety of breakfast and supper products available changing consumption preferences and patterns.

According to interviews with stakeholders, and available data from consumer surveys¹⁸, sprat was once popular in Poland, but is no longer treated as a valuable species by young consumers. It is one of the reasons why some amounts of sprats are sold as “sardines”, which probably have better image, which is allowed according to the Regulation 1181/2003 on marketing standards (sardine-type products). Sprat is recognized amongst Polish young consumers as a cheap product, which limits the possibility of selling products at higher prices. One of the reasons for the low valuation of sprat may be the publicly held debate on sprat industrial fisheries (the use of sprats for non-food purposes does not create a positive image). There is anyhow market space for expensive, exclusive sprat products — imported Latvian sprat has a price (above 2,00 EUR per can) even twice as high as sprats processed by the Polish industry.

¹⁷https://apps.fas.usda.gov/newgainapi/api/report/downloadreportbyfilename?filename=2017%20Fish%20and%20Seafood%20Market%20in%20Poland_Warsaw_Poland_2-21-2018.pdf

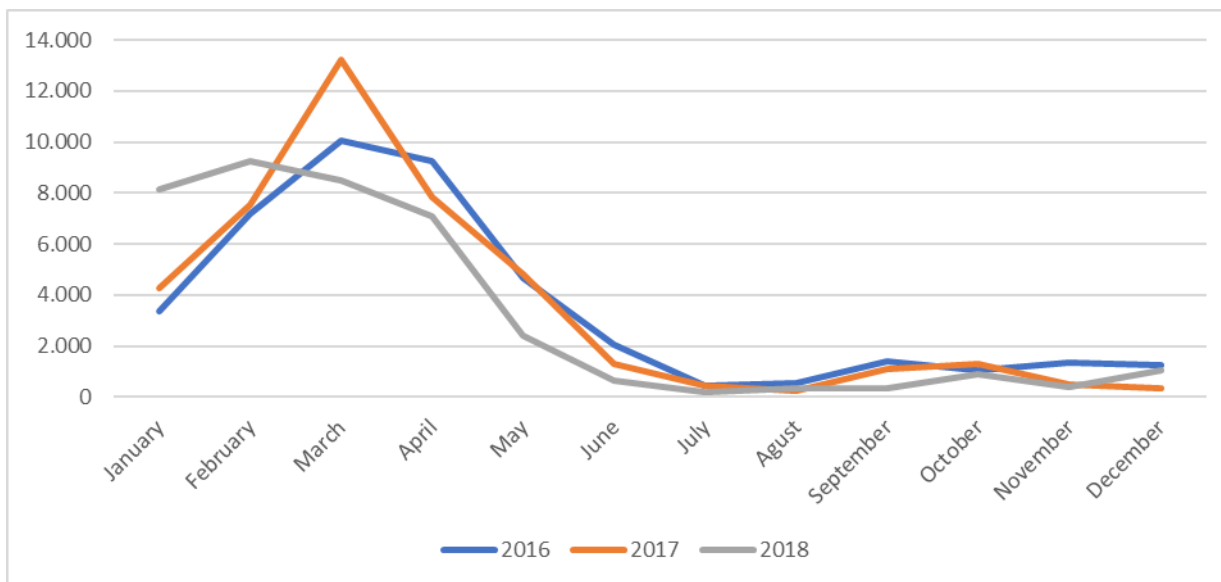
¹⁸ Especially the online quantitative consumer survey - CAWI, conducted for the National Marine Fisheries Research Institute, under project Innovative processing to preserve positive health effects in pelagic fish products, October 2016.

3.2 Sprat prices along the supply chain

3.2.1 First sale prices

Sprat price depends on season, quality and destination (human consumption or industrial catch). Fisheries targeting sprat have a very seasonal activity. In 2018, reported first-sales in Polish ports reached more than 39.000 tonnes of sprat, of which 90% in the first five months of the year.

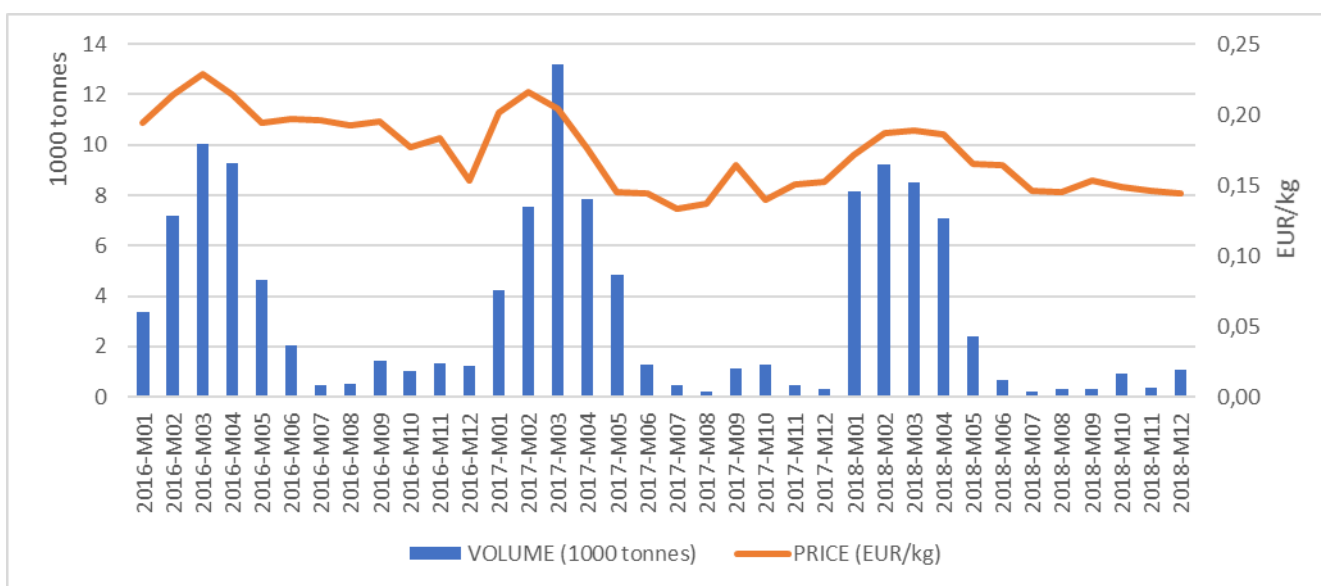
Figure 12: Sprat monthly first-sale volumes in Polish fishing ports (in tonnes)



Source: EUMOFA

Prices of sprats landed in Polish ports in 2017 amounted to an average of 0,80 PLN (0,19 EUR) per kg. This price was 12% lower than in 2016. It is worth noting that after a period of long-term price stagnation (ca. 0,60 PLN/kg), sprat prices increased in 2015–2016.

