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Scientific, Technical and Economic Committee for Fisheries (STECF)

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Economic report on the fish processing industry (STECF-21-14)

Edited by Loretta Malvarosa, Jordi Guillen and Jarno Virtanen

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Joint
Research
Centre

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CONTENTS

Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. This report contains the 2021 economic report of the EU fish processing sector, covering the period 2008 to 2019 (for some MS 2020) and includes information on the EU fish processing industries in terms of number of enterprises, employment, income and costs. The profitability and performance of the sector is also reported in terms of gross value added, profits, profit margins and labour productivity. In 2019, the sector was made up of about 3,200 firms, provided about 111,000 jobs and produced a turnover of €28.5 billion. For the second time the analysis of the socio-demographic aspects of the labour forces employed by the sector is provided, in terms of gender, age, nationality and educational aspects. The report provides an in-depth look of the different factors affecting the economic performance of the EU fish processing industry with a special focus on the major drivers and issues affecting the sector as well as an outlook on the main future trends. Considering what has happened in the last two years, since the previous report, and following a specific request of the Commission, the report provides a first attempt of assessment of the impact that the spread of Covid-19 throughout the world has had on the EU fish-processing sector.

SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (STECF) - Economic report on the fish processing industry (STECF-21-14)

Background provided by the Commission

The economic report on the fish processing industry is one of the main sources of economic and social data for scientific advice on the performance of the EU fish processing industry. It is also increasingly used by scientific bodies, national administrations and international institutions.

Following the 2021 DCF/EU-MAP call for economic data on the EU fish processing sector, the EWG is requested to analyse and comment on the economic performance of the EU and national fish processing sectors between 2008 and 2019 (2020 when available).

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

General STECF observations

STECF EWG 21-14, on the Economic report of the EU fish processing sector, met virtually, from 22-25 February 2022. STECF has reviewed the report and notes that the EWG has addressed all the ToRs.

STECF comments on data and procedure

STECF notes that the EU-MAP, as defined in the COMMISSION DELEGATED DECISION (EU) 2021/1167, states, in the ANNEX, CHAPTER II, point 7, that "Over and above the data published by Eurostat, collected by the Member States in line with the European Business Statistics Regulation and Regulation (EC) No 223/2009 of the European Parliament and of the Council(15), Member States may collect additional socioeconomic data on the fish processing sector" although does not include a list of indicators for the processing industry.

STECF further notes that the EWG 21-14 used complementary data sources (e.g. Structural Business Statistics (https://ec.europa.eu/eurostat/web/structural-business-statistics) and Prodcom (https://ec.europa.eu/eurostat/web/prodcom) from Eurostat) to close gaps where Member States did not provide some indicators requested in the data call.

As this requires the use of an estimation protocol for some Member States, STECF notes that EWG 21-14 further elaborated on the protocol approved by STECF 19-02 and used for the 2019 report on the processing industry.

STECF further observes that the EWG report includes a brief analysis, at country level, for three Member States involved in data collection under EU-MAP, but not collecting data for the fish processing sector because of a very small sized industry (i.e. Austria, Czech Republic and Slovakia).

STECF considers that the use of the protocol and of data sources complementary to the data call means that the EWG-21-14 report provides a comprehensive overview of the most recent information available on the structure and economic performance of the EU fish processing industry.

STECF observes that although not requested in the ToRs, the EWG assessed the sources of raw material (e.g. catches by EU fishing fleets, EU aquaculture company production and imports) with details on species, type of industry and Member States. STECF notes that information on this is scarce, and that only a limited number of Member States provided data (9 of 25, and primarily from the Mediterranean, Black Sea and Baltic regions), with different levels of data coverage and quality. The main EU seafood processing countries did not submit any data and no analysis was made on these Member States. STECF notes also that a workshop on raw material planned by RCG_ECON in 2020 could not be held.

STECF comments on the EWG report results

STECF observes that the EWG report covers the period 2008 to 2019 (including 2020 where available) and includes information on the EU fish processing industries in terms of number of enterprises, employment, income and costs. The profitability and performance of the sector is also reported in terms of gross value added, profits, profit margins and labour productivity. STECF notes that the main findings obtained in the EWG report are:

- The overall number of enterprises carrying out fish processing as a main activity was around 3 200 companies. In 2019, the sector had a turnover of about EUR 28.5 billion and employed more than 110 000 people corresponding to around 100 000 full time equivalents. This implies that part-time employment in this sector is relatively low.
- The majority of processing enterprises (98%) are small and medium sized enterprises (less than 250 employees), 85% are small-sized (less than 50 employees) and more than half are micro-enterprises (less than 10 employees).
- The distribution of enterprise by size-classes shows many differences across Member States, with Finland, Greece, Italy, Slovenia, and Sweden having the highest proportions of micro-enterprises. The highest proportion of enterprises above 50 employees are in Eastern Europe (e.g. Poland and Lithuania).
- There has been a progressive concentration of production over the analysed period (2008-2019), evidenced by a decrease of the total number of enterprises. The number of smaller enterprises has decreased while there has been a parallel increase in larger enterprises
- Gross Value Added is positive and increasing (+18%) in 2019 compared to 2018. This increase counterbalanced an increase in personnel costs (+5% compared to 2018), linked to an increase both in employment and in average wages. The sector was able to generate an Operating Cash Flow 34% higher than in 2018.
- The purchase of fish and raw material is the dominant cost item for the sector (more than 70% of the total production costs). The EWG concluded that there are substantial differences in the origin of the sourcing of raw material across those Member States who submitted data. While e.g. Finland and Croatia rely on domestic production, in Germany only one quarter of the raw material used by fish processing industries is domestic. 52% is imported from other EU countries, while 20% is purchased from outside the EU.

STECF notes that the EWG also analysed the socio-demographic aspects of the labour force employed by the sector. The variables included information on gender, age, nationality and educational level. This data was collected under the EUMAP and were provided by the Member States. The main findings on these aspects obtained by the EWG were:

- The proportion of female and male in the workforce is almost equal.
- The 40-64 age class made up the largest proportion (51%) of people employed in the processing industry and most employees hold a medium education level, followed by 25% of low educated employees.

- The vast majority (73%) of people employed in the sector are EU nationals working in their own country with the remainder being mostly workers from other EU Member States.

STECF comments on the impact of recent economic shocks

STECF observes that the impact of the COVID-19 outbreak on the EU fish processing industry was assessed by the EWG. STECF notes that given that 2020 data were only available for a minority of the Member States, the assessment made was mainly qualitative. STECF notes that according to that preliminary assessment, the EU fish processors seem to have globally managed the initial disruptions in labour productivity, supply of raw materials and prices by the end of 2020. However, in the light of the sharp rise in energy costs emerging from the past few months and the further expected cost increases (mainly of raw material) as a consequence of the Russian invasion of Ukraine, will undoubtedly have an impact on the fish processing industry across the EU.

STECF notes that the EWG also assessed the impact of the Brexit. The EWG concluded that the main impact of Brexit has been an increase in paperwork and transport costs for both exporters and importers to and from the UK. In addition, the EWG provided some specific analyses on the situation in Ireland. The EWG concluded that the pelagic processors are the most heavily impacted part of the processing sector in Ireland, given that sourcing of raw material, particularly mackerel, has become more challenging to get. This has led to a concentration of the production of pelagic processed products in the first half of the year, reducing their average selling prices.

STECF conclusions

STECF concludes that the report on the economic performance of the fish processing industry provides a comprehensive overview of the most recent information available on the structure and economic performance of the EU fish processing industry.

STECF concludes that the report has gained improvements from the methodological approach used for countries not providing data, which has helped bridging data gaps.

STECF concludes that the assessment of the impact of Brexit on the sector provides useful insights, although it cannot be considered as a comprehensive overview because it is limited to a single case study. Further case studies covering other Member States would be informative, including the import-export flows of products between UK and the EU.

STECF concludes that the analysis of the raw material provided by the EWG is limited due to the lack of data. STECF reiterates its previous conclusion from PLEN 21-01 that it is difficult to obtain this data by Member States, due to the complexities in deriving information directly from industries.

However, in the light of the Farm to Fork Strategy and its recent deliverable EU Code of Conduct on Responsible Food Business and Marketing Practices that entered into force in July 2021[1], STECF concludes that it is essential to identify the supply chain, as clearly as possible, from the fishing area (for fishery products) or farming plants (for aquaculture one) to the market outlets. Furthermore, given that the purchase of fish and raw material is the dominant cost item for the sector, this information is also crucial for assessing the strengths and vulnerabilities of the sector. The collection of this data is, therefore, important and Member States are encouraged to continue improving the dataset in accordance with the guidelines of the data call[2].

[1] https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy/sustainable-food-processing/code-conduct_en
[2] https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/proind

STECF concludes that the COVID-19 impact assessment provided by the EWG is merely descriptive. STECF acknowledges the general interpretation provided by the EWG but concludes also that a more detailed assessment of the impact will not be available until the data from years 2020 and 2021 are available and analysed. STECF further concludes that any outlook assessment into the future (2020-2022 and beyond) should be read with caution given the changing and volatile macroeconomic environment in the EU.
STECF concludes that given that the EU-MAP does not provide a list of variables to be potentially collected, the data collection should follow the recommendations of the RCG_ECON (PGECON 2020 Report) which are based on the COMMISSION IMPLEMENTING DECISION (EU) 2016/1251.

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REPORT TO THE STECF

EXPERT WORKING GROUP ON
Economic report on the fish processing industry (EWG-21-14)

Virtual meeting, 21-25 February 2022

This report does not necessarily reflect the view of the STECF and the European Commission and in no way anticipates the Commission's future policy in this area

1 INTRODUCTION

The 2021 Economic Report on the EU Fish Processing Sector provides a comprehensive overview of the latest information available on the structure and economic performance of the EU fish processing industry, from an economic and social point of view, updated at the **year 2019** (for some countries at 2020).

The report covers the period starting with the year 2008 and includes information on the EU fish processing industries in terms of number of enterprises, employment, income and costs. The profitability and performance of the sector is also reported in terms of gross value added, profits, profit margins and labour productivity.

For the second time (because of a second call), the analysis of the **socio-demographic aspects** of the labour forces employed by the EU fish processing industries has been provided, in terms of gender, age, nationality and educational aspects.

The report provides an **in-depth look of the different factors affecting the economic performance** of the EU fish processing industry with a special focus on the major drivers and issues affecting the sector and gives insight on the main factors influencing the industry's economic performance in the period covered by the data series but also trying to provide an outlook on the most recent years, relying on the experts' knowledge and information already available for the sector as a whole (including insights on the link with the import and export flows, market prices and consumption trends). Some phenomena have been analysed with a special attention after two years from the previous report, e.g. the impact of Brexit, with the use of selected case-studies revealing to have particularly been impacted by it.

In line with the ToRs, the report has also dealt with the **impact that the Covid-19 pandemic** has generated on the fish processing sector of the EU countries. Taking into account that the data submitted by MSs do not cover the Covid period (2020-21), the section has been based on the analysis of the trends of imports and export of selected commodities and countries and on qualitative information provided by experts. Details of the impact are synthesised at EU level and at country's level, as well.

Given that under the new EU-MAP, the transmission of data about the fish processing sector is only done on a voluntarily basis, **complementary source of data** (e.g. Structural Business Statistics and Prodcom from Eurostat) was used for some countries (in line with what suggested by the EWG drafting the 2017 report and already implemented by the EWG for the draft of the 2019 report).

Furthermore, for the second time and in line with the approach used for the 2019 report, the data for EU totals represent the **complete picture of the EU fish processing sector** as they are not biased by the inclusion (or exclusion) of some Member States, throughout the analysed period (mainly due to the voluntarily of the data collection for the fish processing sector under EUMAP). The protocol approved by STECF 19-02 has been adapted by the EWG 21-14. The compilation of EU aggregates required the use external sources (Eurostat/SBS) to cover the lack of data for a) for some MS committed to data delivering under DCF/EUMAP but submitting not complete data series; b) for MS not (or no more) committed to deliver data under DCF/EUMAP[3]. Thanks to this, the EU overview analysis is based on the aggregation of a full dataset of 24 Member States, providing the main socio-economic indicators for the sector. It is worth noting, nevertheless, that an in-depth analysis of the economic performance of the EU fish processing sector has been possible only for the group of DCF/EUMAP MSs, because of the more detailed level of variables covered by the DCF/EUMAP in comparison to the Eurostat/SBS framework. It is also important to highlight that even if the report has largely benefited of this methodological approach, a lot of

[3] For details, see Annex 4

time was spent prior and during the meeting, for cross-checking the two datasets (DCF/EUMAP and Eurostat/SBS) and to provide consistent and coherent indicators.

For the second time, after the 2019 report, and with the aim of providing a real EU overview of the sector, the report includes also a brief analysis, at country level, for Member States involved in data collection under EUMAP, but not collecting data for the fish processing sector because of a very small sized industry (i.e. Austria, Czech Republic and Slovakia). For these countries and for those no more submitting data because of the voluntarily of the data collection (Estonia Netherlands and Portugal) and in one case for lack of coverage in the data series (France), the national chapters are built on a bit different format as graphs and tables are based also or exclusively on Eurostat (Structural Business Statistics) data, for the description of the main economic indicators.

The purchase of **fish and raw material** is the dominant cost item for the sector, accounting for more than 70% of the total production costs, increasing over time. Understanding which segments and Member States use EU raw material (either from wild fisheries or from aquaculture) and which ones depend on imported supplies and on which species is of high importance for assessing the strengths and vulnerabilities of the sector. The 2019 report already dealt with the series of initiatives undertaken, from pilot studies under the MSs work plans to specific studies committed by the Commission, e.g. SECFISH project, concluding that the raw material data has revealed, in most cases, to be quite costly and challenging and trying to provide suggestions for the improvement of the future data collection. Nevertheless, in the light of the Farm to fork Strategy and the most recent EU Code of Conduct on Responsible Food Business and Marketing Practices entered into force in 2021, it is essential to define, as clearly as possible, the track of products along the value chain, from the fishing area (for fishery products) or farming plants (for aquaculture one) till market outlets. This aspect is crucial also in the process of revision of the marketing standards under the Common Market Organisation and, indeed, in 2020 a first attempt has been made by STECF EWG 20-05 support the process by defining criteria and indicators to incorporate sustainability aspects for seafood products. For this reason, an attempt to look further at the data collected by MSs in terms of raw material in volume by species and origin has been made in the present report.

The report is structured as follow:

- An overview of the economic performance of the EU fish processing industry, with specific sections on the structural aspects, on economic data and performance indicators (e.g. revenue items, cost items, earnings, profitability, etc.)
- A section on social indicators (e.g. employment by gender, labour productivity and average salaries, education level, nationality, etc.).
- A special chapter on the impact of Covid-19 on the fish processing sector of EU countries.
- National chapters on the economic performance of the fish processing industry at Member States level
- Annexes containing the main details of the datasets used (DCF/EUMAP and Eurostat/SBS), the checks on data submitted, the glossary of the main variables and indicators.

The 2021 Fish processing economic report supersedes all previous reports. Comparisons across reports should not be made. This is mainly due to the inclusion of more Member State, the exclusion of the United Kingdom and greater coverage of the data this year. The difference in the EU totals and/or for some MSs are due to: 1) use of Eurostat data for some MS instead of DCF/EUMAP data; 2) exclusion of United Kingdom from the set of EU countries.

1.1 Terms of Reference for EWG-21-14

Background and objectives

The economic report on the fish processing industry is one of the main sources of economic and social data for scientific advice on the performance of the EU fish processing industry. It is also increasingly used by scientific bodies, national administrations and international institutions.

Following the 2021 DCF/EU-MAP call for economic data on the EU fish processing sector, the EWG is requested to analyse and comment on the economic performance of the EU and national fish processing sectors between 2008 and 2019 (2020 when available).

The final draft of the EWG report will be reviewed by the STECF.

The report should provide an in-depth look at the different factors affecting the economic performance of the EU fish processing industry with a special focus on the major drivers and issues affecting the sector (in particular the COVID crisis impacts and the disruption of the activity along the value chain). In addition to interpreting and explaining the quantitative results, the report should contain qualitative information and analysis on the drivers and trends in performance and other aspects of policy relevance based largely on the scientists' expert knowledge. The main objectives of the report is to obtain high quality interpretation of all data outputs to ensure the usefulness of the report for DG MARE's policy development, Member States and the industry.

Experts are asked to analyse the sector and its components, e.g. by markets and trade determinants (particularly imports) by main segments of processing activities, competitiveness, market prices and consumption, certification, innovation, links and level of dependency with the local fishing fleet and aquaculture sector, the role of European Maritime Fisheries Fund support, contribution to the local communities and the Blue Economy, strengths, weaknesses, opportunities and threats.

Given the social importance of this activity in many communities, particular emphasis should be paid to the social aspects of the analysis including trends on employment, salaries, labour productivity and breakdown of the fish processing employment by gender, education level and nationality (nationals, EU nationals, non-EU nationals).

Structure and content

Being the basis for the structure of the report, the EWG is requested to work and comment on, at least, the following items:

- An executive summary containing the key findings (abstract).

An overview of the economic performance of the EU fish processing industry (The report should mention indication on the evolution compared with the base year. The latest developments should be presented in annual terms and not with respect to the previous report). This should include the drivers and main trends based on expert knowledge. It must include specific sections on:

- EU fish processing sector overview (including recent developments, including an assessment on Covid impacts in the sector).

- Economic data and performance indicators (e.g. revenue items, cost items, earnings, profitability, etc.), including contrasting company size (e.g. SMEs vs. non-SMEs), when possible.
- Employment and social indicators (e.g. employment by gender, labour productivity and average salaries, education level, nationality, etc.).
- Comparative across Member States highlighting the differences and similarities of national industries.

- National chapters on the economic performance of the fish processing industry providing[4]:

- National fish processing sector overview (including recent developments).
- Economic performance indicators, including by size category (e.g. contrasting SMEs and non-SMEs when possible).
- Employment and social indicators (e.g. employment by gender, labour productivity and average salaries, education level, nationality, etc.).
- Description of trends and drivers based on expert knowledge.
- Outlook.

- Annexes

- Data coverage and quality.

Streamlining of the report and data issues

After seven reports, efforts should also be invested in streamlining the structure and content of the report. In particular, the following should be taken into account:

It shall be considered whether some specific (sub)sections provide limited value added and therefore should be dropped from the report.

The narrative should add value to the figures compiled in the charts and tables. This could be achieved by highlighting a few figures with special relevance and by explaining what are the drivers and/or consequences.

The main socio-economic indicators, if possible and where relevant, should also be put into context with homologous figures at the EU and national levels (e.g., national average salaries, GDP, etc.), or in relations with the other fisheries sectors (the fishing fleet and aquaculture).

Given that under the EU-MAP, the transmission of data about the fish processing sector is only done on a voluntarily basis, the use of complementary source of data (e.g. SBS and PRODCOM from Eurostat) may be required for some countries

When aggregating national indicators to obtain the EU totals, special attention should be made to maintain a homogeneous number of Member States. The data for EU total should reflect an estimation of the actual evolution and should not be distorted by the inclusion (or exclusion) of Member States throughout the analysed period. The compilation of EU aggregates may require the use of imputation in some Member States.

The imputation of missing values should follow the principles approved by the STECF plenary.

[4] Given the use of EUMAP as well as Eurostat data, it should be clearly identified the source of data. A more detailed discussion about data coverage and quality issues could be included in an Annex.

The economic report on the fish processing industry is produced on a biennial basis. This should be taken into account when presenting the information and making the interpretations. Besides the long-term evolution analysis, a special focus should be made not only on the last year, but rather on the last two years, when relevant. Indications on the latest developments should be presented in annual terms and not with respect to the previous report (which implies an increase or decrease over two years). The report should also present indications on the evolution compared with the base year.

A discussion and explanation about data coverage, data issues and how they were addressed should be included in an Annex.

Data transmission

As a matter of priority, the EWG is requested to ensure that all unresolved data transmission (DT) issues encountered prior to and during the EWG meeting are reported on-line via the Data Transmission Monitoring Tool (DTMT)[5]. Guidance on precisely what should be inserted in the DTMT, log-on credentials and access rights will be provided during the EWG.

[5] For details refer to ToR 7.1 of STECF plenary report 19-01.

2 EU OVERVIEW

This chapter provides an overview of the structure and economic performance of the fish processing industry in the EU from 2008 to 2019. The chapter summarises the number of enterprises, their size, the employment they provide, and trends in these variables for the EU and aggregated for the MS. A comparison of average salaries and labour productivity (a measure of the capital intensity of production) are given for the MS. Summaries for the EU are reported for the main financial variables, including turnover, subsidies, profits and gross value added as a social contribution are included.

The 2021 report has attempted to give a comprehensive overview of the EU fish processing industry, including in the analysis all the EU MSs with a fish processing sector. Relevant figures are given for all EU countries, including countries involved in data collection under DCF and currently EUMAP (DCF/EUMAP MSs) but also those countries never or not still involved in the data collection for the fish processing industry (NO DCF MSs) – for details see notes under table 2.1.1.

The main economic analysis is, instead, focusing on the EU in its formation at 24 countries, while some in-depth considerations are provided only for the group of DCF/EUMAP MSs, because of the more detailed level of variables covered by the DCF/EUMAP in comparison to the Eurostat/SBS framework. An explanation of the protocol for data use and imputation to overcome problems with missing or mistaken data, and other data issues is provided in Annex 9.4.

The overview of the sector at EU level is carried out looking, where possible, at comparison across MSs, highlighting the main reasons of relevant differences.

2.1 Overview of the EU fish processing industry

In 2019 the overall number of enterprises carrying out fish processing as a main activity was equal to around 3 200 firms. According to Eurostat data[6], the degree of specialisation[7],of the EU fish processing enterprises is around 83% (the highest percentage recorder for Portugal, 98% and Netherland, 94%) a bit lower than observed for other food manufacturing sector, as the meat (NACE 10.10) and vegetable and fruit (NACE 10.30) processing, showing a degree of specialisation of around 85%. The overall turnover produced by the sector is estimated at EUR 28.5 billion. Spain is the leading country, with the 18% of firms and the 24% of the EU turnover. Italy and France are at the second place, respectively, in terms of number of active firms (13%) and turnover produced by the sector (17%). When looking at the employment generates, Spain is still the top country followed by Poland that, due to the large size of its processing plants, generate the 18% of the EU employment in the sector (Table 2.1.1).

Fish processing enterprises are, indeed, largely different across EU in terms of labour intensity. If the EU average is around 35 persons employed per enterprises, there are some Eastern countries, with Lithuania and Poland at the top with, respectively, 128 and 122 employees per enterprises. All the other countries are characterised by a lower intensity of human capital: Romania and Croatia follow with employment per firm at, respectively, 80 and 66 units. Beside a large number of countries with medium-high values, there are countries where small-sized plants prevail, as Finland, Sweden and Slovenia, with an average of 9 units per firm (Figure 2.1.1).

[6] Annual detailed enterprise statistics for industry (NACE Rev. 2, B-E) [sbs_na_ind_r2]. Last update: 28-02-2022. https://appsso.eurostat.ec.europa.eu/nui/show.do

[7] Defined as the share of turnover deriving from the principal activity on the total turnover.

Table 2.1.1: Number of enterprises, employment and turnover in the fish processing sector by EU countries, 2019

Country	Number of enterprises	enterpises %	Turnover (million €)	turnover %	Total employment	employment %
Belgium	65	2%	961	3%	1.426	1%
Bulgaria	55	2%	122	0%	2.177	2%
Croatia	34	1%	116	0%	2.239	2%
Denmark	92	3%	2.503	9%	3.510	3%
Finland	119	4%	402	1%	1.100	1%
Germany	210	7%	2.196	8%	6.633	6%
Greece	155	5%	235	1%	2.357	2%
Hungary	*13*	*0%*	*17*	*0%*	*330*	*0%*
Ireland	166	5%	622	2%	3.962	4%
Italy	427	13%	2.165	8%	6.037	5%
Latvia	105	3%	209	1%	2.907	3%
Lithuania	40	1%	570	2%	5.115	5%
Malta	5	0%	28	0%	80	0%
Poland	163	5%	3.326	12%	19.850	18%
Romania	13	0%	88	0%	1.038	1%
Slovenia	15	0%	33	0%	126	0%
Spain	584	18%	6.930	24%	23.781	21%
Sweden	206	6%	517	2%	1.894	2%
Sub-total EU MSs DCF	**2.467**	**77%**	**21.042**	**74%**	**84.562**	**76%**
Austria	6	0%	45	0%	158	0%
Czechia	19	1%	96	0%	756	1%
Estonia	59	2%	130	0%	1.313	1%
France	333	10%	4.823	17%	12.958	12%
Netherlands	154	5%	1.039	4%	3.068	3%
Portugal	161	5%	1.354	5%	8.508	8%
Non-DCF MSs	*732*	*23%*	*7.487*	*26%*	*26.761*	*24%*
Total EU	**3.199**	**100%**	**28.529**	**100%**	**111.323**	**100%**

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS

Notes: 1) DCF EU MSs: EU MS covered by obligation under DCF/EUMAP and submitting countries under the 2021 data call. France excluded in this group because of missing data; 2) NO DCF (SBS) MSs: EU MSs not covered by obligation under DCF/EUMAP but having a fish processing industry, namely Austria, Czechia, Estonia, Netherlands and Portugal, for which Eurostat/SBS data have been used. France included in this group because of DCF missing data. 3) 2018 data used for Hungary as 2019 is not available.

At EU average, indeed, the great bulk of enterprises (98%) of the sector are SMEs (less than 250 employees), 85% are small-sized (less than 50 employees) and more than a half are micro-enterprises (Fig. 2.1.2). The distribution of enterprise by size-classes confirms that there are large differences across MSs, with Finland, Slovenia, Sweden, Greece and Netherlands having a fish processing sector characterised by more than 70 of micro-enterprises. The highest share of firms with 50-249 employees is recorded for Croatia while the highest shares of large industries (above 250 employees) are located in Eastern Europe (e.g. Poland, Lithuania and Romania).

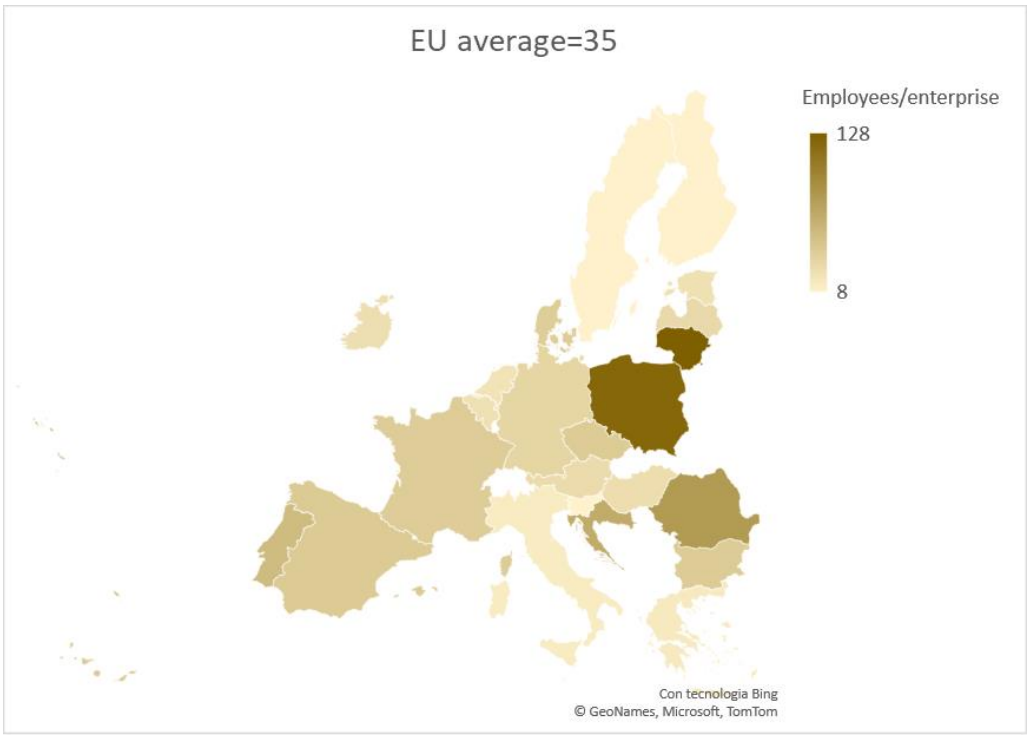

Figure 2.1.1: Number of employees per enterprise by country, 2019

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS.
Notes: 2018 data used for Hungary as 2019 is not available

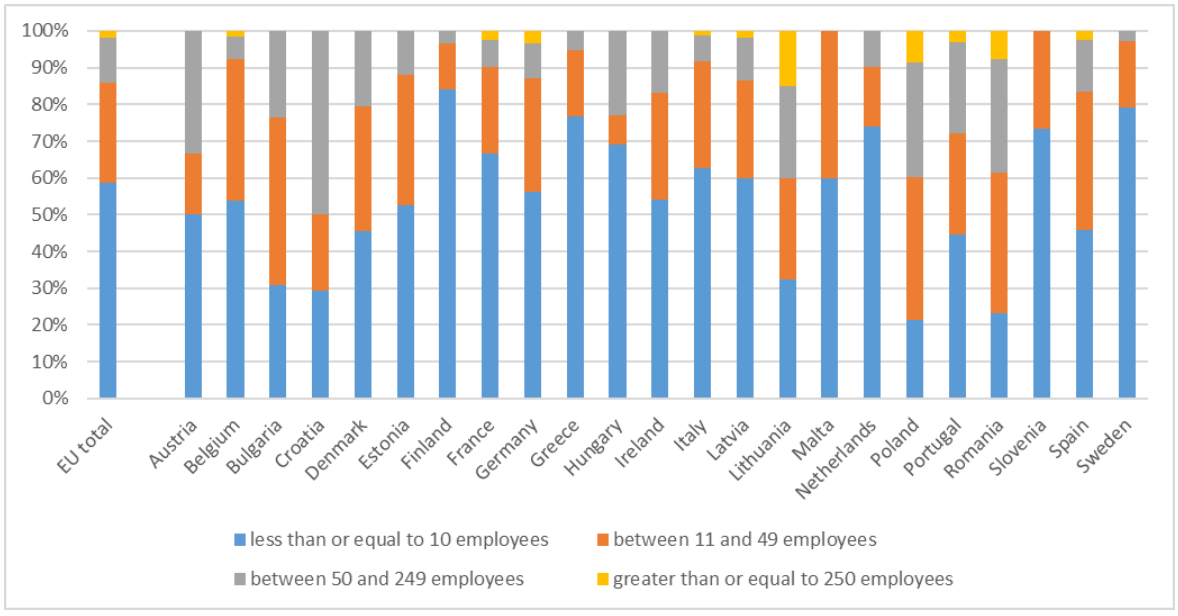

Figure 2.1.2: Number of firms by country and by size classes, 2019

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS.
Notes: Czechia number of enterprises not available by size classes. 2018 data used for Hungary as 2019 is not available
SBS size classes not perfectly homogenous with DCF/EUMAP size classes (for details see the methodological annex)

Looking at the trend of the total number of firms, a general stability emerges over the 2008-2019 period, with a peak in 2015 and a decreasing trend in the last 4 years of the period (figure 2.1.3). Since 2015, indeed, the ratio of the GVA generated by the EU enterprise on the total income produced appear to decrease, highlighting a low ability to add value to the raw material inputted in the production cycle. This ability is, indeed, higher for more capitalised and bigger enterprises

that, indeed, appear to increase in the last 2 years of the series. The increase of bigger enterprises in parallel with the increase of turnover (+3% vs. 2018; +8% vs. 2017; +47% over the period 20018-2019) highlight a phenomenon of re-sizing of the sector and concentration of production.

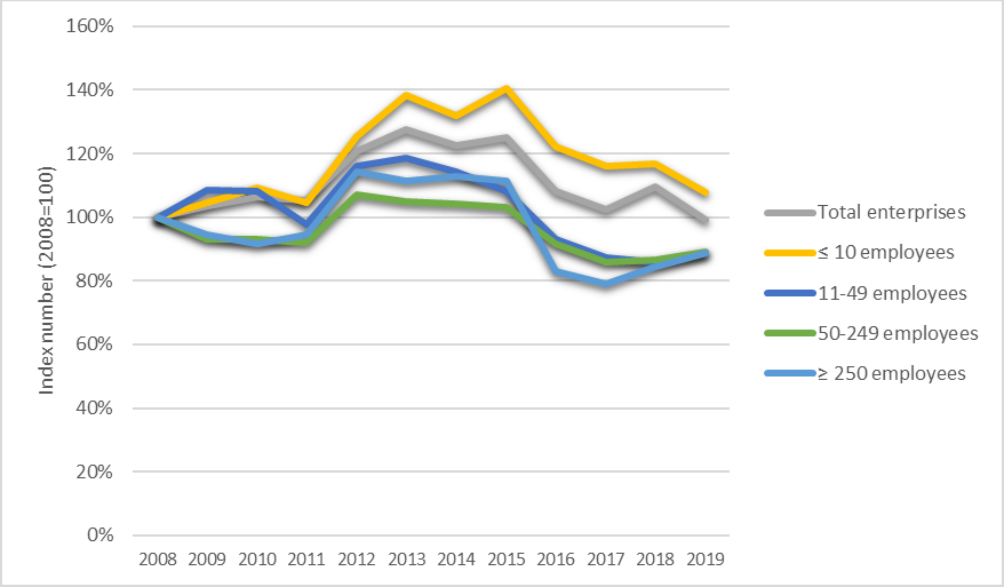

Figure 2.1.3: Trend of the numbers of firms, total and by size classes, 2008-2019 (index number, 2008=100). Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS

In addition to the increase in turnover, reaching, in 2019, around EUR 28 billion, the concentration of the sector is evidenced by the increase in the level of employment (+27% over the entire period; +2% vs 2018 and +6% vs 2017) - figure 2.1.4 - despite the decrease in the number of companies.

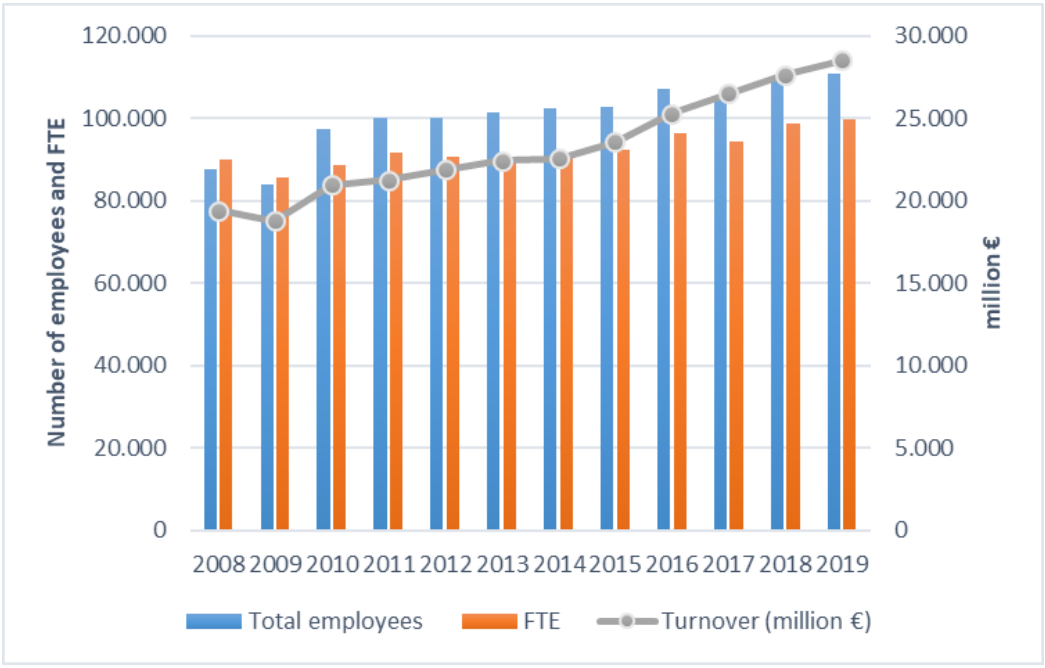

Figure 2.1.4: Trend of total employment, FTE and turnover, 2008-2019

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS.

Employment level, both in terms of number of persons employed and in terms of full-time equivalent units (FTE), is, in 2019, at the highest level over the period 2008-2019: around 111 thousand job positions equivalent to 100 thousand full time positions.

Table 2.1.2: EU fish processing industry sector overview, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	3.213	3.327	3.415	3.379	3.873	4.100	3.935	4.013	3.480	3.287	3.521	3.186	-10%
≤ 10 employees	1.667	1.742	1.822	1.744	2.091	2.307	2.200	2.343	2.039	1.934	1.945	1.799	-8%
11-49 employees	1.024	1.110	1.108	1.001	1.187	1.215	1.168	1.108	951	894	880	908	3%
50-249 employees	446	415	415	410	478	468	464	460	409	383	386	397	3%
≥ 250 employees	71	67	65	67	81	79	80	79	59	56	60	63	5%
Employment (number)													
Total employees	87.436	83.825	97.236	100.051	100.025	101.339	102.250	102.674	107.101	104.848	109.203	110.898	2%
FTE	90.020	85.677	88.456	91.544	90.465	90.503	91.675	92.244	96.284	94.258	98.749	99.838	1%
Indicators													
Turnover (million €)	19.418	18.773	20.937	21.262	21.894	22.428	22.539	23.573	25.285	26.503	27.644	28.518	3%
FTE per enterprise	28,0	25,8	25,9	27,1	23,4	22,1	23,3	23,0	27,7	28,7	28,0	31,3	12%
Average wage (thousand €)	19,4	25,7	26,0	24,9	25,4	26,6	26,8	26,6	27,3	28,6	29,4	30,1	2%
Value of unpaid work (% on total)*	1,3	3,1	3,4	1,2	1,3	2,2	2,8	1,7	1,8	1,6	2,0	1,4	-31%
Enterprises doing fish processing not as main activity*													
Number of entreprises	544	724	708	750	692	657	676	703	733	712	706	673	-5%
Turnover attributed to fish processing (million €)	499	662	587	501	514	891	1.016	1.066	1.069	1.096	1.065	1.131	6%

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS

Notes: Hungary missing in 2019, the reason why there is a difference with the total in table 2.2.1; * only DCF/EUMAP MSs.

The average wage paid by the sector to EU workers (measured as personnel costs per FTE unit) was around EUR 30 thousand, increasing by +2% vs the level of 2018 and +5% vs. 2017, impacted by the rather satisfying economic performance of the sector (for details see next paragraph).

2019 data on personnel costs and employment by countries suggest that the average wage per FTE varies substantially by MSs (Figure 2.1.5).

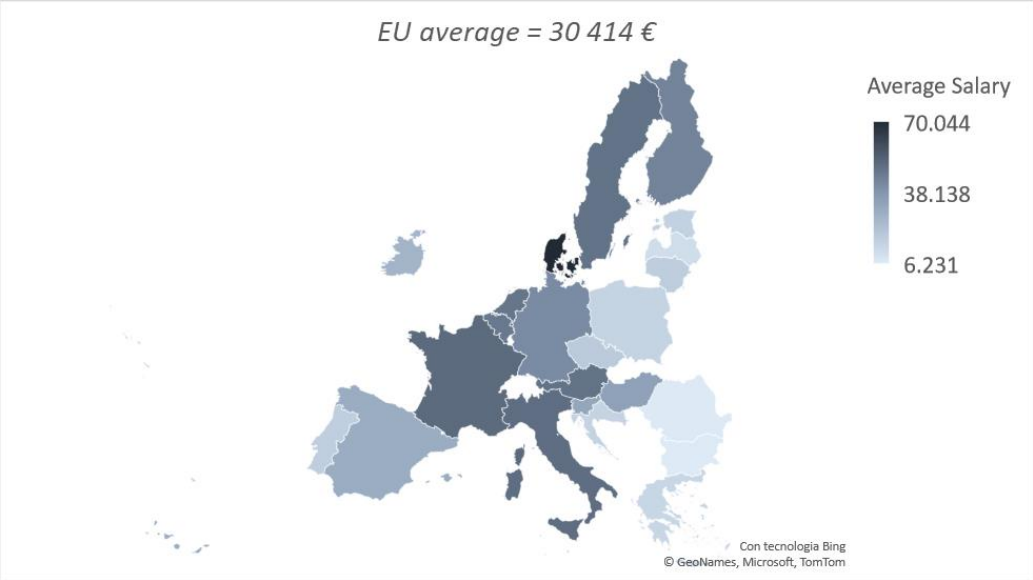

Figure 2.1.5: Average salary by country, 2019

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS. Hungary 2018

The EU average is around EUR 30.4 thousand, more or less in line with labour costs/FTE recorded from similar food manufacturing sector (processing of meat and vegetables, on average 30.6 in 2019 for)[8]. The Danish fish processing industries record the highest remuneration (EUR 70 thousand), followed by the French, Italian, Austrian and Swedish industries (around EUR 48-50 thousand). Most of the Eastern countries (Latvia, Lithuania, Poland, Czechia, Estonia) together with Greece and Poland record an average salary between EUR 10 and 20 thousand while Romania and Bulgaria stay at the lowest level (around EUR 6.5 thousand).

The labour productivity of the EU fish processing industries, measured as the GVA produced by a unit of labour (FTE) was, on average equal, in 2019, to EUR 65.4 thousand – figure 2.1.6.

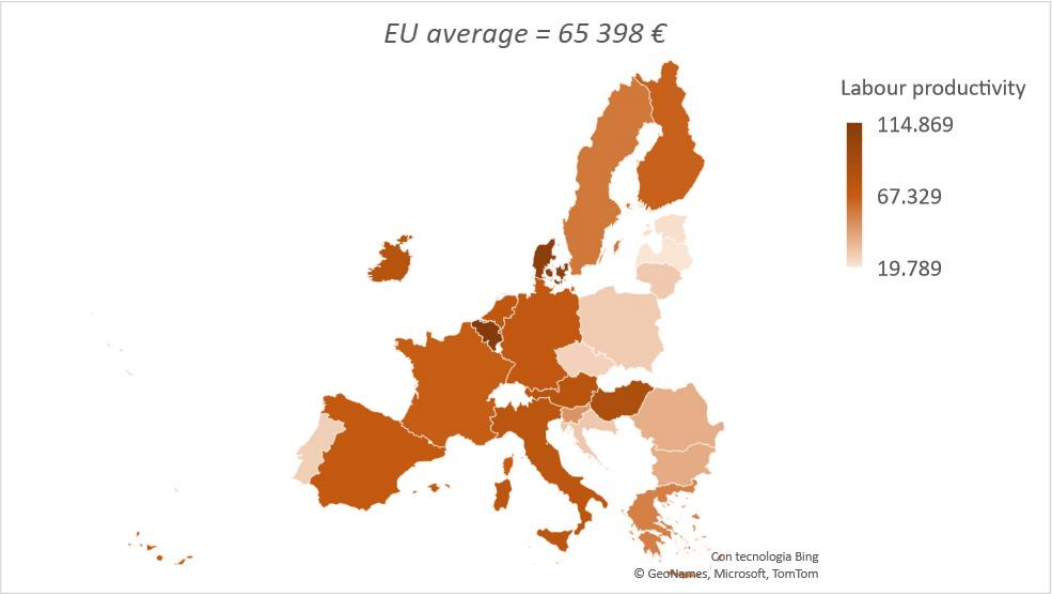

Figure 2.1.6: Labour productivity by country, 2019

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS. Hungary 2018

Again, large differences emerge across EU with only two countries overcoming the EUR 100 thousand level: Belgian industries, positioning only at the 7th place in terms of average salary, are first in terms of GVA per FTE (EUR 114 thousand). The Danish industries follow with EUR 109 thousand. Most of the Central EU counties record a labour productivity among EUR 50 and 100 thousand while Eastern EU countries report lower level with Estonia and Latvia under the EUR 20 thousand level.

The DCF/EUMAP framework requires MSs to also provide the number and the turnover of enterprises carrying out fish processing as a secondary activity ("non-main"). The number of enterprises processing fish products as integration to other type of activities (in many cases other types of food processing) is estimated, in 2019 (and only for DCF/EUMAP MSs) to be equal to 673 units[9]. It is well known that the share of the turnover attributable to the processing of fish and fish products coming from these enterprises is, sometime, not so marginal. It is estimated to be equal, at EU level, to EUR 1.1 billion (4% of the total turnover of the sector in 2019) – table 2.1.2.

Amon reporting countries, those with the highest number of enterprises are Italy and Belgium.

[8] Annual detailed enterprise statistics for industry (NACE Rev. 2, B-E) [sbs_na_ind_r2]. Last update: 28-02-2022.

[9] It is worth noting that the EU totals should be carefully considered as a big number of data are missing, both at countries level and in terms of years available (for details see the coverage section).

2.2 Economic performance

Total income, including turnover and other incomes, has increased for the European fish processing industry between 2008 and 2019 (almost doubled in nominal terms) and amounted to EUR 28.7 billion in 2019, a slight increase compared to 2018 (+6%) and 2017 (+7%). The increase in the total turnover over the whole period is attributable primarily to the increase in the price of commodities produced by EU fish processing industries and, to a lesser extent, to a change in the production mix (for details see section 2.3 on the main drivers of change).

Table 2.2.1: Economic performance of the EU fish processing industry sector, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income, expenditure and investments (million €)													
Turnover	19,418.1	18,772.7	20,937.0	21,262.3	21,894.0	22,427.7	22,538.9	23,573.3	25,284.6	26,502.7	27,644.5	28,518.0	6%
Total Income	19,108.9	18,375.9	20,574.4	20,893.8	21,573.3	22,012.2	22,472.5	23,481.9	25,786.4	26,731.9	27,705.7	28,736.8	6%
Total purchase of goods and services	13,299.3	12,569.9	14,036.2	14,985.8	15,470.6	15,951.7	16,027.5	17,253.1	19,528.9	19,884.2	20,438.5	21,132.8	1%
of which: energy costs	*317.9*	*287.9*	*298.3*	*335.9*	*328.9*	*326.7*	*318.8*	*321.1*	*365.3*	*340.6*	*348.5*	*372.5*	7%
Personnel costs	1,748.8	2,198.7	2,296.7	2,283.3	2,297.3	2,408.7	2,456.6	2,454.3	2,626.0	2,694.7	2,903.9	3,005.8	5%
Net Investments	740.0	282.0	614.0	604.1	478.5	407.1	540.7	497.3	487.2	557.5	583.2	589.9	-5%
Economic performance (million €)													
Gross Value Added	3,096.2	3,178.7	3,734.1	3,273.0	3,169.2	3,228.8	3,237.2	2,982.7	2,805.9	3,771.6	4,106.4	4,179.7	18%
Operating Cash Flow	1,756.5	1,976.2	2,463.9	1,990.9	1,876.5	1,876.4	1,872.1	1,627.3	1,302.9	2,251.5	2,265.2	2,453.7	34%
Productivity and performance Indicators													
Labour productivity (thousand €)	34.4	39.2	44.2	37.8	37.4	38.1	37.6	34.7	31.0	42.1	45.6	53.3	17%

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS data

An increasing trend over the 2008-2019 period is recorded for all the main cost items.

As far as the purchase of goods and services (including raw materials and energy costs), the trend of this cost item appears to be almost stable between 2018 and 2019 (only +1%), recording a slight increase since 2017 (+6%) but a major increase is recorded between 2015 and 2016. Indeed, the share of raw material costs on the total costs has increased in the period 2016-2019 in comparison to the overall period (form 68% in the 2008-2011 period to 73% in the 2016-2019 triennium) - table 2.2.2 (based only on DCF/EUMAP countries' data).

Table 2.2.2: Cost structure of the EU fish processing industry, 2008-2019

Cost items		avg 2008-2011	avg 2012-2015	avg 2016-2019
Total costs / Total income (%)		87%	90%	91%
Cost items as a share of total costs (%)	*Raw materials*	68%	70%	73%
	Personnel costs	12%	11%	10%
	Other operational costs	17%	17%	15%
	Energy costs	3%	2%	2%

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS data. *Notes: based only on DCF/EUMAP EU MSs because of lack of details on operational cost and total costs in Eurostat/SBS*

As far as energy costs, if the share on total costs appear to be slightly decreasing over the period 2008-2019, an increasing trend of this cost item is recorded in the last two years (+9%) and, in the light of what has already happened in the period 2019-2022 and is foreseen in the next future at the time of writing, it is likely a further and major increase will occur (for details see section 2.3).

Although a generalised increase in the main production costs, the increase of the value production of EU fish processing enterprises has allowed them to generate a positive Gross Value Added, equal in 2019 to around EUR 4 billion (increasing by +18% vs 2018 and +11% vs 2017). This shows the importance of the fish processing industry in the fishery sector in Europe, taking into account that the GVA produced by the EU fishing fleet amounted, in the same year (2019) to EUR 3.4 billion[10] (STECF, 2019).

Table 2.2.3: Economic performance of the EU fish processing industry sector by country, 2019

Country	Gross Value Added	% of total EU	Operating Cash Flow	% of total EU
Austria	10,1	0%	3,6	0%
Belgium	158,3	3%	94,0	4%
Bulgaria	71,1	1%	60,1	2%
Croatia	48,0	1%	24,6	1%
Czechia	18,9	0%	5,6	0%
Denmark	308,0	6%	109,6	4%
Estonia	25,9	0%	7,6	0%
Finland	52,6	1%	17,4	1%
France	777,8	14%	176,1	7%
Germany	440,1	8%	178,3	7%
Greece	116,8	2%	87,1	4%
Hungary	6,7	0%	4,1	0%
Ireland	223,2	4%	146,2	6%
Italy	356,2	7%	120,9	5%
Latvia	49,9	1%	22,7	1%
Lithuania	109,2	2%	45,0	2%
Malta	3,8	0%	1,8	0%
Netherlands	148,7	3%	47,6	2%
Poland	542,9	10%	268,9	11%
Portugal	222,1	4%	86,8	4%
Romania	39,2	1%	32,6	1%
Slovenia	5,3	0%	1,7	0%
Spain	1.567,4	29%	901,3	37%
Sweden	87,6	2%	14,0	1%
Total EU	**5.390,0**	**100%**	**2.457,8**	**100%**

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS. Hungary 2018

The in-depth analysis of all the economic performance indicators supports a trend toward a good level of efficiency: indeed, the added value generated by the EU fish processing industries was enough to counterbalance the increase in the personnel costs (+5% vs. 2018; +12% vs 2017),

[10] Scientific, Technical and Economic Committee for Fisheries (STECF) - The 2021 Annual Economic Report on the EU Fishing Fleet (STECF 21-08), EUR 28359 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-40959-5, doi:10.2760/60996, JRC126139

due both to the increase of the employment level and of the average wages, as already highlighted in the previous section. Consequently, the sector has been able to generate an Operating Cash Flow (OCF) equal to EUR 2.5 billion in 2019, increasing by +34% vs 2018 and +9% vs 2017.

The highest share of GVA and OCF was produced by the countries with the larger sector, e.g. Spain, Poland and France. Spain is first for both indicators, with share equal to 29% for GVA and to 37% in terms of OCF, followed by France, in terms of contribution to GVA, and by Poland, in terms of OCF. As for Spain, also for Poland the share when looking at the OCF, meaning that the cash flow is benefiting of operating subsidies (amounting, indeed, to EUR 23 and 15 billion for, respectively, Spain and Poland, on an EU total of EUR 47 billion) or of a lower share of personnel costs on total costs – table 2.2.3.

The trend toward efficiency is highlighted by almost all the productivity and profitability indicators reported in table 2.2.4. For technical reasons (lack of details on capital assets and costs, on financial costs and debts in the Eurostat/SBS dataset) the table reports the performance indicators only for the MSs submitting data under the DCF/EUMAP framework. It offers, nevertheless, a snapshot of the average efficiency level of the EU fish processing firms.

The capital productivity, highlighting the ability of the capital invested in the sector to generate value (GVA/Total value of assets) records a noticeable increase between 2017 and 2018 (3.5 percentage points) as well a slight increase afterwards (0.8 percentage points between 2018 and 2019). A positive trend is detectable also for the financial position, decreasing by 2.4 percentage points between 2017 and 2019, hence highlighting a decrease of the capital owned by third parties on the total assets invested in the sector.

An increase in the efficiency is evident between 2017 and 2018 for the profit margin indicators (EBIT and Net % on total income) while a slight decrease is recorded between 2018 and 2019 – table 2.2.4.