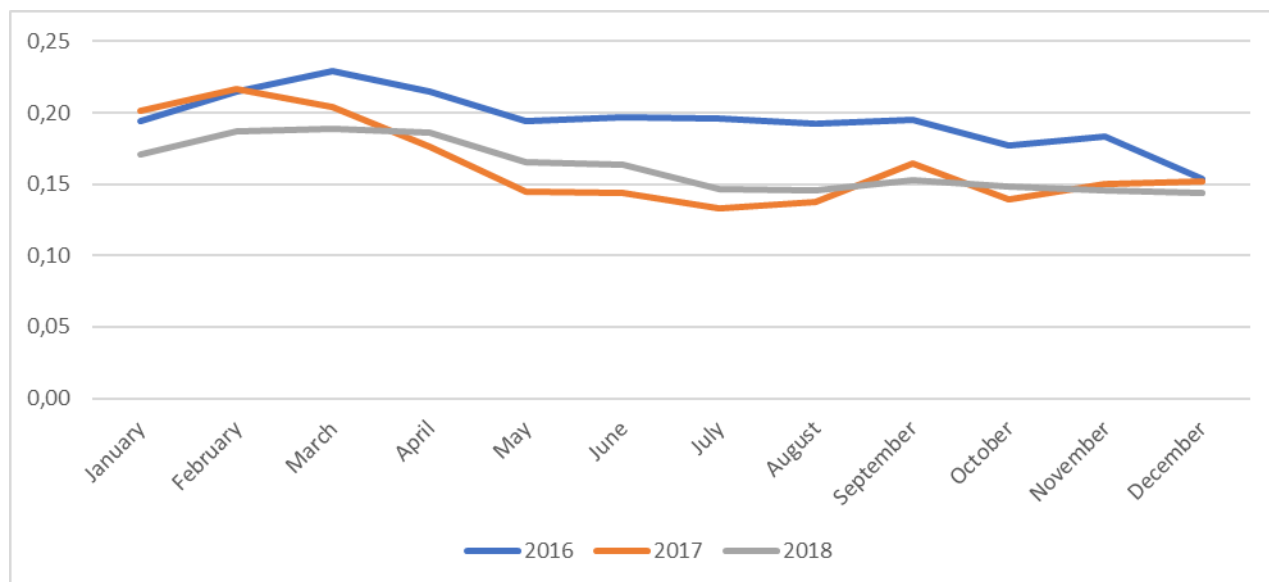
Figure 13: Sprat monthly first-sale volumes and first-sale prices in Polish ports between 2016 and 2018 (in 1000 tonnes net weight and EUR/kg)



Source: EUMOFA

As already mentioned, the highest quality sprats are caught in winter (January-March). The highest prices are obtained in Kołobrzeg, which can be identified as a port of fish quality (fish size) and a destination of fish for human consumption purposes. Prices in Hel are significantly lower. In the months of January-February 2017 in Władysławowo and Kołobrzeg, prices paid ranged from 1,00 to 1,08 PLN (0,23-0,25 EUR) per kg, while they were on average 0,82 PLN/kg (0,19 EUR) in Hel. In January-February 2018, prices fell to PLN 0,95 in Kołobrzeg, PLN 0,71 in Władysławowo and PLN 0,68 in Hel.

Figure 14: Average monthly fist-sale price of sprat in Polish ports (in EUR/kg)



Source: EUMOFA

Prices of sprat for canning purposes are in general about 30% higher than average prices in landings. According to stakeholders interviewed, prices of sprat for canning averaged 0,90-1,00 PLN per kg (0,21-0,23 EUR) in 2018. The port statistics are available only for the total landings in each port, without distinction whether the sprat is destined for industrial (non-food) use (cheapest), for the production of canned fish (more expensive) or for the production of smoked fish (the most expensive).

According to interviews, headed sprat price in 2017/2018 amounts to 2,60-2,90 PLN per kg (0,61-0,68 EUR/kg). headed frozen sprat price amounts to 2,70-3,10 PLN per kg (0,63-0,73 EUR/kg). The big difference compared to first sale price is due to the higher quality of sprat used for canning and the cost/yield of the heading process.

3.2.2 Ex-factory prices

In 2017, the Polish production of canned sprat and sardinella reached an average ex-factory price of 3,73 EUR/kg. This price has experienced a significant increasing trend over the last decade.¹⁹

Table 8: Average ex-factory prices for canned sardine, sprat and sardinella in Poland (in EUR/kg)

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Price (EUR/kg)	2,63	3,92	3,99	4,51	3,59	3,80	4,66	3,74	3,73

Source: PRODCOM²⁰

According to national sources, in 2016²¹ the average price was 14,07 PLN (3,23 EUR) per kg of product. With estimated average size of can (200 g), the unit price was 2,81 PLN (0,64 EUR) per can.

A year before, in 2015, average price per kg was 12,58 PLN (3,01 EUR) and the unit price — 2,52 PLN (0,61 EUR) per can.

3.2.3 Retail prices

There is no publicly available data for canned sprat prices at retail stage. The similar product monitored by Main Statistical Office is "canned sardines in oil, 160 g". There is not enough information to determine whether it is imported sardine or domestic sprat. Data for this product indicate a stable price in 2014-2016 (price increase by around 1% annually) and a significant price increase in 2017 (nearly +5%). The price of this product in retail in February 2018 was 30,38 PLN/kg (7,27 EUR) which corresponds to the unit price of 4,86 PLN (1,16 EUR) per can.

The market review conducted for this report showed that the canned price on the shelf depends on the type of ingredient added (oil or tomato sauce, which also results in different fish contents), the producer's brand, and to a lesser extent correlates with the size of the can.