Table 2.2.4: Main productivity and performance indicators of the EU fish processing industry sector, 2008-2019 (only for DCF MSs)

Productivity and performance Indicators	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Capital productivity (%)	51,6	56,1	51,1	54,2	47,1	45,7	46,6	42,6	40,8	45,5	49,0	49,8
GVA margin (%)	21,7	23,9	24,3	21,6	20,4	20,4	20,1	17,7	15,0	19,0	19,8	19,6
EBIT margin (%)	10,0	11,6	13,0	10,5	9,6	9,4	9,0	7,2	5,1	8,8	9,3	9,1
Net profit margin (%)	8,2	10,1	11,3	9,3	8,7	8,3	7,8	6,9	5,4	8,5	9,1	8,9
Return on Investment (%)	23,8	27,3	27,4	26,5	22,3	21,0	21,0	17,3	13,9	21,1	23,1	23,2
Financial position (%)	31,7	33,2	39,9	35,0	37,3	32,0	33,8	37,6	37,8	43,6	42,1	41,2

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS data. *Notes: based only on DCF/EUMAP EU MSs because of lack of details on capital assets and costs, on financial costs and debts in Eurostat/SBS*

The EU GVA as % of total income was around 19.6%, with large differences across MSs: highest GVA margin for Bulgaria and Romania, 51% and 44%, respectively, and lowest for Finland and Denmark, around 13%.

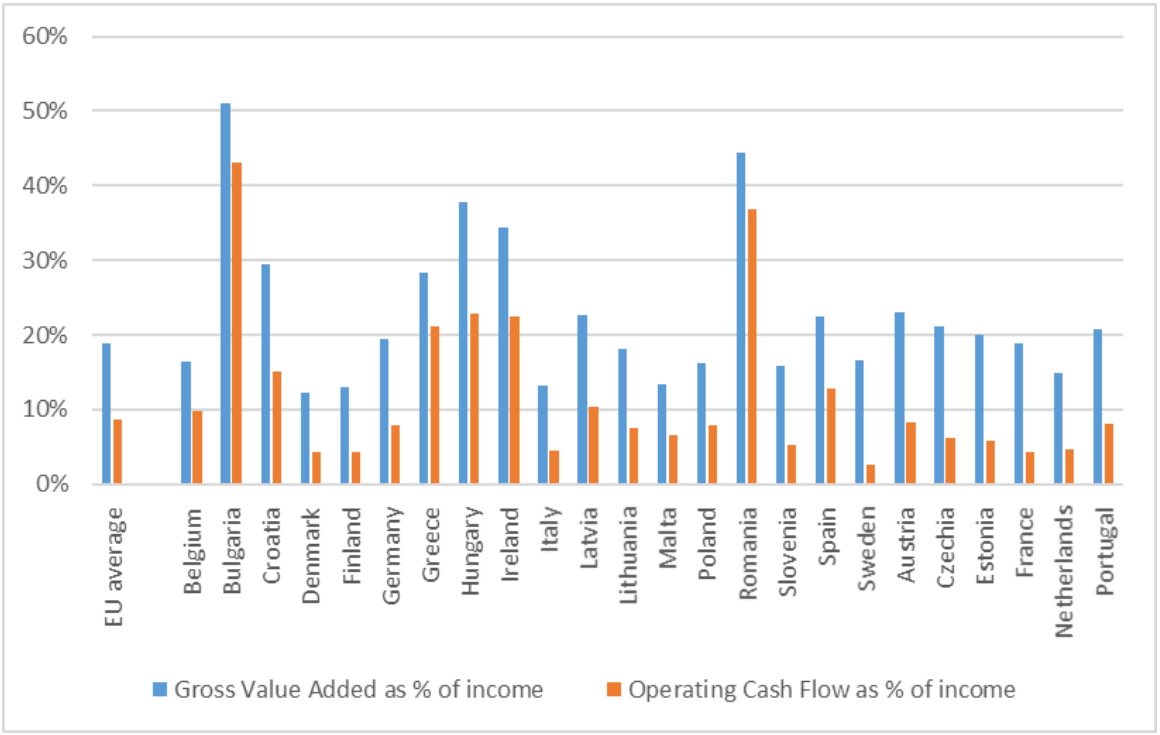

Figure 2.2.6: Economic performance of the EU fish processing industry sector by country (indicators in relation to income), 2019

Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat/SBS. Hungary 2018

2.3 Fish used as raw material

As highlighted in the previous paragraph, the purchase of fish and raw material is the dominant cost item for the sector, accounting for more than 70% of the total production costs, increasing over time. Understanding which segments and Member States use EU raw material (either from wild fisheries or from aquaculture) and which ones depend on imported supplies and on which species is of high importance for assessing the strengths and vulnerabilities of the sector. The 2019 report already dealt with the series of initiatives undertaken under the data collection framework by different MSs, from pilot studies under the MSs work plans to specific studies committed by the Commission, e.g. SECFISH project, concluding that the raw material data collection has revealed, in most cases, to be quite costly and challenging and trying to provide suggestions for the improvement of the future data collection. Nevertheless, in the light of the Farm to fork Strategy and the most recent EU Code of Conduct on Responsible Food Business and Marketing Practices entered into force in 2021, it is essential to define, as clearly as possible, the track of products along the value chain, from the fishing area (for fishery products) or farming plants (for aquaculture one) till market outlets. This aspect is crucial also in the process of revision of the marketing standards under the Common Market Organisation and, indeed, in 2020 a first attempt has been undertaken by STECF EWG 20-05 in support of the process, by defining criteria and indicators to incorporate sustainability aspects for seafood products. For this reason, an attempt to look further at the data collected by MSs in terms of raw material in volume by species and origin has been made by this EWG.

It is important to note that the overall data collection for the economic data for the fish processing sector is not mandatory for MSs and, even if planned, the collection of data on the volume of fish and fish product used a raw material is furtherly optional. This optionality has impacted the possibility to draft a good analysis at EU level, because of missing important EU fish processing countries from the analysis (e.g. Spain or France). During the last data call, only 9 MSs have submitted data on raw material for the reference year 2019 (see also section 7).

Furthermore, because of this optionality, there is no clear mandatoriness about the specifications of provided data, neither in terms of details provided nor in terms of codifications used. The aspect that has limited since the beginning the extent of the analysis and has prevented more in-depth considerations, is, in particular, the lack of harmonised species specification. Indeed, when looking at the guidelines for data submission[11] no clear reference to international codification is found. On the other hand, the template for data submission "Pro_raw_mat" leaves room for free text under the "species" heading even if asking, preferably, the use of the 3-letters ISO-code.

For this reason, a large variety of species classification has been detected by EWG experts in the dataset of submitted data. Below a synthesis.

Country	Species codification	Level of detail of species classification	Origin (geographical)	Note by the EWG on other specification recommended and reported
Bulgaria	3-letters ISO-code	High: 61 species or group (free text used for 7 "commodities")	Yes, high level details: by country and FAO areas	The column "origin" has been used to provided disaggregation by geographical origin but also by production environment
Finland		Medium: 11 species	Yes: basic info, domestic and foreign	
Italy		Medium: 11 species (mainly aggregation)	None	
Poland		High: 89 species	Yes: basic info, domestic and foreign	
Slovenia		Medium: 5 species	None	Only "production environment" reported
Croatia	ALL	None	None	
Greece		None	None	
Germany	Free text: English name	Medium: 30 species or group (some aggregation used)	Yes: domestic, other EU and non-EU	The column "origin" has been used to provided disaggregation by geographical origin but also by "production environment" and "type of processed material"
Romania	Free text: English name (+Scientific name)	High: 97 species	Yes: basic info, indigenous and import	

[11] https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/proind

An easy analysis of the dataset at EU level has been prevented also by technical issues. Indeed, the template for data submission ("Pro_raw_mat") has not been adjusted to include details on the "production environment" or the "type of processed material" to include the details recommended by PGECON (nor RCG_ECON) 2020[12]. For this reason, MSs reporting also these further details had to use the unique "origin" column to report all the info.

Some experts have devoted much effort to harmonise the different classifications used but the time limitation and the number of topics to be addressed in other sections has not allowed to draft an analysis at EU level but only at MSs level (for details see the national chapters for countries reported in the above table).

In the light of all the above it would be good, for the next report, if these technical issues will be properly addressed in due time before the next data call, by e.g. adjusting the template, provide more clear guidelines to MSs.

Beside the different species used as raw material, depending on the typology of production a large variety of dependency on domestic or, on the opposite, on foreign/imported raw material emerges from the analysis carried out at country level.

There are countries, like Finland, mainly relying on domestic production (60%) and where the governmental programme, promoting the increase of fish consumption and domestic fish production, need attention as this will imply considerably higher utilization of Baltic herring for processing as food fish.

In the same direction in Croatia connecting aquaculture and fish processing industry is one of the main tasks for fisheries development and it is already emerging as a trend in fish processing industry, both in marine and freshwater aquaculture. Merging these two sectors is leading to increase the use domestic raw material for production in processing industry as well to decrease the cost of production.

On the other hand, there are country, as Germany, where only one quarter of the raw material used by fish processing industries is domestic. 52% is imported from other EU countries, while 20% is purchased from outside the EU. The majority (73%) of the processed raw material originated from capture fisheries and the biggest share is fresh (70%; 18% frozen and 12% semi-processed).

There is also Poland highly dependent on imports of raw material: 75% of imported salmon comes from Norway. An important feature of the Polish fish processing of salmon products is that it is mainly imported in the form of fresh fish, and then mostly re-exported from Poland after processing.

The analysis carried out at country level highlights also some technical problems inherent the data collection carried out in some MSs. For instance, in Poland, as the domestic supply of some kind of fish is highly developed, some respondents buying raw material from a Polish intermediary, indicate the country of origin as domestic, which significantly and artificially increases the share of salmon in the structure of domestic supplies.

Furthermore, even if in the raw material data collection in Bulgaria there were no problems in terms of the quantities and species, the origin sometimes was reported differently than expected, because the processors were not always sure if the imported fish was from aquaculture or from fisheries.

[12] To allow proper use of these data, PGECON recognises the importance of additional specification other than volume by species and origin. Hence, PGECON recommends including in the requirements for the optional provision of data on raw materials (under the proposed Table (13?) of the Commission Delegated Decision (Economic and social variables for the processing industry sector): Volume and value by: ☐ Species ☐ Production environment (Capture based fishery and aquaculture sector) ☐ Country of Origin (Domestic, other EU or non-EU) ☐ Type of processed material (fresh, frozen and semi-processed materials) – where possible.

The EWG highlights that the RCG_ECON 2020 recommended[13] to hold a Workshop to train people involved in data collection on the possible, alternative and most efficient methods to collect raw material data by MS, using the SECFISH findings since then available. No workshop has been organised since that time because there has been large uncertainty on the possibility to keep the fish processing data collection under EUMAP, since the last revision. Therefore, the EWG suggests the next RCG_ECON, to be held in May 2022, to evaluate, in the light of the current MSs Work Plans, if this recommendation is still valid.

2.4 Trends, drivers and outlook

The present paragraph is aimed to provide some qualitative and quantitative considerations on the main drivers of changes that have already occurred (until 2019 or between 2019 and the time of writing), that directly or indirectly affected the EU fish processing sector, trying also to infer potential future trends.

The reader should bear in mind that the report was drafted in the week of the Russian incursion into Ukraine (February 2022), a time of high political tension and during a rapidly changing political, military and economic situation. It has not been possible to predict the extent of any effects this may have on trade between Russia and the EU in fish and fish products, and if the situation were to deteriorate significantly, on the domestic supply of and demand for raw material. In addition, MS are at different stages in the progress of the Covid-19 pandemic through their populations. While the picture at the time of writing seems hopeful, the possibility exists of another variant emerging, though the probability is unpredictable. The fish processing industry is, hence, operating with a future that is more uncertain than it has been for many decades.

It is essential to highlight, for sake of clarity, that security in Eastern Europe has not been considered as a major factor in the trends and drivers affecting the outlook for fish processing in the near future even if some final remarks have been provided on the outlook as far as the increase in energy costs and inflation.

Regarding the Covid-19 pandemic, a special section (section 4) has been dedicated to the effect of this recent and still in progress phenomenon while in this section some indirect effects (disruption of the logistics) have been commented upon.

Industry Concentration

The concentrated structure of the retail market, which provides the demand side for the processing industry, and the diffuse nature of the processing industry was discussed in the 2019 report. The situation remains unchanged, as highlighted by the trend of enterprises' numbers by size classes (section 2.1). Increasing concentration as a result of mergers intended to cope with the effect of increasing labour and energy costs is likely to appear in the immediate future.

Output

The value of turnover increased by 7.6% between 2017 and 2019 and by 47% over the period 2008-2019 (though only 19% higher in real terms than in the base year 2008, if considering the deflated trend according to the HICP for Fish and Seafood). Using the volume of products sold, according to the ProdCom dataset (Eurostat) as a proxy for the volume of production of the EU fish processing sector[14], stability in the quantity of production – figure 2.1.7, is clear. Therefore,

[13] https://datacollection.jrc.ec.europa.eu/documents/10213/1239611/2020_PGECON.pdf/3799b4c1-ac50-4811-84fe-f3b0221970f7

[14] The Nace code for the fish processing sector is 10.20, used in the Structural Business Statistics. As specified at https://ec.europa.eu/eurostat/cache/metadata/en/prom_esms.htm (Metadata for ProdCom) "The purpose of the statistics is to report, for each product in the Prodcom List, how much has been

one can speculate that the cause of the increase in the nominal value is a shift towards secondary processed higher value-added products. Similarly, a growing desire for a healthy diet means that consumers are preferring a high-quality primary rather than secondary processed products. The trend in output also reflects the increasing availability of farmed finished product (both primary and secondary processed) available from outside the EU. Catfish species (basa and panga) farmed in low wage economies such as Vietnam are currently important competitors in this respect. Looking at the HICP already available for 2020 and 2021 a further increase of the value of output (turnover) can be expected for the next few years.

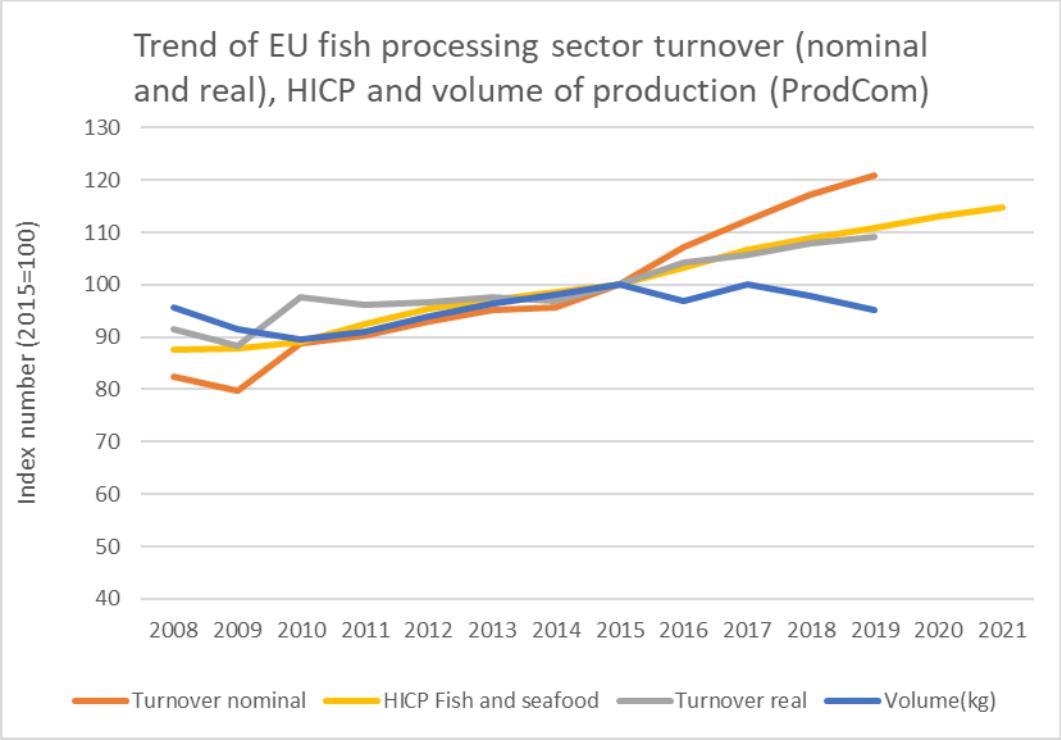

Figure 2.4.7: Economic performance of the EU fish processing industry sector by country (indicators in relation to income), 2019. Source: elaboration by the EWG on MS data submissions under the 2021 Fish processing data call and on Eurostat data: SBS, ProdCom and HICP.

Employment and labour productivity

Over the period 2008 to 2019 there has been a relatively small increase in employment measured in FTEs amounting to 10.9%, but a greater increase in the crude numbers employed, by 26.4% (table 2.1.1). This suggests a shift towards the use of part-time labour. This probably reflects the general shortage of labour in the economies of the northern European MS. Strictly speaking there is no such thing as a shortage of labour in the long run; in the short run, wages are merely below the labour market equilibrium level which will equate the supply of labour to demand for it. As the shortage corrects, increased wages will encourage an increased supply of labour (quite possibly reinforced by part-timers). The increased labour cost, however, means that the marginal firm will be unable to survive with its existing labour to capital ratio and will need to substitute capital equipment for labour if it is to survive.

Despite its name, Labour Productivity, the value of output per employee, is actually a measure of the capital intensity of production; a person with a machine can normally produce more than someone working by hand without a machine. It increased by 55% between 2008 and 2019 and this trend increased by a further 27% between 2017 and 2019 (table 2.1.1). An increasing future

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produced in the reporting country during the reference period. This means that Prodcom statistics relate to products (not to activities) and are therefore not strictly comparable with activity-based statistics such as Structural Business Statistics".

trend may be expected as pressure from increased raw material, energy and wage costs impacts upon firms. Particularly, increased labour costs make the cost of capital equipment less daunting and encourages substitution of capital-intensive production at the expense of employment.

Outsourcing

Processors in the EU have attempted to exploit low labour costs in China. The procedure involved fish caught and landed in the EU by EU vessels being headed and gutted before being frozen in blocks and flown to China for filleting. After re-freezing it was returned to the EU for secondary processing into finished products, frozen and distributed to caterers and retailers. However, a number of problems developed. It proved difficult to ensure at such a distance that EU safety, hygiene and quality standards were being met, and it seems (according to experts' knowledge) that in the last years this practice has been progressively abandoned. Nevertheless, efforts to reduce costs by outsourcing have continued, but by using intra-EU trade. For example, factories in Denmark have been closed and their production moved to facilities in Poland to capture lower labour costs.

Costs

It is tempting to consider that the principal cost increases that the fish processing industry faces in the immediate future are in raw materials; fish, energy and labour costs, alone. However, labour and energy costs are so far-reaching among the production inputs, such as packaging, of suppliers to fish processing enterprises that they affect the cost of almost all the inputs to processing production itself. This has manifested itself in Italy, for example, where the rising cost of tin-plate cans has led to serious difficulties for the canning segment of the industry over the last year. The tinplate can, in fact, the main packaging material for fish preserves, accounts for about 30% of the production costs of fish preserves and in 2021 the prices of the raw materials that compose it grew consistently, in some cases up to 85%. An increase that has a significant impact on the sector, considering that the companies that produce fish preserves in Italy use about 650 million cans every year (efficiently recycled), for a total of about 16 thousand tons of tinplate. The inflationary spiral is very dangerous: prices are set month by month hence not allowing firms to make any planning on production[15]. Furthermore, the diffuse nature of the processing industry with few large enterprises means that the industry as a whole, rather than a small proportion, can be placed in difficulties as has been exemplified by the Italian canning segment.

Shipping transport costs

Among the impact of costs' increase, the shipping transport costs deserve special attention because of the generalised impact on the whole supply chain. As the COVID-19 pandemic disrupted international logistics and supply chains after March 2020 there were several barriers that hit the seafood trade. Multiple events caused a strongly increased container shipping market price. The market prices for the rent of shipping containers increased by a factor of more than nine[16]. In 2019 the average container freight rate index was between $US 1,200 and $US 1,300. In September and October 2021 this index was more than $US 10,100 (figure 2.1.8). Causative events include Chinese harbour closures due to coronavirus outbreaks, harbour congestion, shortages of labour,as well as a lack of new shipping containers. Imports from Asia to the United States increased by about 40 percent in 2021 compared to 2019 adding pressure on the availability of containers, while the volume of exports remains stable, also affecting the rent prices for container shipping.

By all these events, carriers have not been able to fully utilize their capacity and meet the demand for container shipping, which has driven freight rates to record levels. Seafood importers

[15] https://www.pesceinrete.com/caro-prezzi-gli-aumenti-invisibili-nel-settore-delle-conserve-ittiche/
[16]Statistica (2022). Container freight rate index worldwide 2019-2022https://www.statista.com/statistics/1250636/global-container-freight-index/

compete with many other industries for the transport services of shipping goods by containers. For traders of expensive goods (e.g. the automobile industry) these increased shipping costs are just a small percentage of the economic value of their goods. They can outbid EU seafood traders for scarce containers since these strongly increased container shipping costs are becoming a large share of EU seafood traders' operational costs.

It is expected that many new containers will be built in the coming year. Moreover, if there are no COVID-19 outbreaks or lockdowns in ports and among shipping crew, market prices for container freight can be expected to decrease. While EU seafood traders and processors are hoping for an improvement in performance as a result of decreasing container shipping prices, they are also exploring opportunities for expansion of storage capacity within the EU. By using more intra-EU stored raw materials, EU processors are less vulnerable for international disruption of supply chains and logistics.

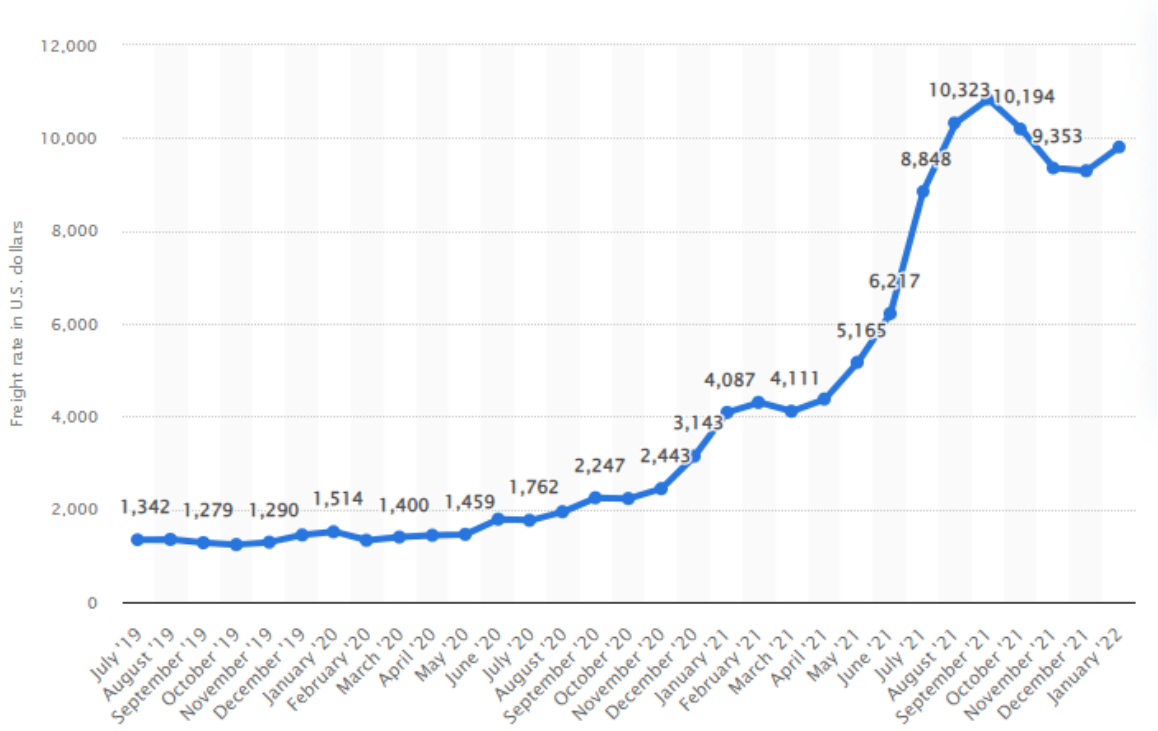

Figure 2.4.8: Container freight rate index worldwide 2019-2022 (in U.S. dollars).

Sustainability certification and geographical indication

The use of certifications and motivations in the fish processing industry was already discussed in the previous processing report (STECF 19-15), covering the period from 2008 to 2017. No significant changes have taken place since then but there is a growing focus on environmental sustainability especially with the development of the European Green Deal. Climate change and environmental degradation are a threat to Europe. To overcome these challenges, the European Green Deal aims to transform the EU into a modern, resource-efficient and competitive economy, ensuring no nett emissions of greenhouse gases by 2050 with economic growth decoupled from resource use.

Additionally, the EU Code of Conduct on Responsible Food Business and Marketing Practices entered into force in 2021, is one of the first deliverables of the Farm to Fork Strategy and an integral part of the EU action plan. It sets out the actions that the actors 'between the farm and the fork', such as food processors, food service operators and retailers, can voluntarily commit to undertake to tangibly improve and communicate their sustainability performance. These actions can be directly relevant and implementable within their own operations or may encourage collaboration with industry peers and other food system stakeholders (such as farmers and

consumers) to make similar changes. The EU Code of Conduct sets out 7 aspirational objectives as voluntary commitments for action together with a monitoring and evaluation framework to measure progress. The Commission has said it will consider legislative measures if progress is insufficient.

Processing companies are well adapted to the certifications of industrial processes, whether internal or external aspects. However, certification of raw materials cannot be influenced directly by processors and the decision of sourcing certified products will depend on the economic incentives of using the certified raw materials. Fish processors will source certified products if and only if they are able to transfer any potential increase in their costs to the actors downstream in the value chain by means of price premiums. In this respect, customers, particularly wholesale and retail actors, have the final influence on making certified raw materials profitable or not for processors.

At this point, not all the different certifications have the same value for traders. Certifications based on quality attributes are more in demand than other more specific types such as environmental or ethical. This means that they find it harder to transfer the increases in their costs to the prices paid by the final consumers. Processors will source certified raw materials at their customer's request. Beyond potential premium prices, if any, there are several other incentives for retailers in sourcing certified products. Sustainability certifications, for instance, assure continuity in supply, prevent criticism from environmental groups and improve company's public perceptions. However, despite the benefits for processors and traders, the decision of certifying raw materials in the fishing industry remains in the hands of fishers and fish farmers.

Along with the sustainability certifications, the geographical indication labels of fish processed products deserves a mention in this section. As highlighted by the EUMOFA reports[17], the number of PDO (Protected Designations of Origin) and the Protected Geographical Indication (PGI) has increased over time for processed fish products (from 18 in 2018 to 22 in 2020). These types of label are crucial for the economy of local communities as they promote, in most cases, traditional or niche fish products. Furthermore, as highlighted by the joint FAO Eurofish seminar, geographic indications can play a role in promoting the sustainability of FAPs (Fisheries and Aquaculture Products), by maintaining "traditional production methods and other aspects of cultural identity" [18].

Brexit and consequences for trade

Special attention should be paid to the consequences of Brexit on trade. The last report tried to highlight the potential impact while the present one is based on the first recorded impact since its entering into force. In December 2020, an agreement was reached on the future trade and cooperation relationship between the EU and the United Kingdom (UK) (Trade and Cooperation Agreement). The UK became an independent third country on 1st January 2021 (Official Journal of the European Union 31 December 2020, L 444).

The agreement implies that goods can be traded freely between the UK and the EU if they originate from these two areas. Goods originating from third countries are normally subject to customs duties. This also applies to goods processed using raw materials from third countries when the degree of processing is not sufficient to amount to a change of origin.

A general impact of Brexit has been an increase in paperwork for both exporters to the UK and for imports from it. In addition, there are complexities related to the Northern Ireland Protocol in the Brexit Agreement, which has placed border checks between Great Britain and Northern Ireland rather than along the border partitioning Ireland. The future of these checks and their location is subject to the re-negotiation and clarification of the Protocol underway at the time of writing.

Below a focus on the impact on the market and industry of two EU countries (Denmark and Ireland) is reported.

[17] https://www.eumofa.eu/market-analysis

[18] Eurofish Magazine Issue 1 2022 (January / February), http://www.eurofishmagazine.com/magazine-issues/current-issue

The case of Denmark[19]*:* The Danish fishing industry and wholesale trade are based on Danish raw materials, those from other EU countries and imports from a large number of third countries mainly, by value, Norway, Greenland, the Faroe Islands, the USA and Canada. The proportion of fish raw materials, which origin from third countries, is difficult to determine, however previous studies indicate that 60-70% of the fishing industry and the wholesale raw material base originate from third countries (Nielsen 2005). A part of the exports of fish and fishery products destined for the UK originate from third countries, which have been subject to a duty from 2021; this includes production based on raw materials from Norway, Greenland and the Faroe Islands.

The most valuable Danish exports to the UK are shrimp, fishmeal and oil, haddock and mackerel. In that context, shrimps will be exported directly from Greenland to the UK to avoid custom duties. However, this requires a bilateral trade agreement between Greenland and UK.

The commodities in question also include fish oil, fresh haddock, fresh salmon, fresh halibut and frozen cod fillets. These are primarily from third countries, although there is some production in Denmark and EU. Although these goods may be subject to duties, this will only be the case if they originate from third countries or if the degree of processing in the EU is not sufficient to change the origin.

Customs duties on Danish imports from the UK for products originating from third countries will also have economic consequences for the Danish processing industry and wholesale trade. However, these are assessed to be modest, partly because the volume of these imports is small, and partly because the EU uses tariff suspensions and quotas for all countries for a variety of fish and fish products to reduce tariffs.

The case of Ireland[20]*:* The whitefish processing sector has been primarily impacted by Brexit from a raw material access perspective, processing capacity and to a lesser degree from a logistics perspective. There is a distinct subset of companies who are more exposed due to their business model such as first point of sale entities (e.g., Co-ops) and other producers who export into and operate logistics via the UK. Conducting this type of business model has become much more demanding and costly because of Brexit. The remaining whitefish processing (value-adding) subsector does not export significant volumes of added value whitefish into UK and therefore has been less impacted.

The pelagic processors are the most heavily impacted part of the processing sector. Sourcing of raw material, particularly mackerel has become more challenging. This has meant the Irish pelagic sector has opted to concentrate effort on catching the mackerel quota early in the year. Consequently, this has resulted in increased processing activity during the first three months of 2021, which in turn has created several issues.

The salmon and shellfish sectors are also under significant risk from Brexit and given the preponderance of small companies, this sector is particularly vulnerable to the extra costs being incurred due to Brexit and TCA. The primary concern for both the salmon and shellfish sector is around logistics. This has impacted in two ways, extra costs associated with reaching export markets and delays in transit time.

Final remarks on outlook for the (uncertain) next future

Neither general inflation in MS economies nor wage inflation have been problematic for the processing industry over the period to 2019. The average rate of general inflation across the EU MS in 2021 was 2.6% (Eurostat, HICP, All items, 27 Countries). However, at the time of writing the sharp rise in energy costs as the MS economies recover from the effects of Covid-19 and the

[19] Nielsen, M. (2005). Kortlægning af den globale handel med fisk og fiskeprodukter: Handel, produktion, råvarer og told. IFRO Rapport nr. 173, Institut for Fødevare- og Ressourceøkonomi, Københavns Universitet, https://staticcuris.ku.dk/portal/files/128109091/FOI_Rapport_173.pdf, viewed 23/02/2022.

[20] Report of the Seafood Taskforce (2021). Navigating Change The way forward for our Seafood Sector and Coastal Communities in the wake of the EU/UK Trade & Cooperation Agreement, October 2021. BIM https://bim.ie/wp-content/uploads/2022/01/Report-of-the-Seafood-Taskforce.pdf

expected rise as a consequence of the Russian invasion of the Ukraine will have an unpredictable impact on the fish processing industry across the EU. The only saving grace is that major competitor nations, China, Norway and the UK face a similar position, but the disruption to the markets and trading conditions, in the broadest sense, can be of little benefit to anyone.

The reader should note that the ability of the processing industry to pass on cost increases, whether for raw materials, labour, energy or other costs, depends on the relative price elasticities of demand and supply faced by the individual enterprises concerned. In the unconcentrated industry identified in this report (although some small evidence of progressive concentration emerges from data) a greater part of the incidence (burden) of cost increases could normally be expected to fall on fish processors, meaning that they are not simply able to pass the whole of cost increases on to purchasers. This is exacerbated by the purchasing strength of the large chains of multiple stores.

The shock of the Russian invasion of the Ukraine has also caused widespread reconsideration of the wisdom of becoming dependent on sources of supply external to the EU for vital supplies. This goes far beyond the question of supplies of fish and fish products, but includes, among a wide range of products, the availability of gas and petroleum products for energy, and wheat.

The next two years, therefore, can expect to see little development of trade within the EU, and certainly hardly any development of new trade routes and commerce along them. Instead, new or rekindled sources of supply will emerge. These will be more expensive and possibly less secure than the trade relationships being replaced otherwise they would already have been exploited.

The inflation that can be anticipated from the effects of the Russian invasion of the Ukraine will compound inflationary contagion already in the world's economic system. Before this event, the EU fish processing industry was already expecting to have to face higher costs across the board for its fish and non-fish raw materials, for energy and for labour.

Little can be done to avoid cost increases for fish and non-fish products. Some increased purchasing of farmed product, especially from the Far East is possible but requires changes in consumer behaviour and tastes to be worthwhile. Otherwise, sources of wild species are under pressure all around the world.

Energy costs can be erratic. The market price of petroleum products is highly dependent on production levels agreed and observed by OPEC members. They may if they wish fill the gap created by losses of Russian sales of gas and oil. Non-OPEC suppliers will find that their marginal production becomes viable. In the longer term, security of supply considerations, relative production costs of renewable, supposedly environmentally friendly energy sources will be developed. These will mean that the fish production sector will face an uncertain future lasting a few years before the new sources become established and reliable.

A general conclusion, therefore, is that the EU fish processing sector faces a difficult immediate future but one which will gradually improve in the time as the imbalances in energy supplies, raw material availability, labour markets, and the political background are gradually ironed out.

3 SOCIO-DEMOGRAPHICS OF THE EU FISH PROCESSING SECTOR

The social variables that should be collected for the processing industry are listed in table 10 in the COMMISSION DELEGATED DECISION (EU) 2019/910, establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors.

As this is the first year of reporting on social data collection this report only presents a snapshot in time and cannot examine trends that will be possible in future reports.

The social variables that should be collected are: Employment by gender, Employment by age, Employment by education level, Employment by nationality, together with the other employment variables listed in table 10 in the regulation: Number of persons employed, FTE National, Unpaid labour and Number of hours worked by employees and unpaid workers.

Although the regulation gives no guidance on how the data should be collected the PGECON workshop report from Vilnius in 2017 and Athens, 2018 provides recommendations on the data collection. While the Commission Decision does not require stratified data or combined variables PGECON recognised that reporting social variables at more disaggregated levels rather than at national totals and reporting combined variables would add value to the social analysis.

The following categories for social variables were recommended:

- Age categories: <=14, 15-24, 25-39, 40-64, >=65, unknown.
- Education categories: High, Low, Medium, unknown.
- Gender categories: Female, Male, unknown.
- Nationality categories: EEA, EU, national, non-EU/EEA, unknown.

PGECON recommended that social data should be reported (raised) for the total population and that the sampling strategy and size should be reported.

The following analysis of social variables include 2019 data provided by 14 countries under the 2021 DCF data call – Belgium, Bulgaria, Germany[2], Greece, Hungary[1], United Kingdom[1], Denmark, Finland, Italy, Lithuania[2], Latvia[2], Poland, Romania and Sweden. Due to the relative stability of the social data, the EWG 21-14 agreed to impute the social data provided by the United Kingdom and Hungary for 2018, Germany, Latvia and Lithuania for 2020 regardless of the reference year.

Member states collected social data at different levels. Some member states collected data at enterprise level, others at employee level. Similarly, to the economic data collection under DCF member states used different sampling strategies (e.g. census, probability sample survey, or non-probability sample survey).

3.1 Gender

In 2019, there were 110 898 people employed in the EU processing sector, equivalent to 99 838 FTEs.

The proportion of females and males in the enterprises was quite equivalent, respectively 50% were female, 48% were male and 2% were unknown.

Fourteen countries provided data for the gender of the employees in the processing sector. While in some countries the percentage of female employees varied between 28% (Latvia) and 68% (Lithuania), in other like Romania the proportion of male and female was almost equal. Only three countries submitted part of the data as unknown.

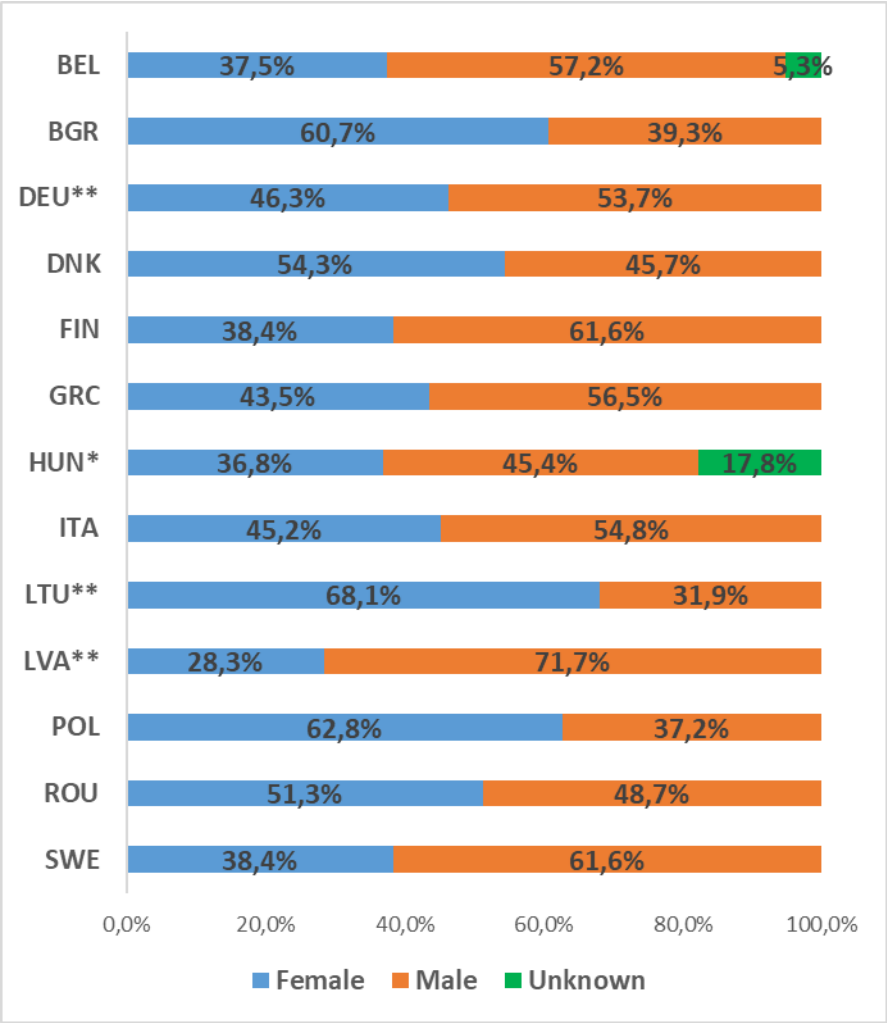

Figure 3.1.1: Gender distribution by MS, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

*Data refers to 2018, **Data refers to 2020.

3.2 Age

While some member states collected age-data based on the proposed age categories, others collected information in disaggregated age categories, which are comparable to the ones recommended by PGECON or even the actual ages of individuals and assigned employees to one of the age groups. There were also member states that used their own categories.

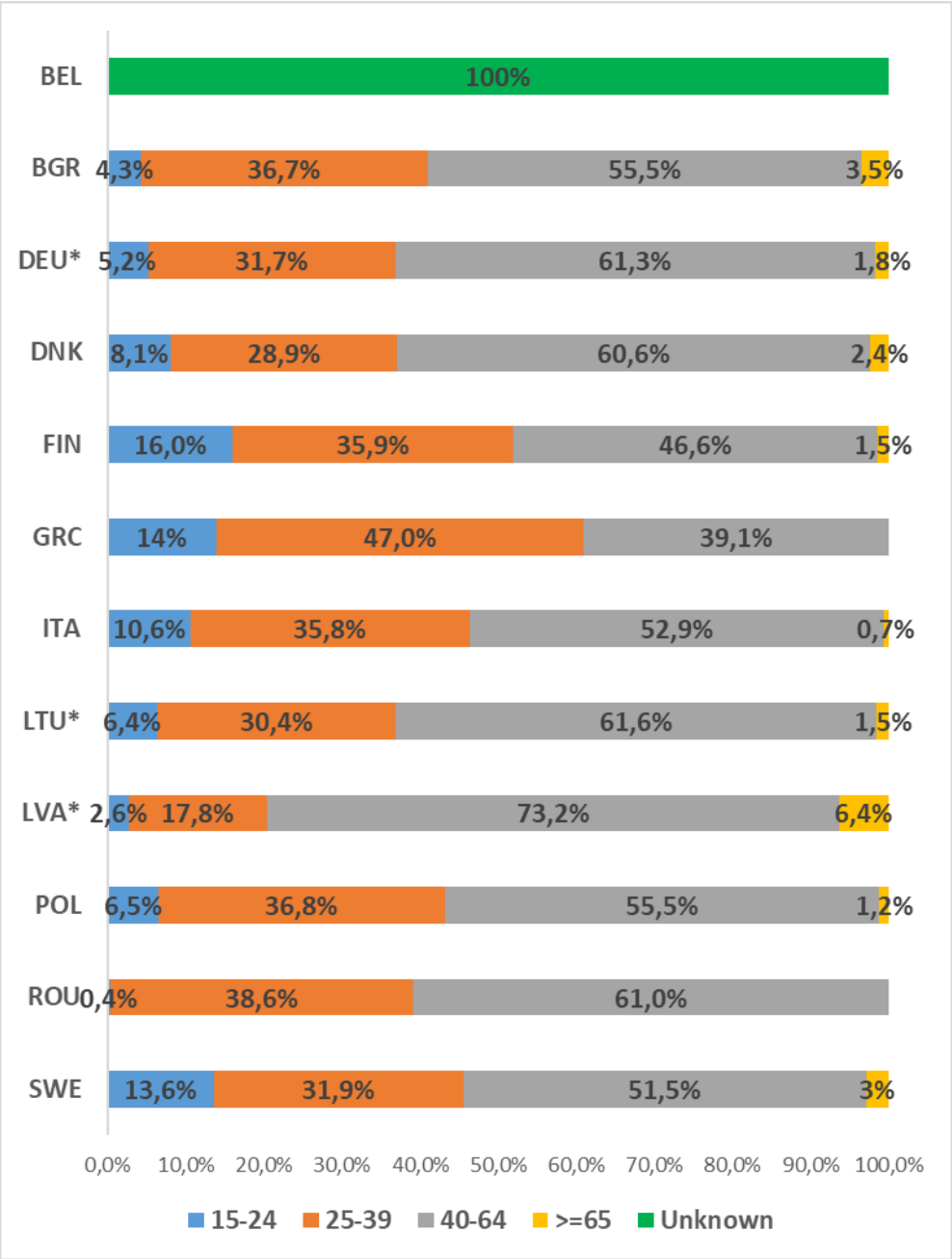

Figure 3.2.1: Age distribution by MS, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

*Data refers to 2020.

Overall, the 40-64 age class made up the largest proportion (50.5%) of people employed in the processing industry, followed by the 25-39 age class (32.7%). A further 8.6% were apportioned to the 15-24 age class, 1.6% to the over 65 years category and 6.6% were unknown.

The percentage of the age group 40-64 is highest in Latvia (73%), followed by Lithuania (62%), Germany and Romania with 61%. Over 47% of the employees in Greece, 39% of the Romanian employees, and 37% of Polish and Bulgarian employees were between 25 and 39 years old. Finland and Greece reported highest percentage of workers between 15 and 24 years, 16% and 14% respectively. Hungary also provided the distribution by age, the age classes reported do not correspond to the age classes reported by the rest of the countries and, because of this, their data were not included in the EU analysis and comparison with other MSs. Five countries reported unknown, one of them reported 100% unknown.

3.3 Education

Member states were required to report education aggregated by low, medium and high levels.

The education level categories required were based on the International Standard Classification of Education (ISCED) academic qualification classifications. For more information on the ISCED levels included in the age, categories see Table 3.3.1.

Table 3.3.1: ISCED Academic qualification categories

ACADEMIC QUALIFICATIONS		
ISCED code	**ISCED Educational attainment levels**	**Education Level**
1 2	Primary Lower Secondary School	Low
3 4	Upper Secondary School Post-secondary non-tertiary education	Medium
5 6 7 8	Short-cycle tertiary education Bachelor's or equivalent level Master's or equivalent level Doctoral or equivalent level	High

Overall, the EU data demonstrates that 25% of people employed in the EU processing sector were educated up to a low level, followed by 57% with a medium level, 15% with higher education and 3% unknown.

The percentage of the higher education group is highest in Greece (35%), followed by Denmark and Lithuania (20%). Over 40% of the employees in Bulgaria, 33% of Romanian and German employees had a low education level. The percentage of the people employed in the processing sector with a medium level of education is fluctuating between 43% and 81% in the different countries. The United Kingdom also provided the distribution by education level; however, the classes do not correspond to data submitted by others. Five countries reported unknown level of education, Belgium reported 100%.

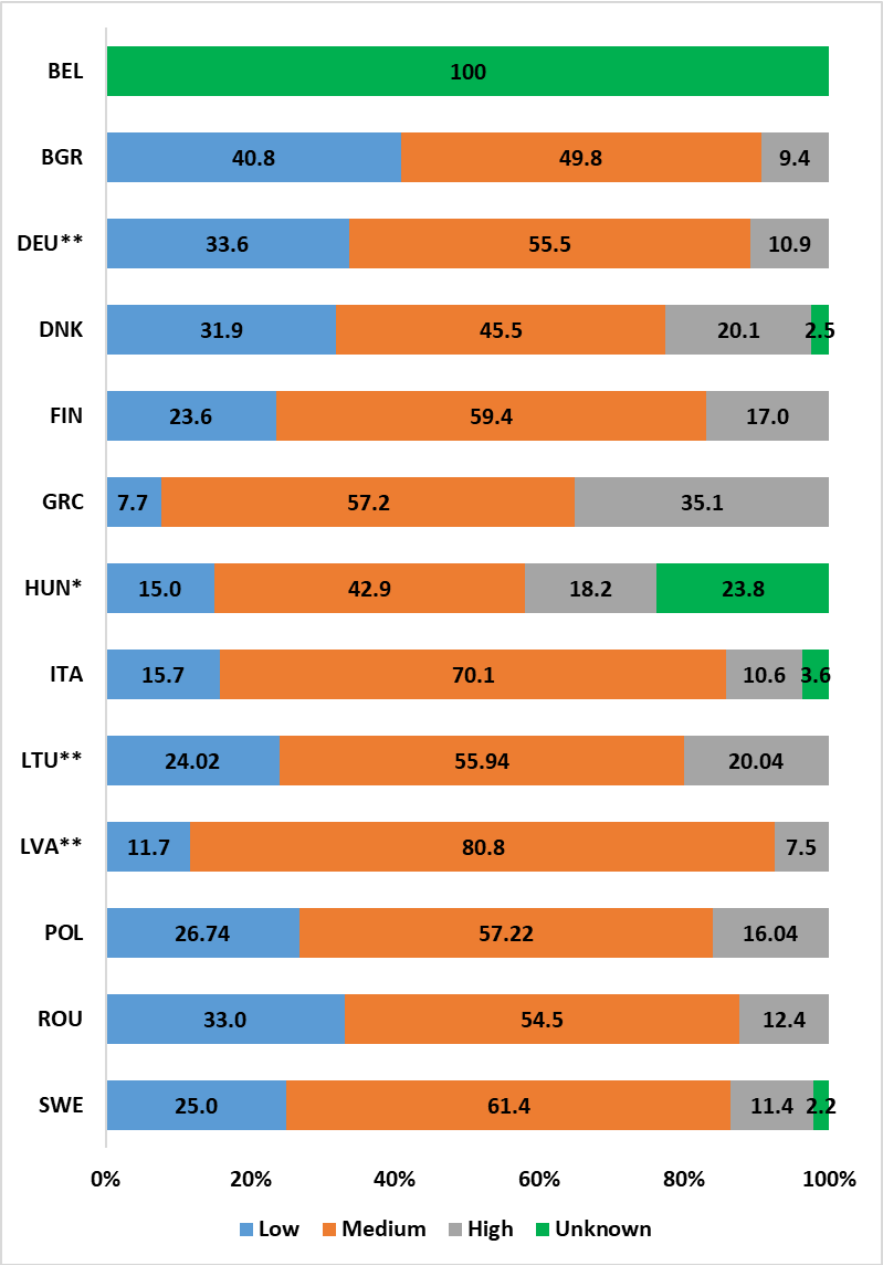

Figure 3.3.1: Education distribution by MS, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG

*Data refers to 2018, **Data refers to 2020.

3.4 Nationalities

For all member states, it was recommended to report social data by nationality group. The nationality groups used were nationals, EU, EEA, non-EU/EEA and unknown.

The majority (73%) of people employed in the EU fishing processing sector were nationals of their own country, followed by 18% from EU, 5% from non-EU/EEA nations, 1% from EEA and 3% were unknown.

In most of the MS the national employees are the main employees. The proportion of nationals varied from 99.8% in Bulgaria to 72.4% in Germany. The other workers are mainly from EU MS. Only Greece provided more than 32% of unknown nationality. The values provided by Romania as EU includes nationals and EU citizens. Five countries reported unknown level of education, the highest percentage of the unknown was reported by Belgium (100%), followed by Greece (32%).

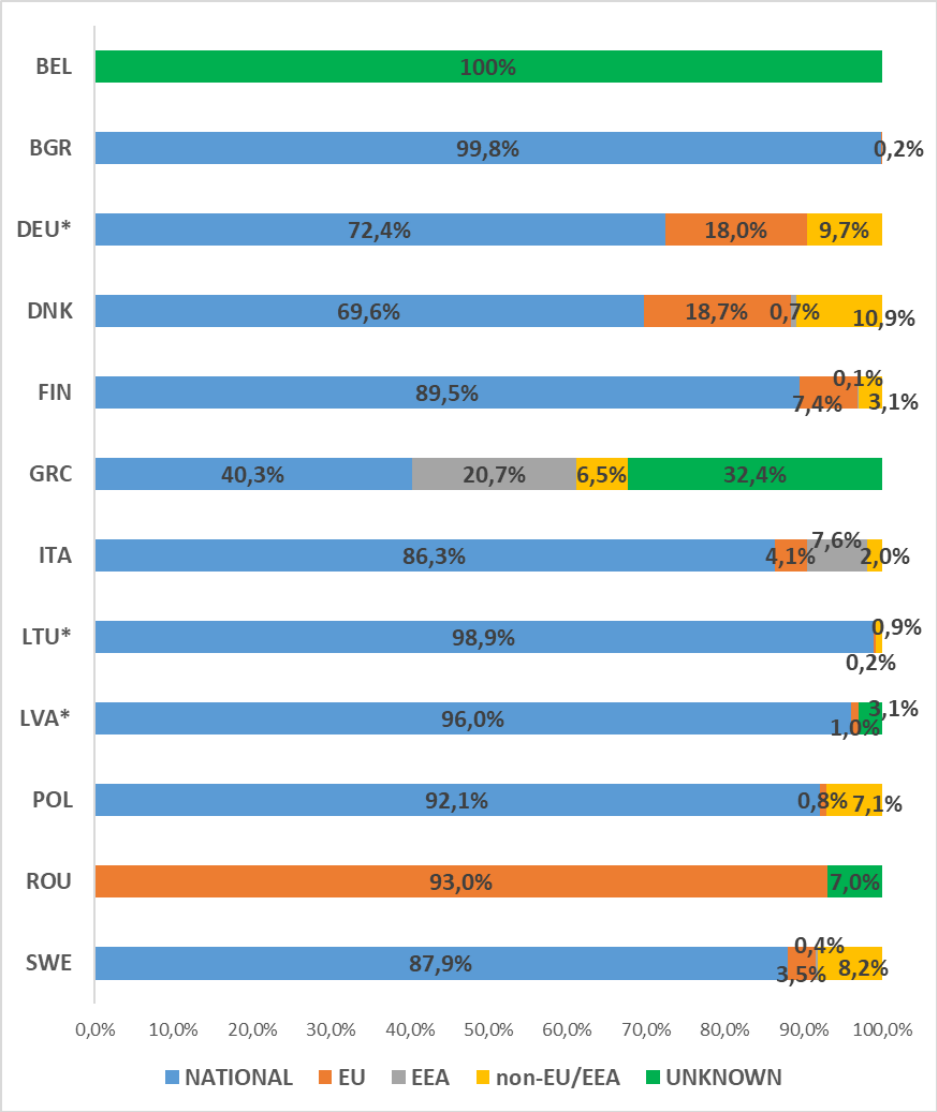

Figure 3.4.1: Nationality distribution by MS, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG

*Data refers to 2020.