Table 7: Canned sprat prices (June 2018) in one leading Polish hypermarket chain

Product weight in kg		0,110	0,125	0,170	0,170	0,175	0,300	0,175
Price in EUR/kg	sprat in tomato					2,78	2,99	3,19
	sprat in oil	3,98	3,79	3,88	3,98			

Source: EUMOFA survey on site.

No time-series for retail prices of canned sprat were available.

¹⁹ PRODCOM.

²⁰ These ex-factory prices are estimates based on PRODCOM data and may include canned sardinella products.

²¹ Interviews with stakeholders from the canning industry.

3.3 Price transmission for canned sprat on the Polish market

- **Labour costs**

All interviewed stakeholders declared that labour cost is the main factor explaining the cost and sale price increase in canned sprat production. All canned fish producers have problems with finding workforce and in most of factories more and more foreign workers are employed as in other sectors. The salary growth in canned fish processing was higher than average salary growth in Poland, especially in 2017-2018.

Comprehensive analysis of the financial statements of five Polish canned fish producers in the years 2013-2016 (only companies where 100% of the production is composed of canned fish) showed that labour cost share in the total income from canned fish sale ranged between 10% and 13% in three companies, from 15% to 17% in one company, and from 20-22% in another one (the smallest one).

Interviewed stakeholders mentioned that, due to increasing efficiency, even when there was salary growth, the share of labour cost in the total cost decreased in the years 2013-2016.

In the last analysed year – 2016 – the share of labour cost in total cost amounted to 10-15%. The highest share of labour cost was in a company with significant share of sprat production. Therefore we could estimate that for canned sprat production the share of labour costs amounts up to 18% (it is both due to labour intensiveness and lower raw material cost).

One worker produces on average 1.800 kg of canned fish per month. With an average salary cost of 4.000 PLN [950 EUR] it represents 2,33 PLN [0,55 EUR] per kg or 0,46 PLN [0,11 EUR] per can.

- **Depreciation costs**

The average share of depreciation in the total cost of the can amounts to 3% in all analysed factories.

- **Material costs – package**

There is no publicly available data on cans' price. According to interviews the cheapest can of 170 g costs 0,75-0,80 PLN [0,18-0,19 EUR]. For a full lithography, the can cost is higher: 1,00 PLN [0,24 EUR].

The choice between full lithography, partial lithography or simple can without lithography depends on production size. With smaller amount of cans in one line, the processor usually chooses a printing label, while for large-scale production full lithography is more convenient (less manual and automatic operations). Considering that the package cost is the cost of can and cost of label, we estimate that average cost of can for sprat 170 g amounts to 1,00 PLN [0,24 EUR].

For 1 kg of canned sprat, with the package size of 170 g, 5,88 cans are needed. So per 1 kg of product, can cost amounts to 5,88 PLN [1,39 EUR].

- **Material costs – oil**

For canning, mainly rapeseed oil is used. Oil share in product amounts to 40% usually. It means for 1 kg of canned sprat, 0,4 kg of oil is used. After high price of oil in 2016, in 2017-2018 oil price decreased significantly. According to stakeholders interviewed average wholesale price amounts to 4,60 PLN [1,09 EUR] per 1 L.

- **Material costs – fish**

As was showed in previous sections, most of canned sprat processors use fresh or frozen headed sprats as main raw material. For our calculation we will use a price of 3,10 PLN /kg (0,73 EUR/kg)(frozen headed sprat, incl. losses on defrosting, cleaning etc.).

- **Price structure in processing**

The basic costs by kg are:

- Oil (2,16 PLN) [0,51 EUR]
- Sprat (1,86 PLN) [0,24 EUR]
- Cans (5,88 PLN) [1,39 EUR]
- Labour costs (2,96 PLN) [0,36 EUR]
- Depreciation (0.49 PLN) [0,12 EUR]
- Other costs (energy, logistic, external services, local taxes, financial costs) – 2,54 PLN [0,60 EUR].

In addition, for canned fish industry (based on financial statements of five companies) the average gross profit amounted to 3% in 2016 (significant decrease compared to previous years, where it amounted to 5-6%).

- **Margin in retail**

In traditional trade (wholesaler + general food shop), the average margin amounts to 30%.

In retail chains (supermarkets, hypermarkets) the average margin could be even higher, as high as 35% - according to stakeholders' interviews. Contracts are made for 6 months or 12 months usually. Product specifications for deliveries to supermarkets chains generate extra costs however economy of scale results in lower cost of lithography cans, logistics etc. There is no doubt that the ex-factory sale price to supermarkets is lower than to the traditional trade, but agreements with supermarkets are strictly confidential.

Price transmission

While the price of sprat of good quality for canning amounts to 1 PLN [0,24 EUR] per kg (before heading), the retail price of canned sprat amounts to 20 PLN [4,65 EUR] per kg. So, we clearly see that first sale price of sprat has a minimum influence on final price of the product (4%).

We can divide the canned sprat chain into 3 elements:

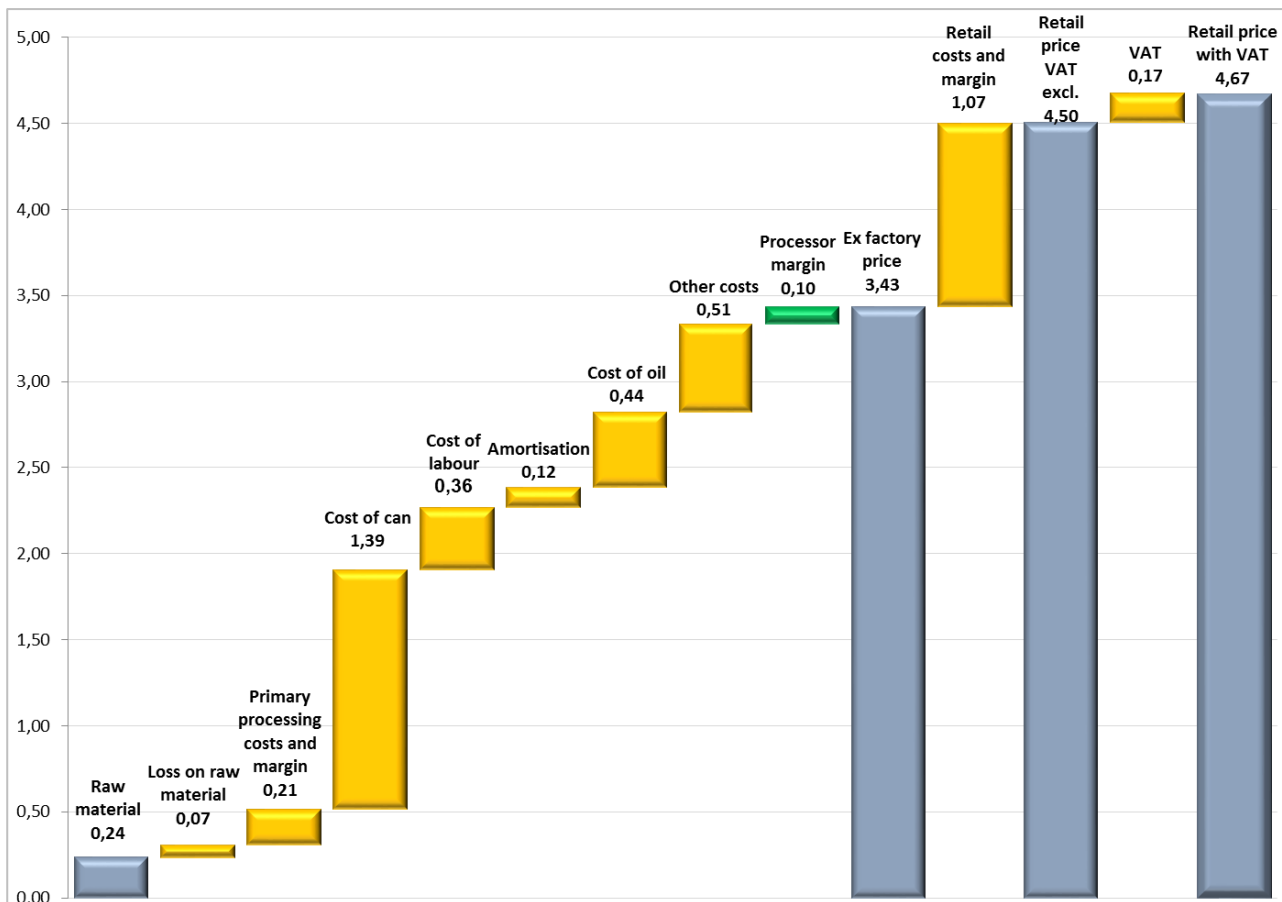
- Primary processing, where price reaches 0,52 EUR/kg of frozen headed sprat;
- Canned fish production, where price reaches 3,33 EUR/kg of product as ex-factory price;
- Retail trade, where 30% margin is added, and the final price reaches 4,67 EUR/kg.

Table 8: Costs and margins of canned sprat in oil sold in retail in Poland

Auction price	0,24
Loss on raw material	0,07
Primary processing costs and margin	0,21
Cost of can	1,39
Cost of labour	0,36
Cost of amortisation	0,12
Cost of oil	0,44
Other costs	0,51
Processor margin	0,10
Retail costs and margin	1,07
VAT	0,17
Retail price	4,67

Source: EUMOFA elaboration

Figure 15: Price transmission for canned sprat in oil sold in large-scale retailer in Poland (in EUR/kg)



Source: EUMOFA elaboration

4 The Latvian market

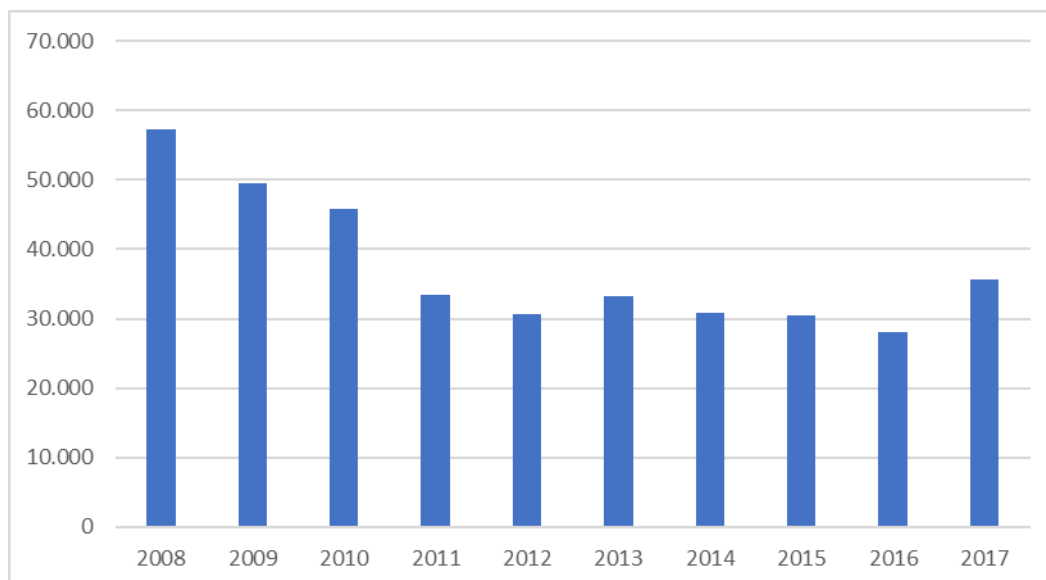
Due to the specific taste features, which are provided by the traditional smoking method using alder wood in the smoking process, Latvian canned sprats have benefitted from a high reputation at regional level for over a century. Since the 1950s in Latvia, the processing and canning of other Baltic Sea fish has rapidly developed alongside sprat production: Baltic herring, smelt and cod; as well as a group of ocean fish: herring, hardhead, pilchard, sardines and mackerel.

4.1 Structure of the Latvian market

4.1.1 Latvian production

The Latvian fleet caught 35.744 tonnes of sprat in 2017. This was a 27% increase over 2016 catches, but a 38% decrease compared to 2008. Overall sprat catches have followed a decreasing trend in Latvia over the last decade.

Figure 16: Latvian sprat catches (in tonnes in live weight equivalent)



Source: EUROSTAT

In terms of landings the main Latvian ports for sprat are Ventspils and Liepaja. In 2017, both ports accounted for almost all sprat landings in Latvia with 20.225 tonnes net weight and 10.326 tonnes net weight landed respectively.