3.5 Socio-demographics by size classes

Only 8 Member States (Table 3.5.1) provided the socio-demographic data broken down by company size: Belgium, Bulgaria, Denmark, Greece, Hungary[1], Italy, Lithuania[2] and Romania.

Table 3.5.1: MS that provided the social data by size categories of the processing enterprises, 2017

Country	Gender by size	Age by size	Education by size	Nationality by size
BEL	Y			
BGR	Y	Y	Y	Y
DEU**				
DNK	Y	Y	Y	Y
GRC	Y	Y	Y	Y
HUN*	Y		Y	
FIN				
ITA	Y	Y	Y	Y
LVA**				
LTU**	Y	Y	Y	Y
POL				
ROU	Y	Y	Y	
SWE				

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

*Data refers to 2018, **Data refers to 2020.

Gender by enterprise size

These 8 MS mentioned below provided gender distribution by size categories of the enterprises.

The biggest proportion of female employees was in the largest processing enterprises. Females made up 46% of the total people employed in the smallest enterprises while reaching 63% in the biggest enterprises. Half of the employees for the smallest enterprises (less than 10 and 11-49) are male.

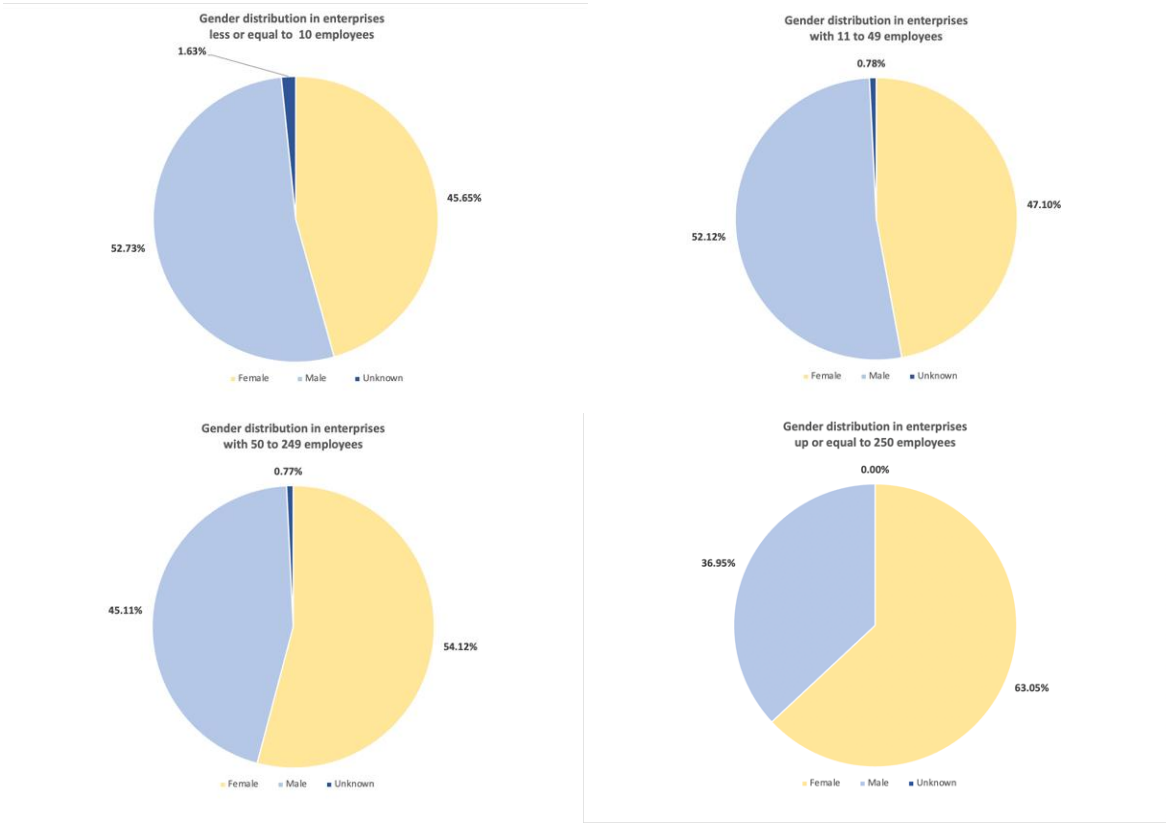

Figure 3.5.1: Gender distribution by enterprise size, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Age by enterprise size

6 MS provided size categories of enterprises by age- Bulgaria, Denmark, Greece, Italy, Lithuania[2] and Romania.

The age classes reported in the social table for Hungary do not correspond to PGECON recommendations, therefore, had not been included in the graphs.

Belgium reported data for age classes as "Unknown".

The structure of the age did not appear to be dependent on the size of the enterprise: the percentage of people between 40 and 64 years was very similar for all enterprises – between 54 and 62%. The youngest age categories do not represent more than 10% in any of the size categories (5.8% to 10%). A third part of the employees of each size category was in the age group 25-39.

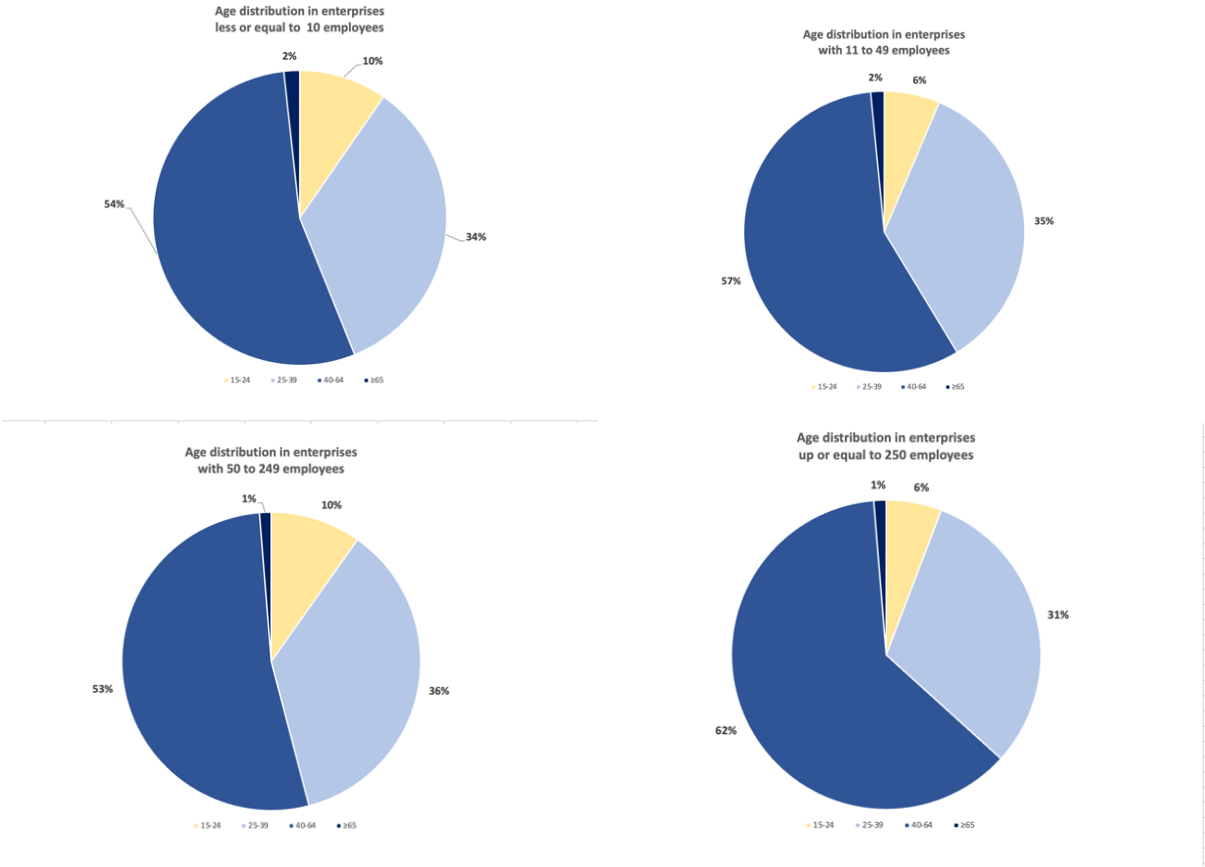

Figure 3.5.2: Age distribution by enterprise size, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Education by enterprise size

7 MS provided education distribution by size categories of the enterprises - Bulgaria, Denmark, Greece, Hungary, Italy, Lithuania and Romania.

Great Britain had reported education level in different categories, which were not comparable with the other member states.

Belgium reported data for education as "Unknown".

In the processing enterprises, high educated employees were less than 18%. The distribution of employees in regard to their education level was not dependent on the size of the enterprises with more than 11 employees. The repartition is very similar upon age classes: 13% to 25% for low education, 53% to 62% for medium education, 16% to 18% for high education. The smallest

enterprises (under 11 employees) had a majority of employees with medium education (62%) and 13% of low education employees. The proportion of people whose education level was unknown was fluctuating between 6 and 12% in the different processing categories.

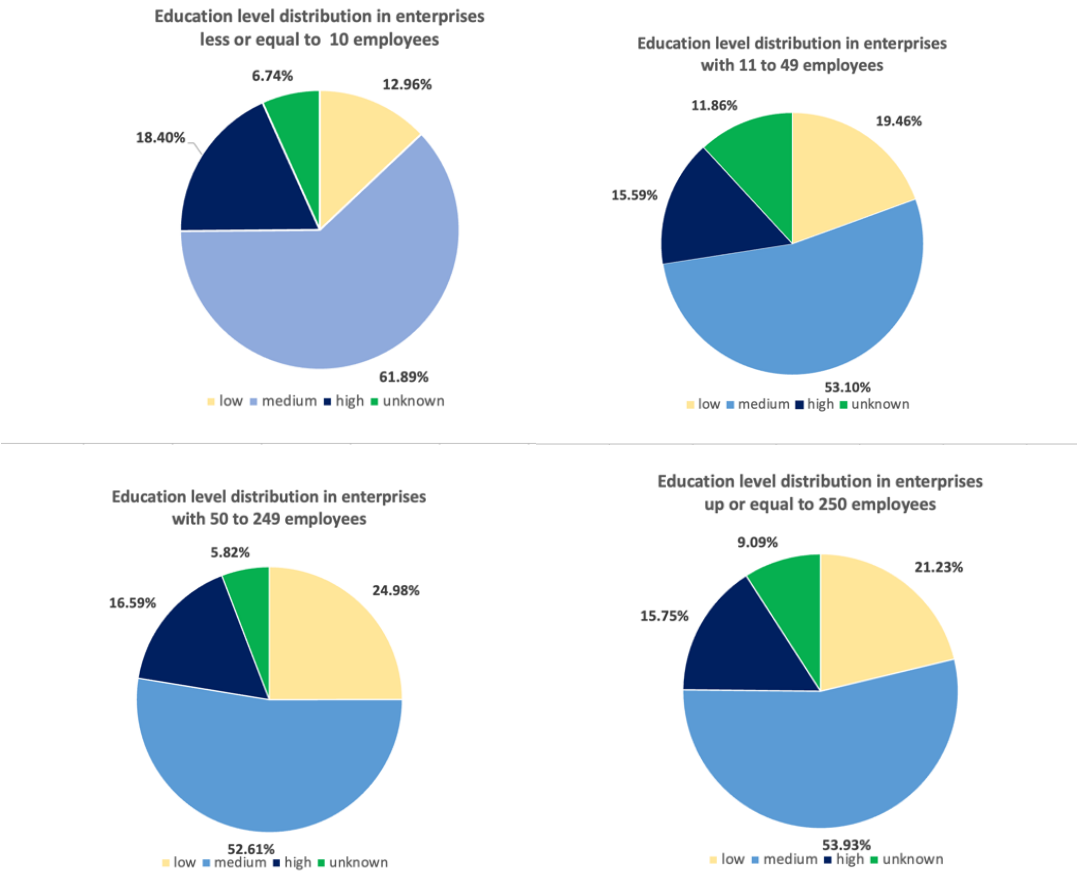

Figure 3.5.3: Education distribution by enterprise size, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Nationality by enterprise size

5 MS provided education distribution by size categories of the enterprises –Bulgaria, Denmark, Greece, Italy, Lithuania[5]. Romania reported nationals and EU citizens as "EU".

The large majority of employees were nationals for all sizes of the enterprises (74% to 99%). The largest proportion of non-nationals was in the smallest enterprises – 13.01% EEA, 3.18% EU and 2.84% non-EU/EEA. The largest enterprises had less diversified employees origins.

Figure 3.5.4: Nationality distribution by enterprise size, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Comparison between the data collected under the 2019 Fish processing (STECF-19-15) and the 2021 Fish processing data call.

Although 2 data calls are not enough to draw conclusions about trends in the social characteristics of the employees in the sector, there are a few similarities that have been noticed:

In most countries, which have provided data for both data calls, the difference in the percentage distribution of females and males is less than 2%. The two countries which used the opportunity to report the percentage of "Unknown" gender in the 2019 data call, did it also in the 2021 data call, but for both the % decreased, which could be assumed as an improvement.

The changes regarding the distribution of age classes in the MS are also not significant, they vary between 0.5% and 5% and the most negligible changes are in the age class 40-64 which is with the largest number of employees. Similar is the situation with the nationality in which there are changes in some member states.

The reported distribution of education is the only variable that shows significant changes in some member states.

In 2019, 17 countries collected social data and only 14 in 2021. This number decreased with data by size enterprises: 8 MSs uploaded this information. This low number had an impact on the results and the trend between these first (2019) and second (2021) data calls. The distribution by size and gender is similar. The population is aging with a higher proportion of the 40-54 class in each size of enterprises category. EWG 21-14 noticed an evolution in the level of education for the enterprises under 50 employees with a decrease of the proportion of low educated employees (21% to 13% for enterprises with less than 11 employees, 32% to 19% for enterprises 11-49)

while this proportion increased for the largest enterprises. A similar distribution between both calls 2019 and 2021 was noticed for the nationality by size enterprises.

3.6 Main conclusions and data issues

The sector can be considered a gender-equal sector as the proportion of female and male is quite equivalent. The 40-64 age class made up the largest proportion (51%) of people employed in the processing industry and most employees hold a medium education level, followed by 25% of low educated employees. As far as nationality, the vast majority (73%) of people employed in the sector are EU nationals of their own country, being the rest mainly workers from other EU MSs.

Furthermore, the data aggregated at EU level demonstrates that 25% of people employed in the EU processing sector were educated up to a low level, followed by 57% with a medium level, 15% with higher education and 3% unknown.

As far as technical issues, by analysing the social data for the fish processing sector submitted for the second time under EUMAP, the EWG 21-14 has identified the following main issues that have impact, to different extent, the level and quality of the analysis:

- Germany, Finland, United Kingdom, Latvia, Poland and Sweden did not provide data by size category. EWG 21-14 suggests MSs, wherever possible, to collect the social data by size classes as this would increase the accuracy of the analysis at the EU level.
- Belgium provided 100% unknown for the age, education and nationality.
- Hungary provided the age classes in different segmentation than the one recommended by PGECON and no values were provided for nationality, for this, their data were not included in the EU overview. In order to provide an accurate EU analysis and comparison among MSs, EWG 21-14 concludes that it would be advisable that all MSs will submit data according to the age classes recommended by PGECON.
- According to the comparison between 2019 Fish processing (STECF-19-15) and the 2021 Fish processing data call in some MS were noticed significant changes in the distribution by education. MS should ensure the usage of homogeneous methodologies for the collection of social variables and in case of significant changes over the sampled years, an explanation should be provided in the national chapters.
- EWG 21-14 repeats the EWG 19-15 conclusion that to provide an accurate analysis of the trends in the age population it would be advisable, for the future, to split the age group 40-64 into smaller groups (indeed, this group is the one with the highest share of employment, for some MSs being higher than 73%).

4 THE IMPACT OF COVID-19 ON THE EU FISH PROCESSING SECTOR

The present section contains a first attempt to identify the first effect of the Covid-19 pandemic over the EU fish processing sector. The section is not based on submitted data, as the last year of the data call is 2019 (2020 only voluntarily submitted by very few MSs). It has, indeed, been drafted on the qualitative and quantitative information available from different sources as well as on the knowledge of experts attending the EWG.

The impacts of the Covid-19 outbreaks on the EU fish processing industry have been changing as the pandemic waves evolved and the different countermeasures have been periodically put in play and released in the Member States and other countries relevant as suppliers or destination markets. Since the first European outbreak in March 2020, the processing industry moved from a boost in demand, caused by consumer's fear, to a less optimistic scenario of disrupted supply, increasing costs and contraction in demand. Below, an analysis of the main impacts is reported.

4.1 Consumption and retail

The closure of the HORECA channels caused a severe contraction in the demand for food products. Companies supplying the hospitality industry were forced to look for alternative supply chains for having access to the final consumers moving to online based shops and other systems for at home delivery. Web-based selling platforms increased substantially across processors and wholesalers in Slovenia, Spain, Ireland, Germany, and Belgium where the takeaway segment increased exponentially. Small size companies with strong dependency on the traditional channels suffered important difficulties and some were forced to the termination of the business as reported in Latvia.

Household expenditure in food products increased significantly during the first lockdown in April 2020. However, consumers moved from fresh and perishable foods to processed and preserved driven by uncertainty and panic (Nicola et al, 2020). Despite the decrease in supply from the locked fishing fleets, consumption of frozen and preserved fish increased significantly (Love et al, 2021). Canned tuna in Spain and Italy, and deep-frozen fish and shellfish in Belgium provide some examples of the most favored segments. Consumption of fresh fish increased instead in Germany and Finland, where the lockdown and disruptions in the international supply chains caused oversupply. After this first reaction overall expenditure returned to lower levels (Baker et al, 2020), and sales and prices of processed fish decreased. Market returns in many segments in the way for returning to the levels before the pandemic by the end of 2021.

4.2 Labour productivity

As an essential activity, fish processing was not subjected to lockdown, however, the industry faced the consequences of the outbreaks directly in the production processes. Infected or quarantined workers may not attend their duties for preventing further infections. The difficulties for putting in practice social distance in the workplace favored infections in the working crews, increasing absenteeism and the shutdown of many operations. Productivity has been seriously affected by the spread of infection in the processing plants (Pititto et al., 2021). Attempts to prevent infection of Covid-19, whether mandatory or voluntary, result in a decrease of the working hours and absenteeism. Countermeasures were implemented for reducing the incidence of these issues, increasing production costs. On the other hand, interruptions in the activity may have affected the incomes of temporary workers and self-employees in the small-scale processing industries (Love et al, 2021). Labor costs increased in Italy by 6% and 13% in Finland during 2020 because of infection and the implementation of protective measures at work. Increases in the labor costs and other impacts on productivity, due to the same issues, were reported also in Croatia, Slovenia, Greece and Spain affecting the volumes of production. The increase of labor costs and the consequences on labor productivity were more impacting in the small size companies.

4.3 Disruptions in the supply chain

The decrease in local landings due to fleets' lockdowns and the disruption in the international supply chains caused scarcity of raw materials in various countries and segments. Both raw materials and processed fish products faced delays in transports negatively affecting the timing of the production processes. (Love et al., 2021). Trade, both international and regional, has also been disrupted due to failures at different levels of the supply chains. Companies suffered a contraction in supply and failed in accomplishing contracts in time. Issues of this kind were reported in Spain, Italy, Croatia, and Slovenia. Beyond the decline in labor and capital productivity, disruptions in the supply chain also contribute to increased operational costs affecting the profitability of the business. Increases in the price of supplies are expected to rise in the mid-term (FAO, 2020).

The consequences of these disruptions vary across countries, segments, and commodities, depending on the spatial extension of the supply chains and the markets and customers targeted. The shocks in the supply of raw materials impacted more severely those industries depending on imports from non-EU countries, like the canning industries in Spain, Italy, and Greece, or brown shrimp and frozen fish in the Netherlands, affected by lockdowns and the incidence of the infection in the factories of Morocco and Nigeria. On the other hand, the processing companies supplying large platforms and retail chains with long-term contracts, and those specialized in their local markets, better adapted to the new situation. In France, for instance, the decrease of raw material provision resulting from a large proportion of French fishing boats being confined to harbors during the first lock down (the domestic production provides 60% of the overall processed volume) did not impact the turnover of the fish processing industry, and the outcome was positive. This can be explained by the increase in processor sale prices, as well as the compensative financial measures deployed by the government. In parallel, the sector noticed an increase in transformed and pre-packed fish products in self-service departments, which performed well during the covid-19 crisis, providing additional sales. However, the enterprises are currently using their facilities to process fresh product and this change in French consumers habits, if it were to endure, would need the sector to adapt its machinery in order to take advantage of this new development. On the other hand, several small enterprises focused on local markets, seriously constrained by lockdowns in the hospitality business, had been forced to close as in the case of Latvia.

In Spain, Imports of frozen yellowfin and skipjack used in the tuna processing factories decreased 41% and 33% respectively from 2019 to 2021, despite the recovery in volumes since the beginning of 2021. Import prices initially fall in both commodities with different rates (1.3% in yellowfin and 18.9% in skipjack). However, prices of imported frozen yellowfin kept decreasing in the following years loosing 4.3% in the full period, while skipjack prices recovered by the end of 2020 with a total increase of 10% since 2019.

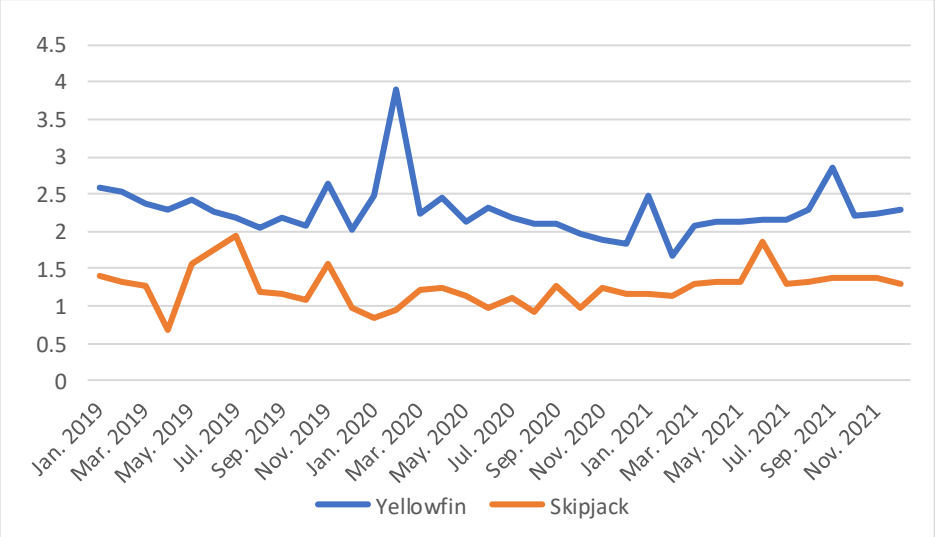

Figure 4.3.1: Imports of frozen tunas in Spain 2019 – 2021 (Quantities)

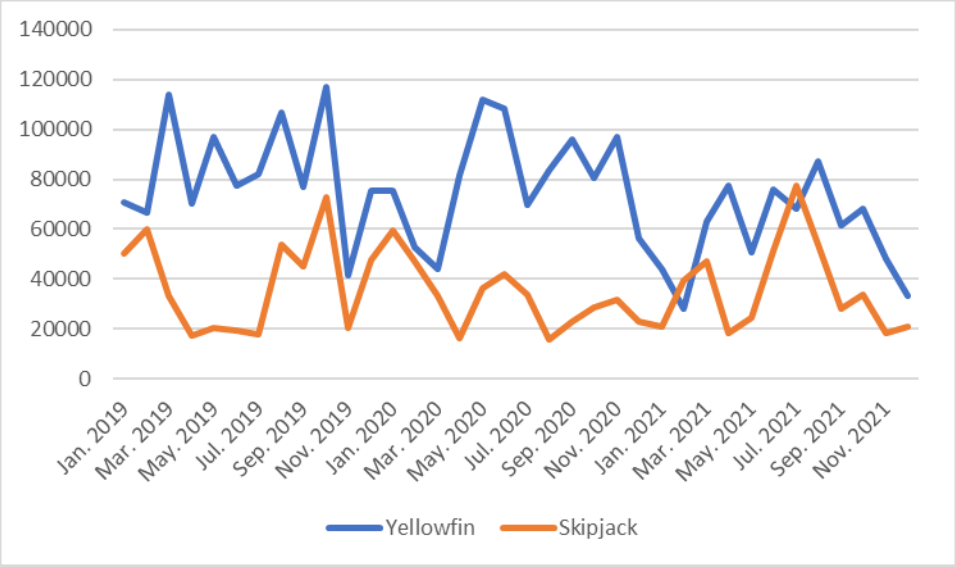

Figure 4.3.2: Imports of frozen tunas in Spain 2019 – 2021 (Prices)

Exports of final processed product in the form of preserved yellowfin and skipjack in vegetable oil also decreased as the scarcity of imported raw materials and other disruptions altered production. Exports of preserved tuna in vegetable oil dramatically decreased 60% in 2020. Although these volumes recovered in 2021, the difference in the export activity since 2019 is still decreased by 25%. Exports of preserved skipjack in vegetable oil kept falling since the first outbreak, decreasing 34% in the two years following beginning of the pandemic. Prices again behaved different with the two species. Prices of yellowfin in vegetable oil increased every year up to 25% between 2019 and 2021. On the other hand, the prices of preserved skipjack in vegetable oil remained stable at almost the same levels along the two years despite the contraction in volumes.

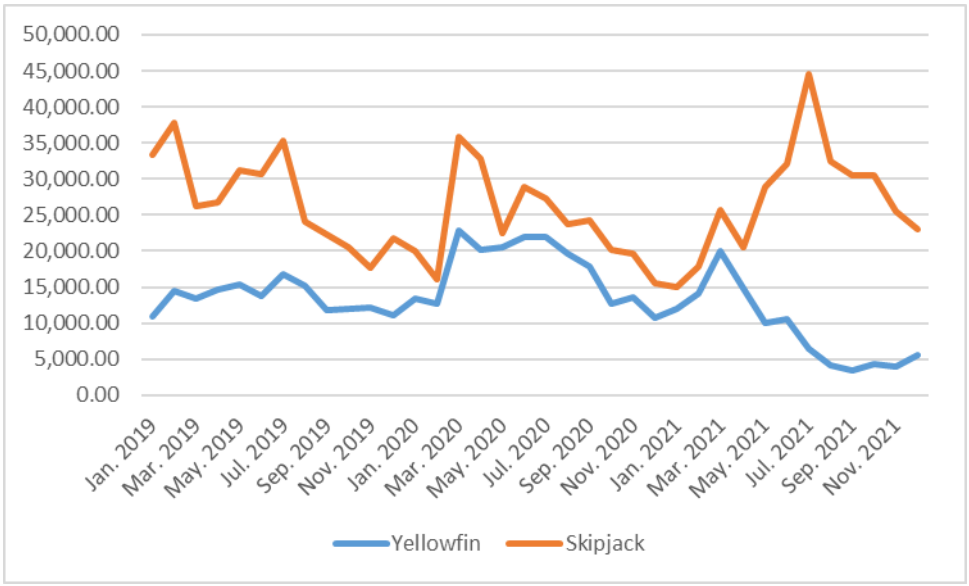

Figure 4.3.3: Exports of preserved tunas in vegetable oil in Spain 2019 – 2021 (Quantities).

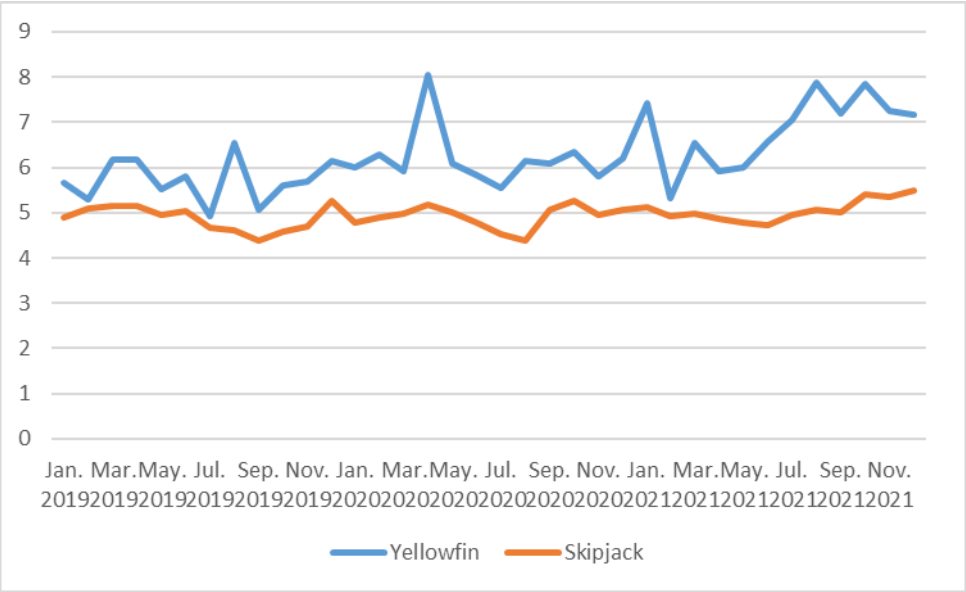

Figure 4.3.4: Exports of preserved tunas in vegetable oil in Spain 2019 – 2021 (Quantities).

On the contrary, the Danish processing industry, with shorter supply chains and supplying high demanded products like salmon and cod to the large retail chains, has not experienced significant shocks in the supply of raw materials. The volumes and prices of imports do not seem to have been much affected.

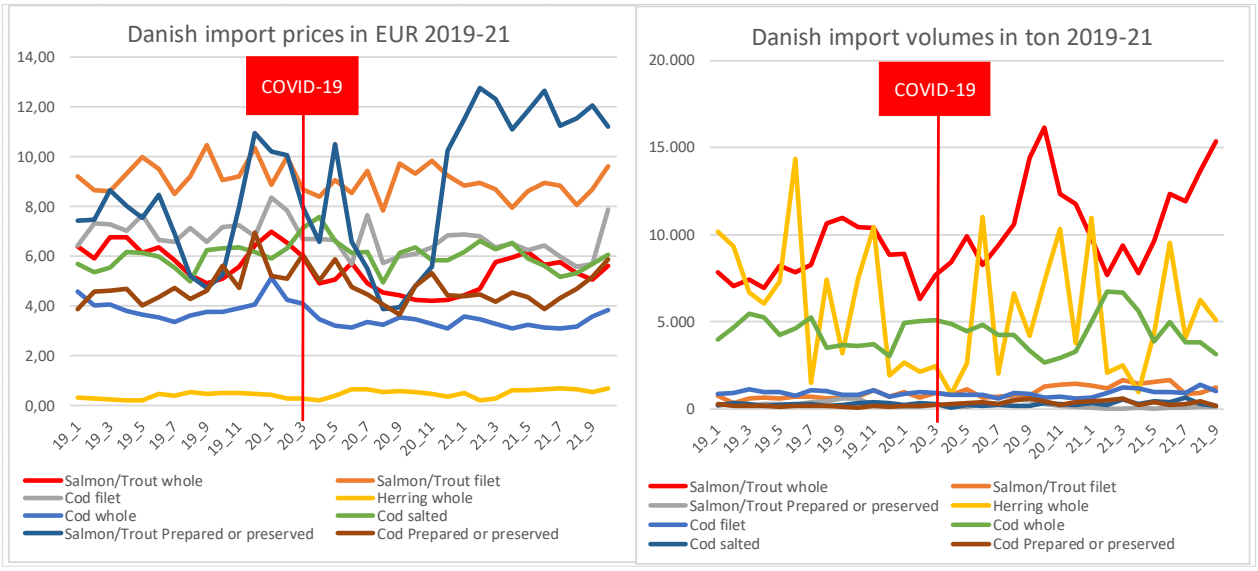

Figure 4.3.5: Danish import prices and volumes for key seafood products, monthly trend, 2019-21

The same can be observed in the volumes and prices of the main fish processed products exported by Denmark.

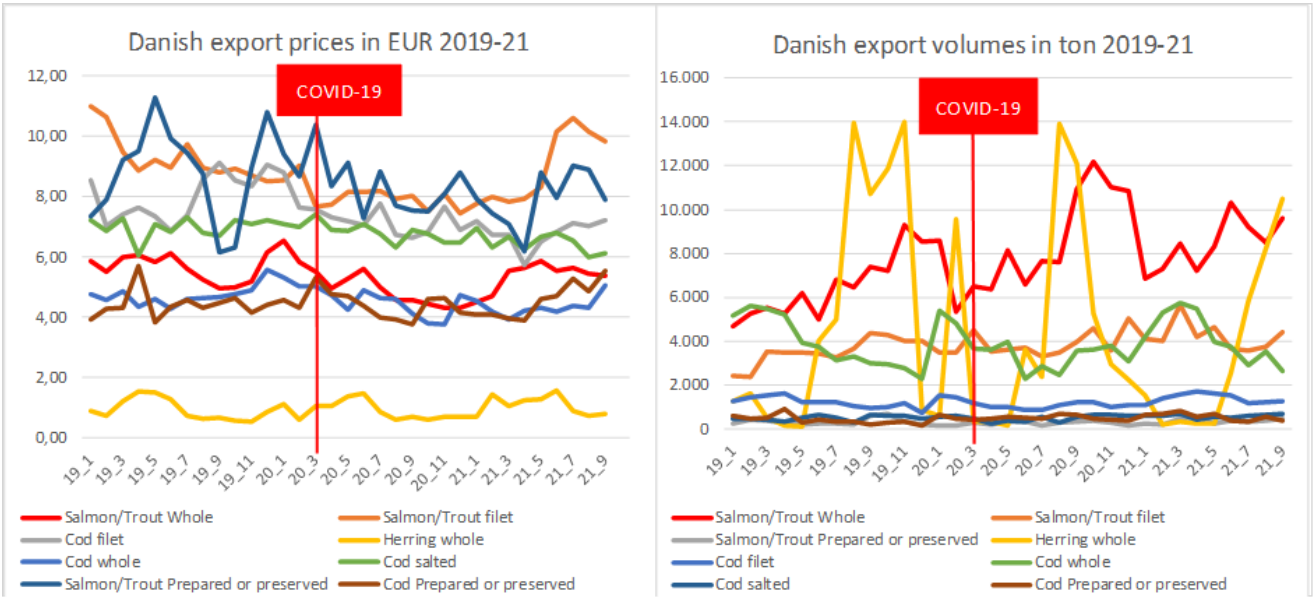

Figure 4.3.6: Danish export prices and volumes for key seafood products, monthly trend, 2019-21

Supply of raw material was also impacted in Croatia, both by decreases in local landings and imports. But it seems not having affected exports of processed fish products as the volumes remained stable or even increased.

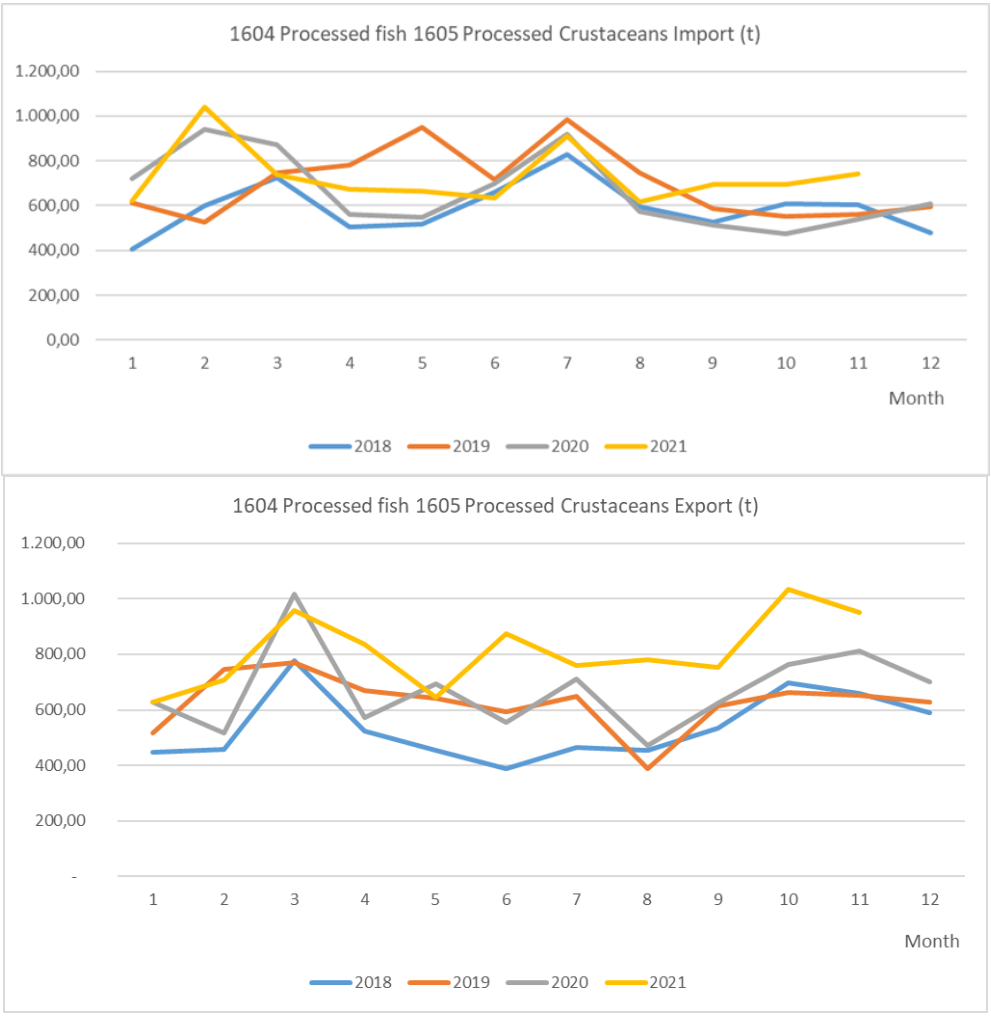

Figure 4.3.7: Croatian import and export of processed fish and crustaceans, monthly data, 2018-2021

Exports remained also relatively stable in Latvia, with a decrease of 4% in volume, but an increase of 1% in value due to an increase in the price like in the Spanish exports of canned yellowfin. Irish seafood exports had been shocked in the first months of the pandemic but started recovery by the end of 2020. The German industry suffered delays and other shocks in their provisions of raw materials and other supplies causing an increase in the costs of production. However, the levels of production increased 4% in volume and 1% in value. Production in Lithuania decreased 10% in volume and value in 2020 but increased 12% in 2021 resulting in a total increase of 1% with regard 2019.

4.4 Summary and outlook

Overall, the EU fish processors seem to have managed the impacts of the pandemic disruptions quite well. Despite the initial shocks in labor productivity and the disruptions in the supply of raw materials, sales and prices of processed fish products recovered since the end of 2020 and returns may have increase in many segments. The initial shocks on labor productivity and the supply chains started mitigating by the end of 2020, heading for recovery in the levels of activity and economic performance in 2021.

The effects of the pandemic disruptions affected the countries and segments of the EU fish processing industry in different ways and intensity. Small size enterprises were more sensitive to impacts on labor productivity due to preventive actions than medium and large companies, and some have been forced to abandon the business. Segments with more dependent of long-distance supply chain were more affected by disruptions and delays in the deliveries than those supplied from proximity. However, the recovery in sales and incomes was similar in all segments during 2021.

Increasing costs have driven to raising prices in several fish processed products. The increase in the costs include not only raw materials but also containers and other package materials, oils, and additives, plus the raise of energy costs. These supply shocks and raising prices may further contract demand in the years to come if the trend keeps on.

4.5 References

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5 NATIONAL CHAPTERS

5.1 Austria

According to SBS data, in 2019, the fish processing industry in Austria consisted of 6 enterprises with an estimated total income of EUR 44.9 million employing 153 people corresponding to 134 full time equivalent. The number of employees has fluctuated over the years independently in relation to the increased number of enterprises. The unpaid labour in 2019 was estimated to be 5 persons representing 2.6% of the total employees.

As being a land-locked country, the activity of the Austrian fish processing industry mainly includes locally products from aquaculture (trout and carp) and inland lake fisheries. Many other species have to be imported mainly from inside EU: Germany (smoked salmon and trout, crustaceans and other frozen fishes), Netherlands (Tunas and Salmond), Czech Republic (Salmon), Italy (Tuna, trout and Cephalopods), and outside EU from Turkey (mainly smoked and frozen trout) (Eurostat source 2021).

Table 5.1.1 is giving an overview of the Austrian fish processing industry. The expenditures are mainly driven by the purchases of raw materials including non-processing goods and services that counts for 85% of the total costs in 2017 (EUR 35.7 million over EUR 42.2 million total costs). These costs have increased of 3% between 2018 and 2019 and have grown since 2008.

The amount of net investment in tangible goods for 2019 is EUR 1.4 million; investment in tangible goods have significantly decreased since 2008, however a net progress occurred in the last 2 years representing an increase of 40% from 2018 and 2019.

The economic performance of the Austrian fish processing industry has constantly increased from 2008 to 2019 despite the reduction in number of enterprises. However, in 2019 the performance in economic terms has decreased; the GVA was EUR 10.1 million (-8% from 2018 to 2019) and the gross profit was 3.6 million (-16% from 2018 to 2019). The primary reason has been the reduction of turnover, following the reduction in the number of enterprises. The increase in investment in tangible goods and goods/services (plus 40%from 2018-2019) will probably affect the economic performance of the sector in the next future.

Table 5.1.1: Overview, Austria, 2008-2017

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	6	5	6	5	5	6	9	10	9	8	7	6	-14 %
Total employees	139	128	122	137	132	129	122	0	145	137	158	153	-3 %
Unpaid labour	4	2	3	2	2	5	8	0	8	6	6	5	-17 %
FTE	130	120	107	121	117	111	105	0	124	117	137	134	-2 %
Income, expenditure and investments (million €)													
Production value	23,4	26,5	35,1	36,4	37,1	36,3	38,1	0,0	44,1	44,0	44,1	44,0	0 %
Turnover													
Total income	31,8	34,4	37,6	39,2	40,2	39,4	41,8	0,0	46,7	46,7	45,8	44,9	-2 %
Total purchases of goods and services	23,5	27,0	29,6	30,4	30,4	30,1	32,8	0,0	35,7	36,9	34,8	35,7	3 %
Personnel costs	4,3	4,1	4,5	4,7	4,7	5,0	4,8	0,0	5,7	5,4	6,7	6,5	-3 %
Net investment in tangible goods	4,5	2,6	1,5	1,3	0,2	0,3	0,6	0,0	1,0	0,2	1,0	1,4	40 %
Economic performance (million €)													
Gross Value Added	8,7	9,8	8,4	9,4	9,8	9,3	9,3	0,0	11,5	9,4	11,0	10,1	-8 %
Gross profit	4,4	5,6	4,0	4,8	5,1	4,3	4,6	0,0	5,8	4,0	4,3	3,6	-16 %

Source: Eurostat, 2021.

Data coverage and quality

No data were submitted by Austria. For that reason, the EWG prepared a national mini-chapter with limited analyses based on publicly available data (Eurostat).

5.2 Belgium

5.2.1 Overview

In 2019, the fish processing industry in Belgium consisted of about 65 enterprises and of 148 seafood companies exerting fish processing not as main activity. The total turnover for the 65 main enterprises was estimated at around €961 million, employing a total of 1,426 people (1,378 full-time equivalents, FTE). Activity of the Belgian fish processing industry includes the production of fresh and frozen fillets, smoked fish (salmon, halibut, haring, rainbow trout and others), pickled seafood and prepared dishes.

The enterprises have been classified by category according to the number of employees (≤ 10; 11-49; 50-249; ≥ 250 employees). Table 5.2.1 gives an overview of the Belgian fish processing industry, including the size of the enterprise and the level of employment. The sector is dominated by small and middle-sized enterprises. In 2019, more than half of the Belgian enterprises had less than 10 full time employees. Furthermore, 25 enterprises had between 11 and 49 employees corresponding to almost 38% of the total enterprises. There were 4 enterprises with more than 50 employees and only one large enterprise with more than 250 employees appearing in this category in 2019.

The change in the number of enterprises doing fish processing not as a main activity with less than 10 employees may be explained by the uncertainties related to the population of enterprises. It is probable that new enterprises have started fish processing activities in the 2018-2019 time period, whilst others have stopped their fish processing activities during this same period. The change in number of enterprises may also be linked to changing practices, moving from processing to trading, retailing or specialising as an importer or exporter. Some enterprises may therefore no longer meet the definition of 'fish processor'. In 2019, a slight decrease in the average wage is noticeable. The value of unpaid labour is not reported.

The enterprises doing fish processing not as a main activity decreased from 180 to 148 enterprises, a reduction of 18%. The annual questionnaire was modified as such that it was easier for enterprises to indicate they no longer did any fish processing. As a result, in the category ≤ 10 employees, 32 enterprises confirmed they were not, or no longer involved in fish processing.

The number of employees of the enterprises with fish processing as main activity remained stable during the last 2 years (Table 5.2.1).

Table 5.2.1: Overview, Belgium, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	53	58	56	56	59	60	66	66	62	65	66	65	-2%
≤10 employees	29	33	32	34	37	37	38	37	35	36	37	35	-5%
11-49 employees	20	21	20	18	18	19	24	26	23	24	24	25	4%
50-249 employees	4	4	4	4	4	4	4	3	3	4	4	4	0%
≥250 employees	0	0	0	0	0	0	0	0	1	1	1	1	0%
Employment (number)													
Total employees	1,298	1,441	1,546	1,522	1,497	1,489	1,487	1,529	1,469	1,369	1,424	1,426	0%
FTE	1,221	1,373	1,439	1,442	1,417	1,385	1,377	1,423	1,373	1,269	1,335	1,378	3%
Indicators													
Turnover (million €)	541	587	658	688	644	660	701	710	762	866	953	961	1%
FTE per enterprise	23.0	23.7	25.7	25.7	24.0	23.1	20.9	21.6	22.2	19.5	20.2	21.2	5%
Average wage (thousand €)	37.2	37.3	38.0	37.5	40.1	42.3	44.4	42.7	42.8	49.0	48.7	46.8	-4%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises	193	205	204	197	193	194	195	193	218	181	180	148	-18%
Turnover attributed to fish processing (million €)													

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.2.2 Economic performance

Table 5.2.2 reports detailed income, costs and the overall economic performance for the Belgian fish processing industry for the period 2008 to 2019.

For 2019, the total income of the Belgian fish processing industry was estimated at around € 969,9 million, a 27% increase compared to 2016. An adjusted and improved calculation method can partly explain the increase (see section 5.2.6 Data coverage and quality). The total income consists exclusively of turnover from processing fish.

In 2019, the operating subsidies were less than EUR 250 thousand, a decrease of 8% compared to 2018.

In 2017 and 2018 the net financial costs were negative. This is an exceptional phenomenon and is explained by an exceptionally high income from fixed financial assets from two larger companies. The net financial costs have returned to a positive value in 2019, which can be considered as a normal trend when previous years (2015 and earlier) are considered.

The net investments have increased by 58% in 2019 compared to the previous year and are now back to levels comparable to previous years (2013-2016) after a dip in 2018. It must be noted however, that the 2017 net investment level was the highest of the last ten years.

The earnings before interest and tax (EBIT) are quite stable during 2017 up to 2019. When compared to the EBIT from 2014 up to 2016, a decrease of 17% is noticeable. This decrease can be explained by the increase of 53% in the cost of fish and other raw materials for production, which has not been offset by an equally high increase in turnover (only increased 28%). This is also reflected in the net profit margins which decreased 34% from on average 13% (2014 up to 2016) to 9% (2017 up to 2019).

Table 5.2.2: Economic performance indicators, Belgium, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)													
Turnover	541.4	587.1	658.0	688.1	643.9	659.8	701.1	709.9	761.6	865.7	952.7	961.0	1%
Other income	4.9	4.9	9.8	6.6	8.4	4.2	14.7	12.3		8.0	9.1	8.6	-6%
Operating subsidies	1.8	1.7	1.8	1.3	1.2	1.4	1.5	1.3	0.2	0.3	0.3	0.2	-8%
Total Income	548.1	593.7	669.6	695.9	653.5	665.4	717.2	723.5	761.8	874.1	962.1	969.9	1%
Expenditure (million €)													
Purchase of fish and other raw material for production	312.1	332.0	393.4	406.2	416.0	428.8	435.9	454.2	627.2	713.1	807.1	808.5	0%
Wages and salaries of staff	45.4	51.2	54.7	54.1	56.8	58.5	61.1	60.7	58.8	62.2	65.0	64.5	-1%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	37.4	44.5	52.1	52.9	58.9	54.8	57.8	58.7	57.5	0.0	0.0	0.0	0%
Other operational costs	3.1	2.3	2.7	6.2	5.1	3.2	2.5	2.2	0.0	2.5	2.2	2.9	34%
Total production costs	398.1	429.9	503.0	519.5	536.8	545.4	557.2	575.8	743.5	777.8	874.3	875.9	0%
Capital Costs (million €)													
Depreciation of capital	10.4	13.0	11.5	12.2	12.2	13.2	11.0	12.4	10.8	11.8	12.3	12.0	-2%
Financial costs, net	4.6	4.1	2.5	3.1	1.6	2.8	1.4	2.2	2.1	-3.9	-1.0	1.7	-266%
Capital Value (million €)													
Total value of assets	318.8	335.4	369.5	357.0	368.2	319.5	330.1	334.9	340.0	372.0	415.6	407.8	-2%
Net Investments	14.8	14.5	12.9	6.7	8.9	9.7	8.3	9.7	8.0	13.8	5.4	8.6	58%
Subsidies on investments									1.0	1.3	2.3	2.3	3%
Debt	200.8	201.4	234.5	220.1	221.7	207.3	195.2	200.2	200.1	245.3	266.6	262.6	-1%
Economic performance (million €)													
Gross Value Added	193.6	213.3	219.6	229.3	172.2	177.1	219.6	207.1	76.9	158.2	152.5	158.3	4%
Operating Cash Flow	150.0	163.8	166.6	176.5	116.6	120.0	160.0	147.7	18.3	96.3	87.8	94.0	7%
Earning before interest and tax	139.6	150.8	155.1	164.3	104.4	106.8	149.0	135.3	7.5	84.4	75.5	82.0	9%
Net Profit	135.1	146.8	152.6	161.2	102.8	104.0	147.5	133.1	5.4	88.3	76.5	80.3	5%
Productivity and performance Indicators													
Labour productivity (thousand €)	158.6	155.3	152.6	159.0	121.5	127.9	159.5	145.6	56.0	124.6	114.2	114.9	1%
Capital productivity (%)	60.7	63.6	59.4	64.2	46.8	55.4	66.5	61.8	22.6	42.5	36.7	38.8	
GVA margin (%)	35.4	36.0	32.9	33.0	26.4	26.7	30.7	28.7	10.1	18.1	15.9	16.3	
EBIT margin (%)	25.5	25.4	23.2	23.6	16.0	16.0	20.8	18.7	1.0	9.7	7.8	8.5	
Net profit margin (%)	24.6	24.7	22.8	23.2	15.7	15.6	20.6	18.4	0.7	10.1	8.0	8.3	
Return on Investment (%)	43.8	45.0	42.0	46.0	28.3	33.4	45.1	40.4	2.2	22.7	18.2	20.1	
Financial position (%)	37.0	40.0	36.5	38.3	39.8	35.1	40.9	40.2	41.1	34.1	35.9	35.6	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.2.3 Breakdown by company size

Table 5.2.3 gives an overview of the economic situation of the Belgian fish processing industry by size categories.

As stated in section 5.2.1, despite most enterprises being small (less than 10 employees) and providing the most employment, they only account for a small portion of the total turnover.

In Belgium, there is only one fish processing company with more than 250 employees. For confidentiality reasons, the data collected from 2008 to 2015 were added to the category 50-249. In 2016, the MS decided to report the data for this single company separately. All reported data comes from the publicly available annual accounts.