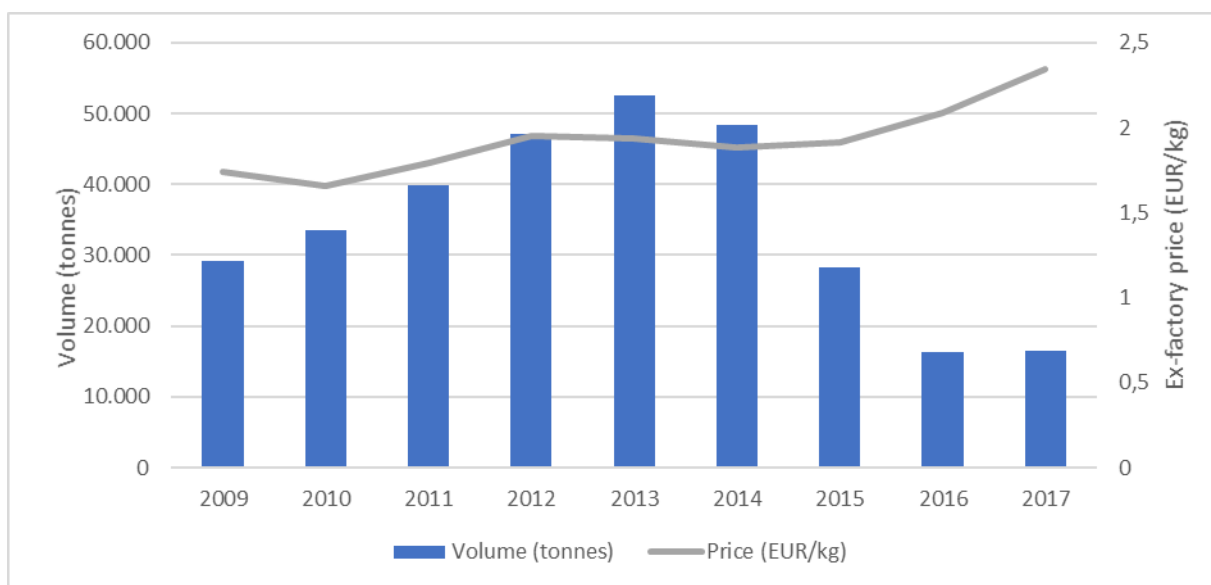
Table 9: Sprat first-sale volumes in main Latvian ports (in tonnes net weight)

	2012	2013	2014	2015	2016	2017
Ventspils	9.075	20.176	18.388	17.952	16.147	20.225
Liepaja	4.270	12.252	10.778	10.618	8.797	10.326
Roja	535	933	474	816	758	989
Pavilosta	-	-	-	-	-	-
Skulte	14	126	55	81	528	655
Others	48	133	350	159	250	253

Source: EUMOFA

In 2017, production of canned sprats in Latvia reached 16.504 tonnes, which represents a slight increase compared to 2016 (+1%) but a significant fall (-69%) compared to 2013 when canned sprat and sardinella production had peaked in Latvia over the last decade, with a total of 52.552 tonnes. In the meantime, the average ex-factory price has followed an increasing trend (+35%) from 2009 to 2017, ending at 2,35 EUR/kg in 2017²².

Figure 17: Latvian production of canned sprat²³ and average ex-factory price



Source: PRODCOM

²² PRODCOM.

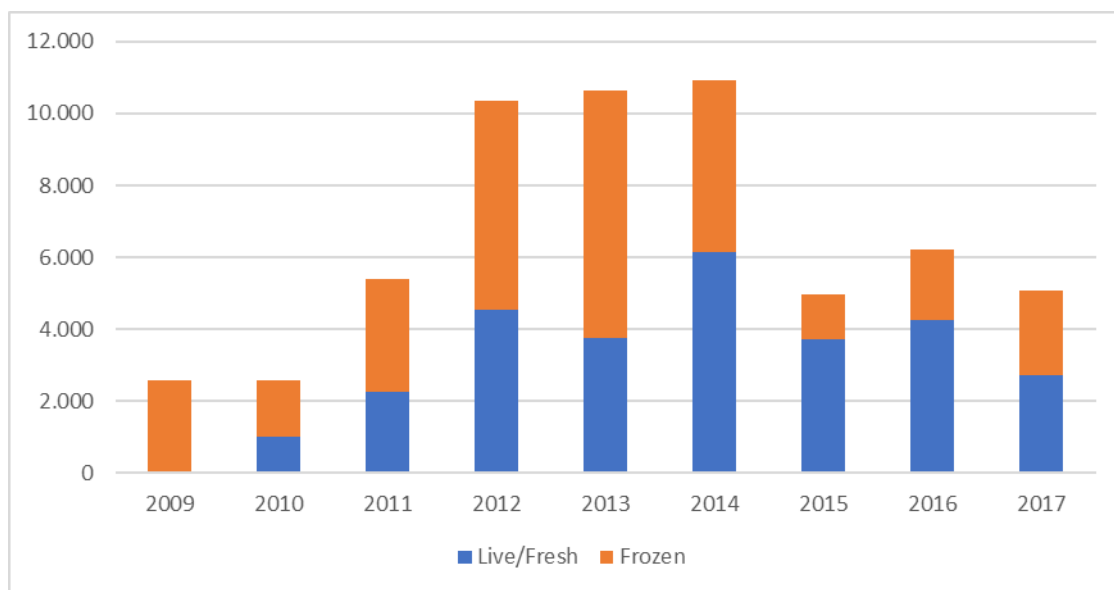
²³ These figures may include minor share of canned sardinella.

4.1.2 Latvian trade for sprat

Fresh and frozen whole fish

In 2017, imports of whole sprat reached 5.077 tonnes (53% fresh, 47% frozen). In recent years, imports of whole sprat have experienced significant fluctuations for all preservation states. Imports reached a peak between 2012 and 2014 when they outreached 10.000 tonnes. They then strongly decreased in 2015 and fluctuated around 5.000-6.000 tonnes in 2016 and 2017. This has to be put in relation with the evolution of the canned sprat production in Latvia. All preservation states included, the main import partners in 2017 were Estonia (52%), Poland (38%) and Lithuania (10%).