Table 5.2.3: Economic performance by size, Belgium, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	102.7	92.3	100.9	115.4	110.8	113.8	146.8	128.7	60.7	111.9	104.0	104.1	0%
Total production costs	27.4	22.3	21.8	33.6	34.1	31.5	24.0	19.4	59.7	104.8	97.7	99.4	2%
Gross Value Added	78.6	73.6	83.2	86.1	81.5	88.0	127.3	114.0	6.2	11.9	11.4	9.7	-15%
Operating Cash Flow	75.3	69.9	79.1	81.7	76.7	82.3	122.7	109.3	1.0	7.2	6.3	4.7	-24%
Earning before interest and tax	73.8	68.3	77.5	80.1	74.7	80.5	120.7	107.5	-0.5	5.7	4.3	3.0	-30%
Net Profit	73.1	68.2	77.4	80.0	74.7	80.4	120.5	107.4	-0.8	5.2	3.9	2.6	-33%
between 11 and 49 employees													
Total Income	131.7	174.8	224.3	221.9	187.9	181.4	214.7	271.1	338.2	354.7	419.6	418.7	0%
Total production costs	74.9	102.5	154.9	143.8	162.5	160.8	187.0	243.2	323.4	322.3	398.0	388.3	-2%
Gross Value Added	70.4	87.6	86.7	94.3	42.6	38.6	49.1	52.6	38.6	55.2	46.5	55.4	19%
Operating Cash Flow	56.8	72.3	69.3	78.1	25.4	20.6	27.7	27.8	14.8	32.3	21.7	30.4	40%
Earning before interest and tax	52.1	66.9	63.2	72.7	19.9	15.6	22.9	21.9	9.1	27.0	16.3	24.7	51%
Net Profit	51.1	64.9	61.6	70.8	18.1	14.6	21.6	20.6	7.8	26.7	17.2	24.3	42%
between 50 and 249 employees													
Total Income	313.7	326.7	344.4	358.7	354.8	370.2	355.7	323.8	180.8	205.3	206.6	209.9	2%
Total production costs	295.8	305.1	326.2	342.1	340.3	353.1	346.2	313.2	176.0	177.0	179.8	184.9	3%
Gross Value Added	44.6	52.1	49.7	48.9	48.1	50.4	43.2	40.6	15.5	43.7	42.9	40.0	-7%
Operating Cash Flow	17.9	21.6	18.2	16.6	14.5	17.0	9.5	10.6	4.8	28.4	26.7	25.0	-6%
Earning before interest and tax	13.7	15.6	14.4	11.6	9.8	10.8	5.4	5.8	3.6	25.7	23.8	22.4	-6%
Net Profit	10.9	13.7	13.7	10.4	10.0	9.0	5.4	5.1	3.0	24.8	22.6	21.1	-6%
greater than or equal to 250 employees													
Total Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	182.2	202.1	231.9	237.2	2%
Total production costs									184.5	173.7	198.7	203.3	2%
Gross Value Added									16.6	47.3	51.8	53.2	3%
Operating Cash Flow									-2.3	28.4	33.2	33.9	2%
Earning before interest and tax									-4.7	26.0	31.0	31.8	3%
Net Profit									-4.6	31.6	32.9	32.2	-2%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.2.4 Socio-demographic structure

The gender distribution among the employees of the Belgian fish processing industry is fairly stable. All in all, there are more men (55%) than women (36%) employed in the fish processing industry in Belgium.

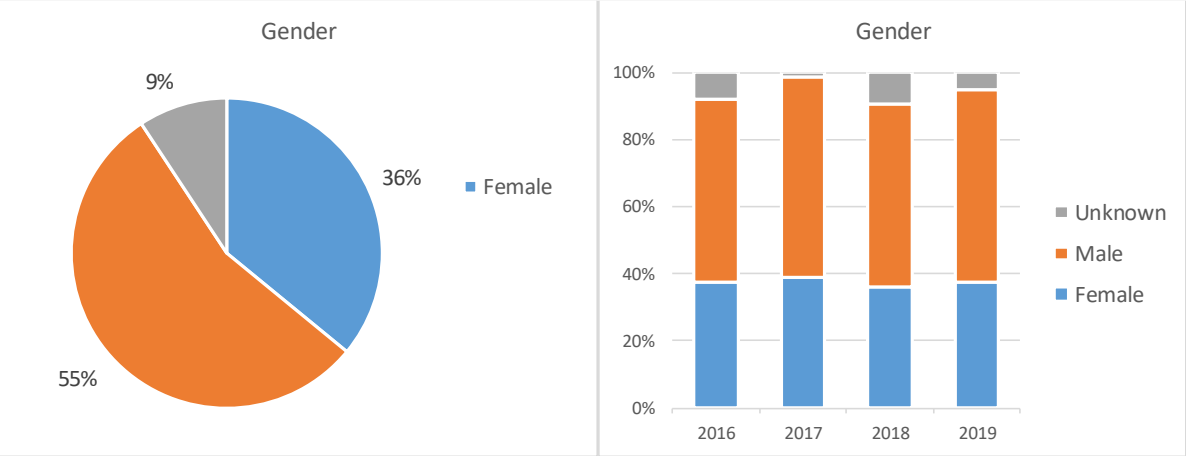

Figure 5.2.1: Socio-demographic characteristics, Belgium, 2016

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.2.5 Trends, drivers and outlook (including Covid-19 impact)

The Belgian fishing industry has evolved significantly in recent decades and is still in a state of flux. Belgium has only a small fishing fleet that has almost halved in the last twenty years. However, the landing volume could be mostly maintained by means of larger, more efficient vessels. Today, economic and social sustainability must go hand in glove with environmental sustainability. Like the Belgian fishing industry, the Belgian fish processing industry also is part of the agrifood system and the blue economy, which includes all economic activities related to the oceans, seas and coasts. Even though the sector is relatively small, at a local level it is of considerable economic importance. Moreover, the sector creates indirect local economic turnover and employment availability.

The year 2020 will be recorded in history as 'The Year of Corona'. Besides the impact on public health, the corona crisis also had huge repercussions for daily life activities and on the economy. In Belgium, the effect of the corona crisis on daily life activities can be observed in the total landings of fish by the professional Flemish Sea fishery. Indeed, total landings fell to 18,306 tonnes in 2020, which is 5% less than in 2019, when 19,309 tonnes were landed. Landings in Belgian ports fell to 12,796 tonnes compared to 13,754 tonnes in 2019, and in foreign ports to 5,510 tonnes compared to 5,555 tonnes in 2019. The temporary fishing activity stop arrangement (4 months) that was decided upon for the fishing industry as part of the COVID 19 crisis measures plays a part in this.

In the spring of 2020, the loss of food services (out-of-home consumption, including catering) and exports disrupted the markets for Belgian fisheries and aquaculture products. Spending towards retail-based food purchases increased by more than 12%. The expenditures for fish followed the same trend, but differences per category and species were noticeable. In Belgium, particularly the sales of deep-frozen molluscs and crustaceans, deep-frozen fish-based preparations and smoked fish increased.

Fish processing companies, specialised in the catering industry saw a large drop in turnover, whereas itinerant traders (market vendors and door-to-door salespeople) prospered. Some wholesalers who also do fish processing tried to reinvigorate their business by tapping into other sales markets (e.g. direct sales via web portals, prospecting for new target groups) and/or extensive restructuring of their company. From the start of the pandemic, there has been an exponential increase in the takeaway segment. Because of the increasing prices in the catering industry, which are amongst others due to the rising energy costs, a rapid reversal of this trend is not expected.

Despite the obstacles that the fish processing sector had to overcome in 2020 and 2021, the fish processing enterprises have kept moving forward during the current crisis. Planned investments in machinery and buildings have not been postponed. Importantly, the fish processing sector remained focused on innovation and sustainability.

5.2.6 Data coverage and quality

The identification of the population of enterprises involved in fish processing is derived from information obtained by the Federal Agency for the Safety of the Food Chain (FASFC). These enterprises are sent a questionnaire to identify if they are main or non-main processors, to identify their specific type(s) of fish processing activities and to gather social and economic data. Data from the national balance accounts is used to complement the survey information.

The enterprises have been classified by category according to the number of employees (≤ 10; 11- 49; 50-249; ≥ 250 employees) and balance sheet type. There are complete, shortened and micro balance sheet types, depending on the number of employees and turnover of the enterprises. Importantly, depending on the type of balance sheet more variables need to be estimated. When data is missing, the mean per category is calculated in the sample and imputed to estimate totals. For the calculation of 'Turnover' Belgium used an improved estimation method, i.e the use of gross margin as a proxy for 'Turnover'.

5.3 Bulgaria

5.3.1 Overview

The increase of the Bulgarian processing sector continues and in 2019 the number of registered enterprises grows up to 55. In 2019 the number of enterprises increased by 12% compared to 2018 and by 20% compared to 2017. All of the enterprises are processing fish as their main activity. Based on the number of employees the units from the Bulgarian fish processing sector are in the three categories – less than 10 employees, 11-49 employees and 50-249 employees. For the period 2008-2019, there were no enterprises with more than 250 employees.

The total number of employees in 2019 increased by 27% compared to 2018 and 24% compared to 2017. Compared to the period 2008-2018 the total number of employees in 2019 increased by 23%. In 2019, FTEs also increased by 27% compared to 2018 and 22% compared to 2017, probably because of the general increase of the processing sector in the country for the last two years. The average wage in 2019 reached EUR 6.2 thousand and compared to 2018 increased by 17% and by 7% compared to 2017. There is a visible increase in the wages in the last three years compared to the period 2008-2016 and after the small decrease in 2018 compared to 2017 the average wage in 2019 increased by 64% compared to the period 2008-2018.

In 2019, the turnover and total income respectively marked a significant growth compared to the last two years and compared to the period 2008-2018, the increase is almost twice higher than to the comparison with the last two years. The structure of the costs remains the same for all year – the largest proportion is for the purchase of fish and other raw materials, followed by wages and salaries of staff and other operational costs.

Table 5.3.1: Overview, Bulgaria, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	45	45	48	43	43	46	44	45	45	46	49	55	12%
≤10 employees	13	12	14	12	14	12	10	11	11	14	18	17	-6%
11-49 employees	20	22	21	19	18	22	22	24	24	20	20	25	25%
50-249 employees	12	11	13	12	11	12	12	10	10	12	11	13	18%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	1,704	1,538	1,917	1,749	1,650	1,725	1,879	1,907	1,904	1,756	1,715	2,177	27%
FTE	1,651	1,419	1,821	1,667	1,565	1,653	1,744	1,671	1,618	1,490	1,427	1,814	27%
Indicators													
Turnover (million €)	54	53	59	56	52	64	69	85	78	85	83	122	48%
FTE per enterprise	36.7	31.5	37.9	38.8	36.4	35.9	39.6	37.1	36.0	32.4	29.1	33.0	13%
Average wage (thousand €)	2.9	3.3	3.0	3.0	2.9	3.1	3.1	4.2	4.5	5.8	5.3	6.2	17%
Unpaid work (%)	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises	0	0	0	0	0	0	0	0	0	0	0	0	0%
Turnover attributed to fish processing (million €)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.3.2 Economic performance

The total income of the Bulgarian fish processing industry was stable during the period 2016-2018. In general, for the whole period, 2008-2018 the situation is improving gradually. Before 2019 the highest peak of the total income was in 2015 – EUR 90.4 million but in 2019 reached EUR 139.5 million. The total income in 2019 increase by 66% compared to 2018 and 62% compared to 2017. Compared to the average for the 2008-2018 period increased by 97%. The main part of the Total income is the Turnover - approximately 88%. The Other income reached a significant increase in 2019 with the value of EUR 16.9 million. The value of "other income"

increased not only to the last two years but also to the period 2008-2018. Regarding the subsidies, the situation is similar to the previous years and the value does not exceed EUR 0.5 million.

The total production costs were growing proportionally to the income. With a 60% increase compared to 2018, the total costs in 2019 were EUR 79.4 million, which is also 37% more than the value in 2017. In 2019, total production costs increased by 80% compared to the average for the 2008-2018 period. The largest % of the costs is the purchase of fish and other raw material for production – it is around 70% for last four years. The wages and salaries of stuff represent approximately 14% of the costs in 2019 and 15% in 2017 and 2018, while the other operational costs are between 11% and 14% during the last three years. From all the costs which form the total production costs, the energy costs are the most stable ones during the years and after a slightly decreased until 2017 in 2018 the value increased as well as in 2019. Compared to 2018 the energy costs increase by 47% compared to 2018 and by 40% compared to the average for the 2008-2018 period. The value of unpaid labour is really negligible for the whole period. The largest value of this indicator was EUR 21 thousand for the whole sector in 2008. It is gradually decreasing and in 2017 it is EUR 0.5 thousand and in 2018 and 2019 is EUR 0.

Table 5.3.2: Economic performance indicators, Bulgaria, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)													
Turnover	53.9	53.4	59.3	55.7	52.2	64.4	68.7	85.3	78.1	85.0	82.9	122.3	48%
Other income	3.8	4.6	4.4	4.1	3.8	3.8	3.7	1.9	1.8	1.0	1.2	16.9	1263%
Operating subsidies	0.2	0.1	0.2	0.3	0.1	0.9	0.6	3.2	0.0	0.0	0.0	0.3	774%
Total Income	57.9	58.1	63.9	60.1	56.1	69.1	73.0	90.4	79.9	86.1	84.1	139.5	66%
Expenditure (million €)													
Purchase of fish and other raw material for production	26.1	27.3	27.4	25.7	24.1	28.7	31.9	38.2	40.6	39.7	35.1	55.0	57%
Wages and salaries of staff	4.8	4.7	5.4	4.9	4.6	5.1	5.5	7.1	7.3	8.7	7.6	11.3	48%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	1.5	1.4	1.7	1.6	1.5	1.6	1.4	1.4	1.3	1.1	1.3	2.0	47%
Other operational costs	5.0	3.4	5.6	5.2	4.9	4.7	3.0	6.5	7.4	8.4	5.6	11.1	97%
Total production costs	37.5	36.8	40.1	37.3	35.0	40.2	41.9	53.2	56.6	57.9	49.7	79.4	60%
Capital Costs (million €)													
Depreciation of capital	7.9	7.1	7.5	6.8	6.4	5.4	5.0	6.0	5.6	8.4	8.3	6.0	-28%
Financial costs, net	0.2	0.1	0.2	0.2	0.2	0.9	1.0	0.8	0.0	-1.4	-2.6	-13.1	395%
Capital Value (million €)													
Total value of assets	20.0	23.1	25.3	23.9	22.7	28.5	31.4	38.0	34.5	29.3	35.0	47.7	36%
Net Investments	3.0	2.8	3.6	3.8	3.5	14.4	18.2	9.4	2.8	1.5	4.4	2.2	-51%
Subsidies on investments									0.0	0.4	0.9	0.6	-33%
Debt	1.1	2.6	5.1	4.8	4.5	5.6	5.6	9.8	12.2	9.0	20.0	23.0	15%
Economic performance (million €)													
Gross Value Added	25.1	25.9	29.0	27.5	25.6	33.2	36.1	41.1	30.6	36.9	42.0	71.1	69%
Operating Cash Flow	20.4	21.3	23.8	22.8	21.1	28.9	31.2	37.2	23.3	28.2	34.4	60.1	75%
Earning before interest and tax	12.5	14.1	16.3	16.0	14.7	23.5	26.1	31.2	17.7	19.8	26.1	54.1	107%
Net Profit	12.3	14.0	16.1	15.8	14.5	22.6	25.2	30.4	17.7	21.2	28.8	67.2	134%
Productivity and performance Indicators													
Labour productivity (thousand €)	15.2	18.2	15.9	16.5	16.4	20.1	20.7	24.6	18.9	24.7	29.4	39.2	33%
Capital productivity (%)	125.3	111.8	114.9	115.0	113.0	116.5	114.9	108.2	88.8	125.7	119.9	149.0	
GVA margin (%)	43.5	44.6	45.6	45.9	45.7	48.7	49.8	47.1	38.3	42.8	49.9	51.1	
EBIT margin (%)	21.6	24.3	25.5	26.6	26.1	34.0	35.8	34.5	22.1	23.0	31.1	38.8	
Net profit margin (%)	21.3	24.1	25.3	26.3	25.8	32.7	34.4	33.6	22.1	24.6	34.2	48.2	
Return on Investment (%)	62.4	61.0	64.6	67.0	64.7	82.4	83.3	82.0	51.2	67.5	74.6	113.4	
Financial position (%)	94.3	88.8	79.9	79.9	80.3	80.5	82.0	74.3	64.7	69.4	42.9	51.8	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The depreciation of the capital only formed the capital costs in the last four years. In 2019, it decreased by 28% from 2018 and by 29% from 2017. The comparison of 2019 to the average for the period 2008-2018 shows a decrease by 12%.

With the increase of the number of enterprises the total value of assets also increases. This can be explained by the fact that the new ones were constructed and started working, and some of the old enterprises were modernized. In 2019, the total value of assets increased by 36% compared to 2018 and reach EUR 47.7 million. Compared to the period 2008-2018 in 2019 increase by 69% and compared to 2008-2017 period increased by 72%.

The economic performance is also growing gradually. The Gross Value Added is increasing each year and in 2019 increased by more than 100% compared to the period 2008-2018. Similar is the situation with the operating cash flow and net profit. In 2019, the net profit increased by 134% compared to 2018 and by 238% compared to the average for 2008-2018 period.

The labour productivity is growing by 33% and the capital productivity also increased in 2019 compared to 2018 and 2017. The GVA margin and the EBIT margin growing in last year, which indicates profitability from the enterprises and a continuation of the positive trend. The net profit margin and RoI were also increased over the last years.

5.3.3 Breakdown by company size

The structure of Bulgarian processing sector is consistent during the period 2008-2019. The number of enterprises varied between 43 and 55. There are no enterprises with more than 250 employees. From the other three categories, the largest (45%) is the size category with 11-49 employees. The fish processing units with less than 10 employees and between 50-249 represent 31% and 24%, respectively. The main differences in the economic variables during the years are due to the movement of enterprises from one category to another category based on the reduction or hiring of employees. This is one of the reasons for the small decrease in the number of enterprises with less than 10 employees, compensated with the increased number of units in the category with 11-49 employees.

In all size categories, the distribution of the turnover, other income and subsidies in the total income is similar to their distribution for the whole processing sector. The largest part of the income in last three years was delivered by the turnover, more than 90%.

Regarding the distribution of the total costs – the main costs were for the purchase of fish and other raw material for production and for the size category with 50-249 employees the costs for wages and salaries of staff are 21%.

In last three years, the economic performance of size category with less than 10 employees and 50-249 employees can be described as fluctuating while in the size category with 11-49 employees a gradual improvement is shown for the same period. In 2019, the situation for the size category with less than 10 employees deteriorated and total income reach EUR 16.5 million, 15% less compared to 2018. Compared to the average for the period 2008-2018 total income increased by more than 100% in 2019. The gross value added and net profit for this size category decreased in 2019 compared to 2018 but increased near 100% to the average for 2008-2018.

The largest category in the Bulgarian fish processing sector is with enterprises employed between 11-49 people. There is a visible positive trend in the period analysed related to the increase of the total income and net profit, and it also generated not so big amount of costs which explain overall profitability.

Table 5.3.3: Economic performance by size, Bulgaria, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
less than or equal to 10 employees													
Total Income	1.7	2.0	2.3	2.5	2.8	5.4	5.8	16.6	17.0	3.8	19.6	16.5	-15%
Total production costs	1.2	0.9	1.0	0.7	1.0	2.0	2.7	11.1	12.2	8.2	10.6	11.3	6%
Gross Value Added	0.6	1.3	1.5	2.0	2.1	3.2	3.0	5.9	5.2	-4.2	9.2	5.7	-38%
Operating Cash Flow	0.4	1.1	1.3	1.9	1.9	3.4	3.1	5.5	4.8	-4.4	8.9	5.2	-42%
Earning before interest and tax	0.1	0.9	1.1	1.9	1.7	2.9	2.5	4.9	4.7	-4.5	8.9	4.8	-46%
Net Profit	0.1	0.9	1.0	1.9	1.6	2.6	2.1	4.8	4.7	-4.2	8.9	4.4	-50%
between 11 and 49 employees													
Total Income	18.4	22.2	18.3	17.7	16.7	19.1	23.5	38.0	31.0	35.7	28.7	62.4	117%
Total production costs	14.7	17.8	14.6	14.1	13.4	16.4	18.6	22.7	26.4	25.4	17.5	39.5	126%
Gross Value Added	5.0	6.0	5.1	4.8	4.6	3.9	6.5	17.3	7.0	12.7	13.9	27.8	100%
Operating Cash Flow	3.7	4.4	3.7	3.6	3.4	2.7	4.9	15.2	4.5	10.3	11.2	22.9	103%
Earning before interest and tax	2.7	3.1	2.7	2.5	2.4	1.8	1.9	11.7	1.3	5.5	6.6	19.3	195%
Net Profit	2.7	3.0	2.7	2.5	2.4	1.6	1.9	11.0	1.3	5.6	7.8	30.7	295%
between 50 and 249 employees													
Total Income	37.9	33.8	43.3	39.9	36.6	44.6	43.7	35.8	31.9	46.6	35.9	60.5	69%
Total production costs	21.6	18.1	24.4	22.6	20.7	21.8	20.5	19.4	18.0	24.3	21.6	28.5	32%
Gross Value Added	19.5	18.6	22.4	20.7	19.0	26.1	26.6	17.9	18.4	28.4	18.9	37.6	99%
Operating Cash Flow	16.3	15.7	18.8	17.4	15.9	22.9	23.2	16.5	13.9	22.4	14.2	32.0	125%
Earning before interest and tax	9.7	10.1	12.6	11.6	10.6	18.8	21.8	14.6	11.7	18.7	10.7	30.0	182%
Net Profit	9.6	10.0	12.4	11.5	10.5	18.3	21.2	14.5	11.7	19.8	12.2	32.1	165%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In 2019 the enterprises with 50-249 employees reached the highest peak in terms of profitability with a total income of EUR 60.5 million. The segment was prosperous in the period 2008-2014, but there was a significant decrease in 2015 and 2016. The total income raised well to EUR 46.6 million in 2017 but dropped down again in 2018 to EUR 35.9 million. Compared to the average for the period 2008-2018 the total income increased by 55% in 2019. The same happened with GVA and net profit. Only the total production costs remain similar for the whole period with a small increase in 2019.

5.3.4 Socio-demographic structure

The collection of social indicators for the Bulgarian processing sector started in 2017. The provided data during the 2021 data call was for 2019. The variables are included in the annual economic survey, which gave the opportunity of collecting Census data. All of the mandatory variables – gender, age, nationality, education and employment status were collected at enterprise level, so they were available also by size categories.

The majority employees involved in the processing sector in Bulgaria in 2019 were female (61%) followed by 39% male and 0% unknown. The proportion of female for each size category of enterprises is similar (54-64%).

The age groups used during the data collection were 15-24, 25-39, 40-64 and >= 65.

55% of the of the total employed (1 208) were in the age group 40-64, followed by 37% representing people between 25-39 years, 4% for the age group >=65 and 4% employees were below 24 years. The percentage distribution by age is similar to the total distribution in the "all size" categories, except that the youngest one are not presented in the smallest enterprises.

In terms of education the most common answer was high school/specialized high school corresponding to medium education level (50% - 1084 people), followed by primary school which

is Low education level (41% - 888 people) and university degree equally to High (9% - 205 people).

The percentage of the people with low education is highest (52%) in the bigger enterprises (50-249 employees), while the percentage of the people with university degree is highest in the small enterprises with less than 10 employees.

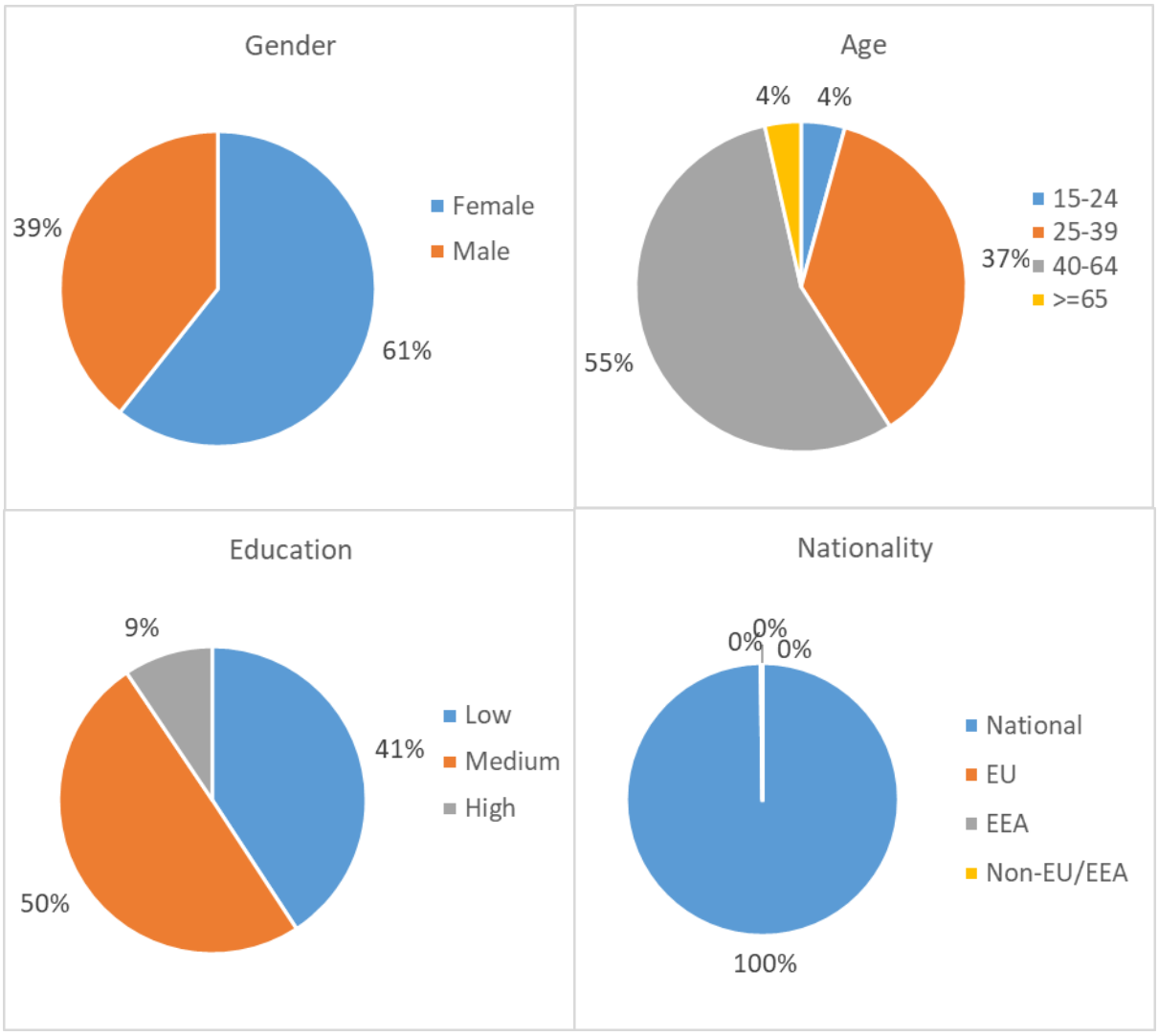

Figure 5.3.1: Socio-demographic characteristics, Bulgaria, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The results showed that only 5 people working in processing industry are from EU and all the others were Bulgarian citizens. The missing interest from employees from other countries could be due to the low monthly salary. The biggest enterprises employed the 3 employees from EU and the other 2 employees for EU are employed by enterprises employed between 11-49 people.