Figure 18: Evolution of Latvian whole sprat imports by preservation state (in tonnes net weight)²⁴

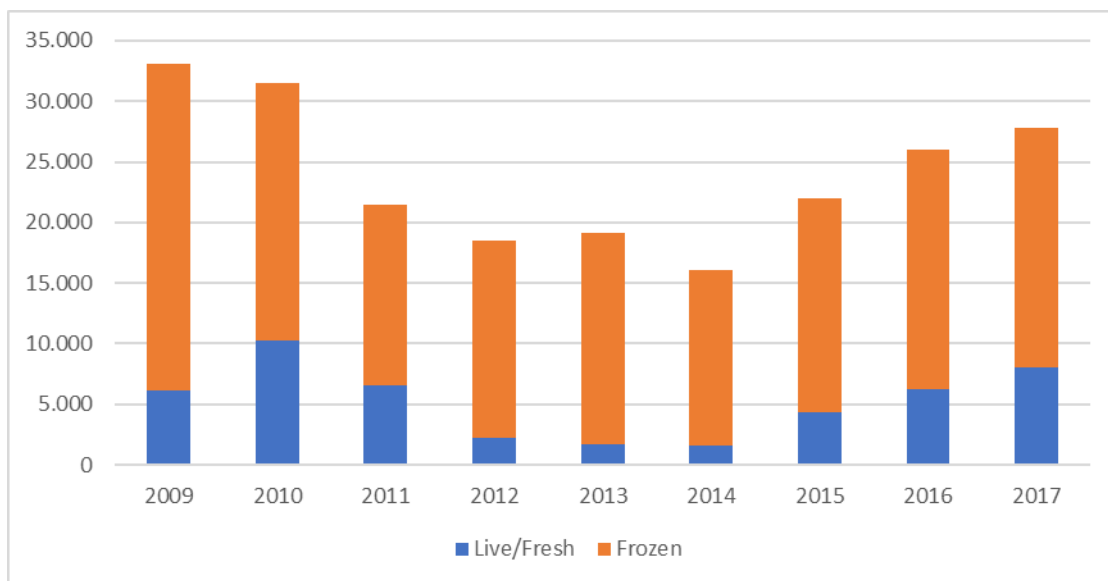


Source EUMOFA

In 2017, exports of whole sprats reached 27.838 tonnes (29% fresh, 71% frozen). In recent years, exports of whole sprats have experienced significant fluctuations for all preservation states. Exports have strongly declined from 2009 to 2012 and reached a minimum in 2014 (16.000 tonnes exported, mostly frozen fish). Sprat exports then bounced back in 2015 and kept increasing to 2017. All preservation states included, the main export partners in 2017 were Denmark (34%) and Lithuania (21%), and to a lesser extent Poland (9%) and Estonia (8%).

²⁴ 03024390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, fresh or chilled; 03035390: Brisling or sprats (*Sprattus sprattus*), excluding livers and roes, frozen.

Figure 19: Evolution of Latvian whole sprat exports by preservation (in tonnes net weight)

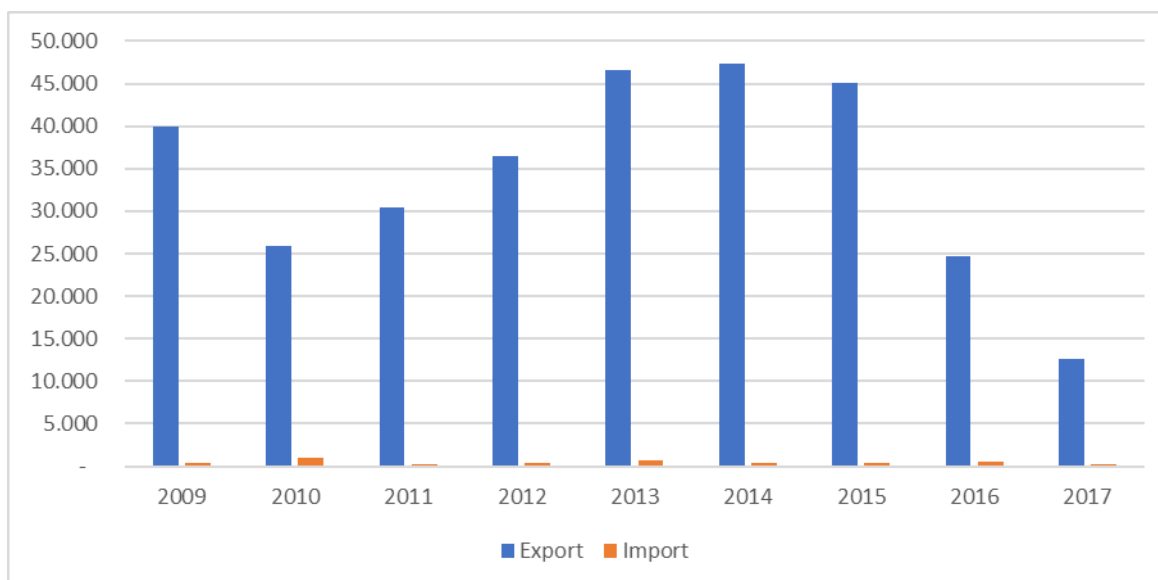


Source: EUMOFA

Canned fish

In 2017, Latvian exports of canned sprat and sardinella reached 13.438 tonnes, with an increase of 7% compared to 2016 but still a 72% decrease compared to the peak reached in 2013 (47.409 tonnes exported). This is to be linked with the decrease of the production of canned sprat as the industry is very export-oriented. By comparison, imports of canned sprat and sardinella are very low, averaging between 300 and 1.000 tonnes annually.

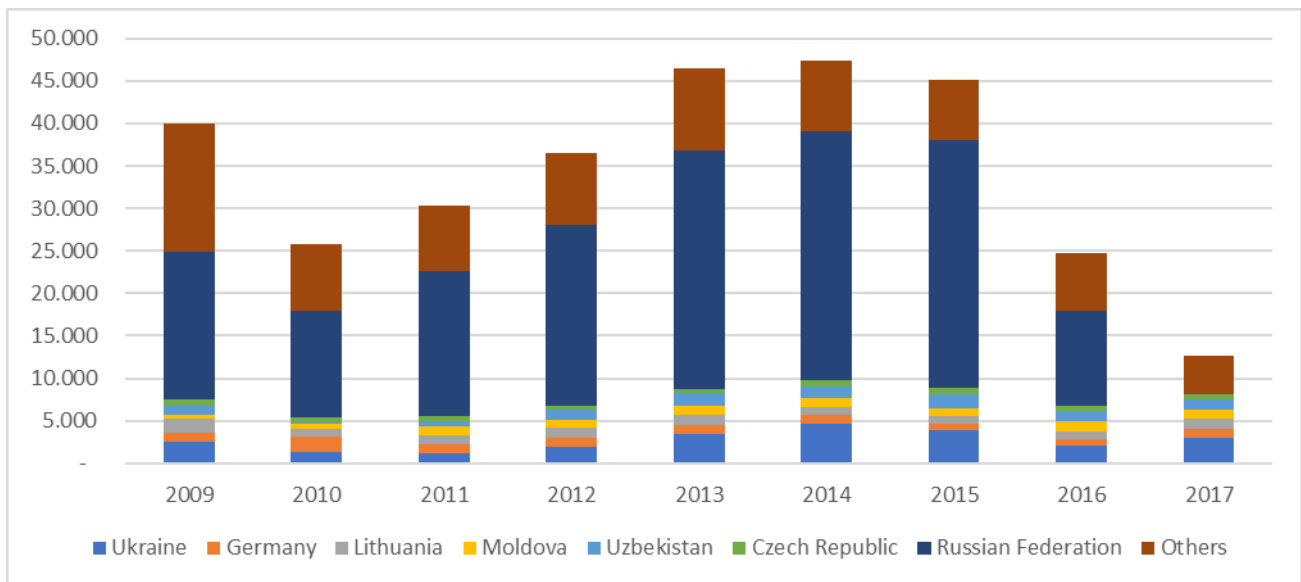
Figure 20: Evolution of imports and exports of canned sprat and sardinella in Latvia (in tonnes net weight)



Source: COMEXT

For canned sprat exports, the main Latvian partners in 2017 were Ukraine (26% of export volume), Germany (10%), and Lithuania (10%). Other main partners were Moldova (8%) and Uzbekistan (6%). Latvian exports have increased from 2010 to 2014, the main trading partner being the Russian Federation. In 2016 compared to 2015, total exports, and to Russia in particular, have experienced a significant drop (respectively -45% and -62%). In 2017, exports to Russia have been close to zero (6 tonnes). The main reason of this trend is the implementation of the Russian ban.

Figure 21: Evolution of Latvian exports of canned sprat and sardinella by main partners (in tonnes net weight)



Source: COMEXT

4.1.3 Consumption

In 2015, total fish consumption in Latvia amounted to 11,3 kg per capita, about half of the EU consumption average. Canned fish accounted for 24% of total consumption²⁵. The canning sector is highly export oriented, but a minor share of the production is consumed in the domestic market. The main products for canned sprat are:

- Sprat (also marketed as brisling sardine) in vegetable oil (or olive oil);
- sprat in tomato sauce;
- smoked sprat in oil, considered as a delicacy.

²⁵ Fish and Seafood Market in Latvia, USDA report, 2017 based on Latvian Statistical Office.

4.2 Prices along the supply chain in Latvia

4.2.1 First sale prices

According to EUMOFA first-sale data, first-sale prices of sprat in Latvia have experienced significant variations from one year to another, depending among other factors on the volume of the supply related to the annual TACs and quotas. In 2017 the average first-sale prices in the main Latvian ports reached 0,18 EUR/kg.

Table 10: Sprat first-sale prices in main fishing ports between 2012 and 2018 (in EUR/kg)

Port	2012	2013	2014	2015	2016	2017	2018
LV - Liepaja	0,29	0,29	0,28	0,22	0,22	0,18	0,20
LV - Riga	0,16	0,20	0,24	0,21	0,24	0,19	0,19
LV - Roja	0,10	0,11	0,27	0,28	0,24	0,19	0,21
LV - Skulte	0,22	0,21	0,24	0,19	0,17	0,17	0,16
LV - Ventspils	0,23	0,27	0,27	0,22	0,19	0,18	0,16
National average	0,20	0,23	0,27	0,23	0,21	0,18	0,18

Source: EUMOFA

4.2.2 Ex-factory prices

In 2017, the Latvian production of canned sprat and sardinella reached an average ex-factory price of 2,35 EUR/kg in 2017. This price has experienced a significant increasing trend over the last decade.²⁶

Table 11: Average ex-factory prices for canned sprat in Latvia (in EUR/kg)

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Price (EUR/kg)	1,74	1,65	1,79	1,95	1,94	1,88	1,92	2,09	2,35

Source: PRODCOM²⁷

4.2.3 Import-export prices

According to COMEXT data, import-export prices for canned sardinella and sprat are lower than average ex-factory prices average estimates provided by PRODCOM. In 2017, import prices reached 1,81 EUR/kg and export prices 1,67 EUR/kg, while ex-factory prices reached 2,35 EUR/kg. The reason may be the difference of species and quality used for traded products compared to those produced to supply the domestic market.

²⁶ PRODCOM.

²⁷ Ex-factory prices are based on PRODCOM data and may include canned sardinella products.

Table 12: Import and export average prices of prepared and preserved sprat and sardinella in Latvia (in EUR/kg)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Export prices	1,26	1,21	1,12	1,16	1,16	1,12	1,04	1,27	1,72	1,81
Import prices	1,57	0,70	1,39	1,52	1,27	1,51	1,53	1,21	1,21	1,67

Source: COMEXT²⁸

4.2.4 Retail prices

These retail prices are extracted from the websites of the main Latvian large-scale retailer. The main product is the 240 g can of canned sprat in oil. Depending on the brand and size of fish, retail prices range between 4,17 EUR/kg and 5,38 EUR/kg for standard products.

Table 13: Standard products of canned sprat retail prices in Latvia

Product	Brand	Size	Price EUR per unit	Price EUR/kg
Sprat in oil	unspecified	240 g	1,09	4,54
Sprat in oil	Kaija	240 g	1,29	5,38
Large sprat in oil	unspecified	240 g	1,19	4,96
Sprat in oil	Ocean	160 g	0,75	4,69
Sprat in oil	Ocean	240 g	1,00	4,17

Source: www.barbora.lv (consulted in March 2019).

²⁸ There is no specific CN-8 code for prepared and preserved sprat. The corresponding code is 16041390: Sardinella, brisling or sprats, whole or in pieces, but not minced, prepared or preserved.

4.3 Price transmission in the supply chain

Given the difficulty of getting information from Latvian stakeholders, our analysis is based on EUROSTAT, EUMOFA, DCF and PRODCOM data as well as interviews with fish processors in Poland and other Latvian national sources such as the Union of Latvian Fish Processing Industry.

The costs and margin are detailed below:

- **Loss on raw material:** the conversion rate for headed sprat to sprat whole is estimated at 1,30.
- **Primary costs and margin:** estimations based on other costs and prices.
- **Cost of can and oil:** as cans and oil are defined by international standard products, we used the cost provided by Polish processors (around 1,35 EUR/kg for can and 0,44 EUR/kg for oil).
- **Labour costs:** according to DCF dataset, the average share of labour costs in the turnover of EU Latvian fish processing industry is 17% (applied to ex-factory price).²⁹
- **Depreciation costs:** we used the average share of depreciation in the total cost of the can of 3% reported by Polish processors.
- **Retail costs and margin:** between 20 and 30%.
- **VAT:** 21%.

Overall it appears that the share of the cost of raw material (whole fish) is minor (4% of the consumer price) compared to other costs. Packaging represents the most important cost (26%).

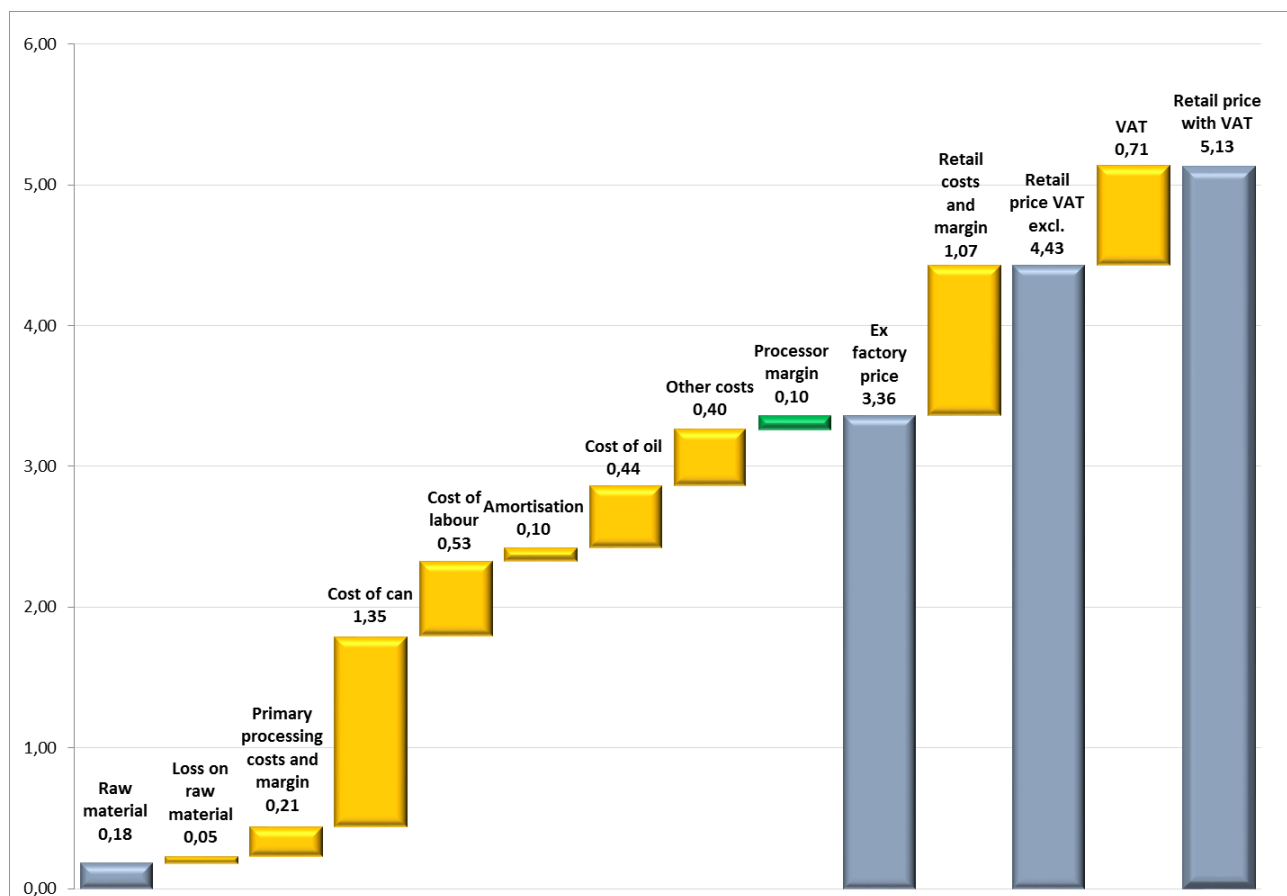
Table 14: Costs and margin for canned sprat in retail in Latvia (EUR/kg)

Auction price	0,18
Loss on raw material	0,05
Primary processing costs and margin	0,21
Cost of can	1,35
Cost of labour	0,53
Cost of depreciation	0,10
Cost of oil	0,44
Other costs	0,40
Processor margin	0,10
Retail costs and margin	1,07
VAT	0,71
Retail price	5,13

Source: EUMOFA elaboration

²⁹ https://stecf.jrc.ec.europa.eu/reports/economic/-/asset_publisher/d71e/document/id/2108729

Figure 22: Price transmission for canned sprat in oil sold in large-scale retailer in Latvia (in EUR/kg)



Source: EUMOFA elaboration based on EUROSTAT, EUMOFA, DCF and PRODCOM data as well as interviews with fish processors in Poland and other Latvian national sources.

5 Annex: Sources and contacts

- Interviews with fish processors in Poland
- Union of Latvian Fish Processing Industry
- Large-scale retailers' websites
- Statistics and data from EUROSTAT, PRODCOM, EUMOFA, FAO, DCF.

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