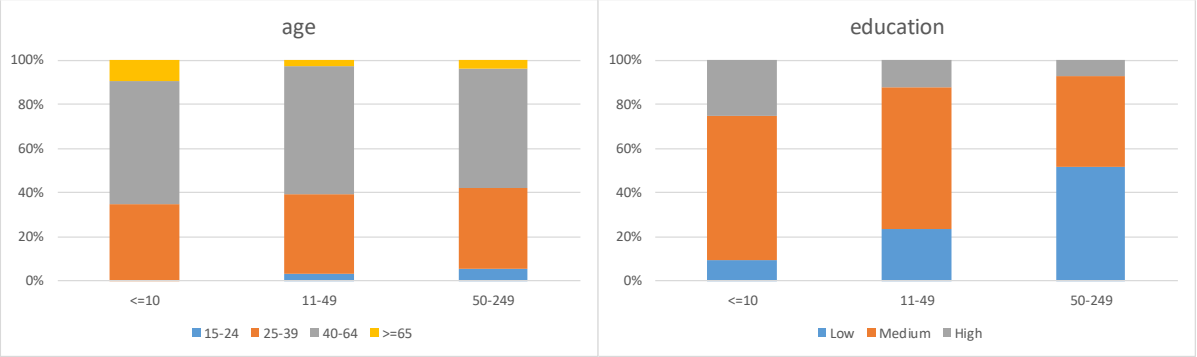

Figure 5.3.2: Distribution of the employees by enterprise size and education, Bulgaria, 2019.

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In general, the situation in the fish processing sector in terms of social data does not show changes in 2019 when comparing the data to 2017. The only visible change is a decrease in the education level. In 2019, the number of people with medium education decreased by 7% while the number of people with low education increased by 10% compared to 2017.

5.3.5 Raw materials

In regard to the raw materials, the processing enterprises can be separated into 7 general types: units which are using as raw material fish caught from the Black sea (sprat and other small pelagic fish); units processing crustacean; units processing molluscs; units processing fish from aquaculture farms in Bulgaria (mainly rainbow trout, carp, catfish); processing enterprises for black caviar and enterprises for fisheries delicacies, enterprises producing canned fish.

The National Statistical Institute collects detailed data regarding the import and export of fishery products in the country, which is publicly available in the Annual agricultural report. Based on the data provided in the document, in 2019, totally 43 139 tonnes of fish and fish products have been imported, 1.6% more than the previous year.

The imported fish products in 2019 were in the group frozen fish without fillets decreased by 3.2% compared to 2018. The other import of fishery products consists mainly of Fresh, refrigerated fish, Fish fillets molluscs and Crustaceans. Approximately 70% of all imported fish and fish products in 2019 were from EU Member States.

The total exports of fish, other aquatic organisms and fish products in 2019 amounted to 15 890 tonnes – 4.9% below the level of the previous year. The decline is mainly due to a reduction in mollusc exports.

2019 was the first year for which Bulgaria reported the detailed data on raw materials. The information was collected during the same survey for collection of economic variables, which is covering all enterprises. The received information was extremely heterogeneous, although there is a table in the questionnaire with the fields to be filled in, in some cases the provided table by the processors was more than 3 pages and the level of details was much more disaggregated than expected. It terms of the quantities and species there were no problems, but the origin sometimes was reported differently than expected, probably the processors were not sure if the imported fish is from aquaculture or from fisheries.

In total 53 species were reported, 6 categories with unknown fish and 1 enterprise reported surimi. The 6 categories of unknown fish are forming 10% of the total reported raw material. The top 10 species are forming 81% of the raw materials. The highest reported value is for the RPW (29% of the raw material), followed by MAC (13%), TRR (9%) and SPR (8%). While the majority of processed RPW and SPR are from Bulgarian fisheries, the TRR is from Bulgarian aquaculture and MAC is only from import.

In regard to the origin, 36 categories were reported. 19% of the raw materials were with no info for the origin. 36% of the processed fish was from Bulgarian fisheries, followed by 10% reported

only as fisheries, without information from which country they are and 9% of Bulgarian aquaculture.

5.3.6 Trends, drivers and outlook (including Covid-19 impact)

As a general comment on the trends in Bulgarian fish processing industry could be the aspect of passing the stabilization period and increasing of the production limits (as volume and value) in the last three year. The number of enterprises also increased in last year and also to the 2008-2018 period.

Definitely, the support provided by the Operational program for 2014-2020 period under EMFF play a significant role for the positive influence for the sector. This is more than visible from the increase of the number of enterprises and generated turnover by the fish processing industry in Bulgaria.

Priority Axis "Fostering marketing and processing" under the new Operational program and EMFF provide opportunity for new investments in the sector. The total value of planed investments in 2019 is EUR 4 266 358.52 million.

The imported fish products in 2020 were decreased by 12.7% compared to 2019. According to preliminary data, in the first six months of 2021 the total imported amount of fish, other aquatic organisms and fishery products were increased by 11.4% on an annual basis. In 2020, the total exports of fish, other aquatic organisms and fishery products decreased by 4.7% compared to 2019. In the first half of 2021, the total exports of fish, aquatic organisms and processed fishery products increased by 7% compared to the same period in 2020. The decrease in both imported and exported seafood in 2020 is definitely a sign of a decline in the turnover which cannot be compensated for the domestic production from fisheries and aquaculture. This decline could be due to a number of restrictions applied because of the global pandemic of COVID-19. Fortunately, the preliminary data for the first half of 2021 shows a positive trend compared to the same period of 2020.

In order to be supported the sector the Managing authority of Operational program for 2014-2020 period under EMFF initiated a measure "Support for processors of fishery and aquaculture products to overcome the economic consequences of the COVID-19 pandemic". In 2020, under this measure, 20 enterprises of the Bulgarian fish processing sector received compensations that amounted to a total of EUR 817 555 thousand. The measure was applied also in 2021, which is direct support for the sector and will play a role in the stabilisation.

The number of enterprises during 2019 increased compared to 2018 and 2017. If there is any change, it is expected to be in favour of sustainability or increasing their number due to the opportunities provided by the EMFF. Regarding the size categories, it is not expected that there will be enterprises with more than 250 employees because even in the sector between 50 and 249 employees the average FTEs per firm in last three years is 82.

The interest in catching and processing rapa whelk and baby clam is bigger and continuing. While rapa whelk consumption is relatively popular in Bulgaria, the consumption of baby clam is really negligible and both species are of interest mainly because of the possibility of exporting. The increase in the total income together with the GVA and EBID margins indicates a positive trend for the future improvement of the situation in the whole sector. The consumption of fish and seafood per capita is still very low compared to the average fish consumption in the other member states. The processors are seeking to expand the variability of mid and high-value products on the local market and also for export.

5.3.7 Data coverage and quality

The data is collected under the annual socio-economic survey by questionnaires, and Bulgarian data collection scheme is Census. All of the mandatory variables and all the required data was collected and provided by Bulgaria. In terms of data coverage and quality, no issues were found.

5.4 Croatia

5.4.1 Overview

The Croatian fish processing industry was traditionally located along the coastline and on the islands close to important fishing areas in order to ensure a stable source of fresh raw material and expedite the process of production. In addition, processing plants offered job opportunities and a stable source of income to the local communities, which gradually developed a strong interdependence between socio-demographic dynamics and processing industry. Since the turn of the century, the number of major processing plants on islands has declined due to changed market conditions, expenses and lack of the labour force. On the other hand, in recent years, along with an extensive process of infrastructure improvement (construction of highway A1 and related roads), a sound process of moving fish processing plants to business zones in hinterlands of major fishing harbours has occurred. Also, access to pre-accession instruments, EU market opening after 2013 and later to EU funds (EMFF, ERDF) brought a new momentum to the fish processing and provided the opportunity for the revival, foreign investments, technological improvement and innovations that ensured a steady growth of the fish processing industry in Croatia in a recent period.

The share of small pelagic fish in total catch of marine fish and other marine organisms in Croatia is the largest (mostly more than 80%) with the main destination being the fish processing industry. Although many companies tend to diversify production, Croatian fish processing industry is mostly dependent on domestic catches of mainly small pelagic fish, and some of the processing companies are having their own fishing vessels. However, effort-based management of small pelagic fish with temporary cessations of fishing affects the stable supply of raw material, which resulted in developing new strategies in business planning, diversification of production and ensuring stable raw material inflow from the global market for fish and fish products.

Croatia is one of EU Member States that exports fish more than it imports which is most visible in value. According to Central Bureau of Statistics, the export of fish and processed fish products steadily grows from 2013, both in volume and value, reaching 54 thousand tonnes and 209 mil € in 2019. Import of fish and fish products significantly grew in period 2018-2019 (by 18%) and almost exceeded the export, in terms of volume. However, the value of imported products is lower than exported goods, mostly due to large proportion of herring and frozen sardine imported for tuna farming which price is not high. Almost 75% of fish and fish products imported in 2018 and 2019 came from Spain, Sweden, Netherlands, Italy and Portugal and over 82% of the total export was exported to Italy, Spain, Slovenia, Albania and Japan. Other important trading partners, falling under 90% of total trade volume are France, Serbia, Argentina, China and Germany.

While traditional fish processing factories mostly carried out one activity and produced few types of products in the past, today most companies, to be more competitive and less dependent on the inflow of domestic raw material, also integrate aquaculture, fishing, trade, distribution and other food processing besides fish processing and develop diverse high value-added products. Therefore, it is difficult to distinguish these companies from companies with the predominant activity of the fish processing industry.

In 2019, Croatian processing industry consisted of 34 companies with processing as a main activity, with majority of companies and employees in growing segment of 50-249 employees. Total number of employees increased from 2186 employees in 2018 to 2239 employees in 2019, which corresponds to a 1% rise in total number of employees and 8% of a rise in FTE (1494 in 2018 and 1615 in 2019). The total number of enterprises slightly varies from 2011 to 2019 but what is more important is the structure of enterprises.

The average size of enterprises measured by the number of full-time employees in 2019 was 47.5 employees, together with 46.7 in 2018, which is decrease compared to 2017. The average salary per FTE increased from EUR 14.4 thousand per year to EUR 15.2 thousand per year over the

same period. Compared to 2011, the average salary increased by 65%. Taking into account the recent COVID crisis, which only deepened the problem of the lack of qualified labour force, and sharp increase of economic indicators, further growth in salaries could be expected, but also some changes in the national structure of the employees due to the import of the labour force. The labour productivity in terms of gross value added per FTE after reaching a peak in 2015 with EUR 34.4 thousand decreased to EUR 25.5 thousand in 2018 and EUR 29.7 thousand in 2019. Compared to 2011, the labour productivity increased in 2019 from EUR 23.8 thousand to EUR 29.7 thousand, or 24.8% respectively.

The reported value of unpaid labour in the Croatian fish processing industry is insignificant. In the years from 2011 to 2019, the value has been estimated to 0-0.1% of total amount of wages and salaries paid, since none of the enterprises confirmed that some of the employees are working on a volunteer basis. However, due to the family character of small enterprises, some share of unpaid labour could be considered as unreported.

Table 5.4.1: Overview, Croatia, 2011-2019

Variable	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)										
Total enterprises	35	35	37	38	35	31	34	32	34	6%
≤10 employees	17	18	20	20	18	11	12	9	10	11%
11-49 employees	6	4	4	6	3	5	6	5	7	40%
50-249 employees	11	11	10	11	13	15	16	18	17	-6%
≥250 employees	1	2	3	1	1	0	0	0	0	0%
Employment (number)										
Total employees	1,635	1,565	1,953	1,815	1,800	2,031	2,186	2,219	2,239	1%
FTE	1,443	1,367	1,572	1,819	1,466	1,618	1,838	1,494	1,615	8%
Indicators										
Turnover (million €)	67	63	58	72	76	82	92	95	116	22%
FTE per enterprise	41.2	39.1	42.5	47.9	41.9	52.2	54.1	46.7	47.5	2%
Average wage (thousand €)	9.2	9.2	8.2	9.0	10.7	11.0	10.5	14.4	15.2	6%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity										
Number of entreprises	19	21	21	21	24	28	30	26	28	8%
Turnover attributed to fish processing (million €)	5.5	9.3	11.5	18.6	20.3	24.6	26.4	40.6	53.4	32%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.4.2 Economic performance

The total income consists of turnover (68% in 2018, 71% in 2019), other income (32% in 2018, 28% in 2019) and operating subsidies (<1% in 2018, <1% in 2019). While subsidies did not play the main role in total income, they were important as one of the factors of the economic growth, especially for the enterprises from 11 to 49 and from 50 to 249 employees. Subsidies combined with foreign investments - important for trading and market know-how and for developing market network - along with opening of business zones with favourable conditions for buying land properties, resulted in major changes in the fish processing sector in recent years, supporting large investments and production diversification. Turnover in 2019 was more than EUR 116 million, which is EUR 21 million more than in 2018, which corresponds to a 22% rise.

Finally, after some fluctuations 2011-2013 (decline of 21%), the total income has steadily been increasing from 2013 (EUR 83.8 mil) to 2019 (EUR 163.1 mil). Compared to 2011, total income rose for EUR 49 million, or 72.6% respectively.

Total production costs increased gradually along with the income over the reporting period, with 12% of increase in 2019 compared to 2018, or EUR 22.6 mil respectively. Compared to 2011, total production costs increased for 54% (EUR 57 mil).

The most important cost component in the recent reporting period, Other costs, which make up for 43% of total cost in 2019, have increased by 5.4% since 2011. Gradual growth of Other costs could be a reflection of diversification of activities. Purchase of fish and other raw material for production still takes about 34% of total costs in 2018 and 35% of total costs in 2019, although the expenditures for the purchase of fish and raw material between 2011 and 2019 slightly declined. During this period, some larger companies invested in their own fishing vessels, which resulted in a decline of the cost of raw material.

Wages and salaries remained stable, around 17% of total costs in 2011 and 18% of total costs in 2019, due to the process of movement and enlargement as well as opening of new processing facilities. Energy cost makes up for 5% of the total production cost in 2011, and 4% in 2019.

Gross Value Added (GVA) in 2019 increased by 26% compared to 2018 and continued evolution of a steady growth through the entire reporting period. The amount of Gross Value Added (GVA) in 2011 was 32% of total income, and after reaching the peak in 2015, it declined to 27% in 2017. While in the recent period remains stable between 27% and 29%, the period of 2018 and 2019 was remarked by trend of decreasing net investments (77% of decrease from 2018 to 2019) along with the slight decrease of debt from EUR 101.2 million in 2018 to EUR 100.7 million.

Other economic indicators also demonstrate continuation of a positive trend. Earnings before interests and tax (EBIT) increased in 2019 compared to 2018 to EUR 15.2 million because of increasing income of over EUR 22 million. Net profit increased in 2019 compared to 2018 by EUR 13.6 million, or 75% respectively. The amount of operating cash flow generated by the processing sector in 2019 was EUR 24.6 million, which is 43% increase from 2018.

After a period of intensive investments 2016-2018, Return of investment increased in 2019 to 8.2%. At the same time, total value of assets increased from EUR 127.2 million in 2016 to EUR 184.5 million in 2019, largely supported by EMFF funds.

Table 5.4.2: Economic performance indicators, Croatia, 2011-2019

Variable	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)										
Turnover	67.5	62.8	58.1	71.7	75.9	82.4	91.5	95.2	116.5	22%
Other income	33.3	23.2	21.5	29.5	35.2	35.4	42.9	44.7	45.5	2%
Operating subsidies	5.4	5.6	4.2	2.0	3.8	2.6	1.3	0.7	1.1	62%
Total Income	106.1	91.6	83.8	103.2	114.9	120.4	135.7	140.5	163.1	16%
Expenditure (million €)										
Purchase of fish and other raw material for production	32.5	29.8	28.6	43.7	42.4	48.0	52.9	42.2	48.6	15%
Wages and salaries of staff	13.3	12.5	12.8	16.4	15.7	17.9	19.3	21.5	24.5	14%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	3.9	4.1	3.9	3.7	3.9	4.1	4.9	5.1	5.4	5%
Other operational costs	30.0	29.7	25.6	28.2	14.4	28.4	37.8	54.4	60.0	10%
Total production costs	79.7	76.2	71.0	92.1	76.4	98.4	114.9	123.3	138.4	12%
Capital Costs (million €)										
Depreciation of capital	7.5	4.6	4.3	5.3	4.8	6.8	8.8	8.3	9.4	14%
Financial costs, net	4.4	4.8	3.4	3.0	0.7	0.4	0.5	1.2	1.5	28%
Capital Value (million €)										
Total value of assets	98.2	116.6	138.9	148.4	129.4	127.2	164.8	183.0	184.5	1%
Net Investments	6.4	10.6	24.9	5.8	2.1	10.9	16.0	11.7	2.7	-77%
Subsidies on investments						0.5	1.9	1.2	0.9	-28%
Debt	100.3	103.4	114.1	111.6	74.9	66.8	80.1	101.2	100.7	0%
Economic performance (million €)										
Gross Value Added	34.3	22.4	21.5	25.6	50.4	37.3	38.8	38.1	48.0	26%
Operating Cash Flow	26.4	15.5	12.9	11.1	38.5	22.1	20.8	17.3	24.6	43%
Earning before interest and tax	18.9	10.9	8.6	5.8	33.7	15.2	12.0	9.0	15.2	69%
Net Profit	14.4	6.1	5.2	2.8	33.0	14.9	11.5	7.8	13.6	75%
Productivity and performance Indicators										
Labour productivity (thousand €)	23.8	16.4	13.6	14.1	34.4	23.0	21.1	25.5	29.7	17%
Capital productivity (%)	34.9	19.2	15.4	17.2	39.0	29.3	23.5	20.8	26.0	
GVA margin (%)	34.1	26.0	27.0	25.2	45.4	31.7	28.8	27.2	29.7	
EBIT margin (%)	17.8	11.9	10.2	5.6	29.3	12.7	8.8	6.4	9.3	
Net profit margin (%)	13.6	6.6	6.2	2.7	28.7	12.3	8.5	5.5	8.4	
Return on Investment (%)	19.2	9.4	6.2	3.9	26.0	12.0	7.3	4.9	8.2	
Financial position (%)	-2.1	11.3	17.9	24.8	42.1	47.5	51.4	44.7	45.4	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

From 2011 to 2014, net profit of Croatian fish processing industry gradually declined from EUR 14.4 million to EUR 2.8 million in 2014. In 2015 net profit increased to EUR 33 million, followed by decrease 2016-2018 and recovery in 2019 with EUR 13.6 million, which is increase of 75% compared to 2018.

A period between 2011 and 2015 was remarked with declining economic performance indicators along with declining costs and productivity and performance indicators. After 2015 a new investment resulted with a moderate recovery, with major results accomplished in 2019. At the same time, capital value increased in total value of assets 88% from 2011 to 2019), and debt (51% from 2016 to 2019).

Fish consumption in Croatia, according to research from 2020, accounts for 20 kg per capita in 2019. Compared to 2018, when the consumption was 18 kg, the research indicated that demand for local products is increasing. According to the research, in 2019 the most consumed were fresh or chilled fish (30.1%), fish fillets (20.3%), cephalopods (17.9%), prepared or preserved fish (14.3%), while products consumed on a smaller scale include dried, salted and smoked fish (6.3%), crabs (4.1%), molluscs (3.9%), prepared or preserved crabs, molluscs and other active invertebrates (2.6%) and frozen fish (0.3%).

5.4.3 Breakdown by company size

In Croatia, the fish processing industry consisted of four segments in 2011 and dropped to three segments in 2017 (<=10, 11-49, 50-249). In the reference period the segment with the most enterprises is the one with 50-249 employees represented with 11 enterprises in 2011 and 17

enterprises in 2019. The segment with less than 10 employees recorded a most significant decrease with 20 companies in 2014 and 10 companies in 2019. It is important to stress that small companies often combine activities with agriculture, fishing, tourism, which is the cause of the fluctuation in number of enterprises. Although they do not have a big economic influence in the Croatian fish processing industry, they are very important in local communities from a social standpoint and in preserving the tradition in fish processing. In addition, small family businesses are often a platform for innovations and apart from mass production, they have a tendency to create unique products with added value, such as smoked fish - local or imported.

In addition, some small enterprises kept their traditional activities of basic fish processing with the main products such as frozen and packed fish, branded as domestic product. In both cases, one of the main challenges in fish processing could be to ensure a sustainable source of domestic raw material during the year and to ensure labour force on the fishing vessels and in processing industry.

Total income for these enterprises fluctuated between three and EUR five million 2016-2019 after hitting the peak in 2015 with EUR 15.5 million. The economic performance of this segment, although improved compared to the base year, is still far behind other two segments.

Some enterprises in this segment did not succeed in overcoming the economic crisis (started in 2008) as they have started businesses as middle-sized companies at the beginning of the 2000s and, hit by crisis, continued with minimal business activity and number of employees over the reference period. Although some of them recovered by the end of the period, many had to close the company. After a period of crises, only several small family companies in this category with a long tradition in fish processing managed to maintain fish processing activities as they have already established their market position and specialized for higher added-value products as smoked or dried fish. There is an additional aspect of this; the evolution of any small or middle-sized company usually, before shutting down, ends with a few employees and minimum activity, impacting the economic performance of the segment in total.

Due to the new investments, some new enterprises started their businesses in the meantime in this category, which positively affected the change in the net profit in 2014, 2015 and as well as moderately in 2016 and 2017. On the other hand, some of those companies started their business in 2015 and 2016 and soon as they realized the investments, hired more employees which moved them into 11-49 employee's category during the recent reporting period.

Most enterprises in the size category between 11 and 49 employees are located in Istria peninsula and Zadar area, traditionally oriented to catch of small pelagic fish, with frozen fish, mostly sardine and anchovy, and in smaller part salted anchovy as the main products. In this category, it is obvious that total income is based on turnover (96%) and in smaller percentage on other income, which indicates dependency on domestic raw material. After reaching the record in 2014 on terms of number of enterprises and total income, the number of enterprises in this segment decreased from six in 2011 to three enterprises in 2015 and then increased to seven companies in 2019. Hence, the total income decreased from EUR 10.9 million in 2011 to EUR 1.9 million in 2015 and then increased to EUR 8 million in 2019. The segment is rather small and inconsistent in terms of economic indicators; however, it has a great potential for growth. The period was characterized with fast growth of some small companies followed by large investments in processing technology and the opening of new processing plants. It is important to stress that these companies are aware of the importance of the education, and they invest into education of the employees as well as into technology development.

Table 5.4.3: Economic performance by size, Croatia, 2011-2019

Variable	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees										
Total Income	4.1	4.7	5.5	9.5	15.5	3.6	4.7	3.3	3.1	-7%
Total production costs	4.5	4.6	5.4	8.7	10.4	2.6	3.2	2.9	2.9	0%
Gross Value Added	0.1	0.9	0.8	1.5	5.9	1.5	2.0	0.6	0.4	-34%
Operating Cash Flow	-0.4	0.1	0.1	0.8	5.2	1.1	1.5	0.4	0.2	-54%
Earning before interest and tax	-0.8	-0.2	-0.4	0.4	4.9	0.9	1.3	0.3	0.1	-76%
Net Profit	-0.9	-0.4	-0.6	0.3	4.7	1.0	1.2	0.3	0.1	-76%
between 11 and 49 employees										
Total Income	10.5	3.8	4.1	11.0	1.9	2.9	4.6	5.5	8.0	45%
Total production costs	7.7	3.4	3.0	6.7	1.5	2.8	4.3	4.9	7.1	44%
Gross Value Added	3.0	0.7	1.4	5.5	0.9	0.6	1.1	1.6	2.8	70%
Operating Cash Flow	2.9	0.5	1.1	4.3	0.4	0.0	0.2	0.6	0.9	57%
Earning before interest and tax	2.5	0.3	1.0	4.1	0.4	0.0	0.0	0.1	0.0	-54%
Net Profit	2.2	0.1	0.9	4.0	0.4	-0.1	0.0	0.1	0.0	-117%
between 50 and 249 employees										
Total Income	79.6	58.8	53.3	60.6	70.8	113.9	126.5	131.7	152.0	15%
Total production costs	55.8	44.9	41.6	55.7	51.7	93.0	107.4	115.4	128.5	11%
Gross Value Added	29.2	16.6	16.8	13.8	27.4	35.2	35.7	35.9	44.9	25%
Operating Cash Flow	23.8	13.8	11.7	4.8	19.1	21.0	19.1	16.3	23.5	44%
Earning before interest and tax	17.6	11.7	9.6	1.6	15.7	14.4	10.7	8.6	15.1	75%
Net Profit	15.3	10.4	8.8	-0.5	15.2	13.9	10.3	7.4	13.6	84%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The most important segment in Croatian fish industry is certainly the size category with 50-249 employees. The category demonstrates the largest income, number of total value of assets, full-time employment and FTE. In 2011, there were 11 enterprises with main activity in this category and 17 in 2019. Also, 1161 employees were employed in this category corresponding to 71% of total in 2011 and 2041 (91% of total) in 2019. The main products of this segment were frozen sardine and anchovy and canned sardine. Very good quality of anchovy and catch restrictions on anchovy in some Mediterranean countries attracted investors from Spain and Italy. By the beginning of 2014, the situation on anchovy market stabilized and sardine took place as a main fish processing product. At the same time, production of anchovy dropped by 95% compared to record in 2014. Nevertheless, fish processors are being more focused on developing diverse products with added value including anchovy. Because of the modernized business processes, in case of the lack of raw material, there is still a possibility of import and transport of fresh fish in less than 24 hours, but with higher operational costs. Existence of fish processing plants on islands could not be possible for most of the producers, because of, as mentioned before, high expenses and lack of the labour force. Only the two processors kept their processing plants on islands easily accessible by ferry and close to the important fishing areas, while others with less favourable locations shut down or moved their facilities to industrial/business zones or abroad.

5.4.4 Socio-demographic structure

In line with the Commission Delegated Decision (EU) 2019/910 and Croatian Work Plan for data collection in the fisheries and aquaculture sectors, data on socio-demographic structure in processing industry has been collected for 2017, which has been analysed in the previous report (STECF 19 15). The data for 2020 has been collected in 2021 and shall be submitted in the next reporting period.

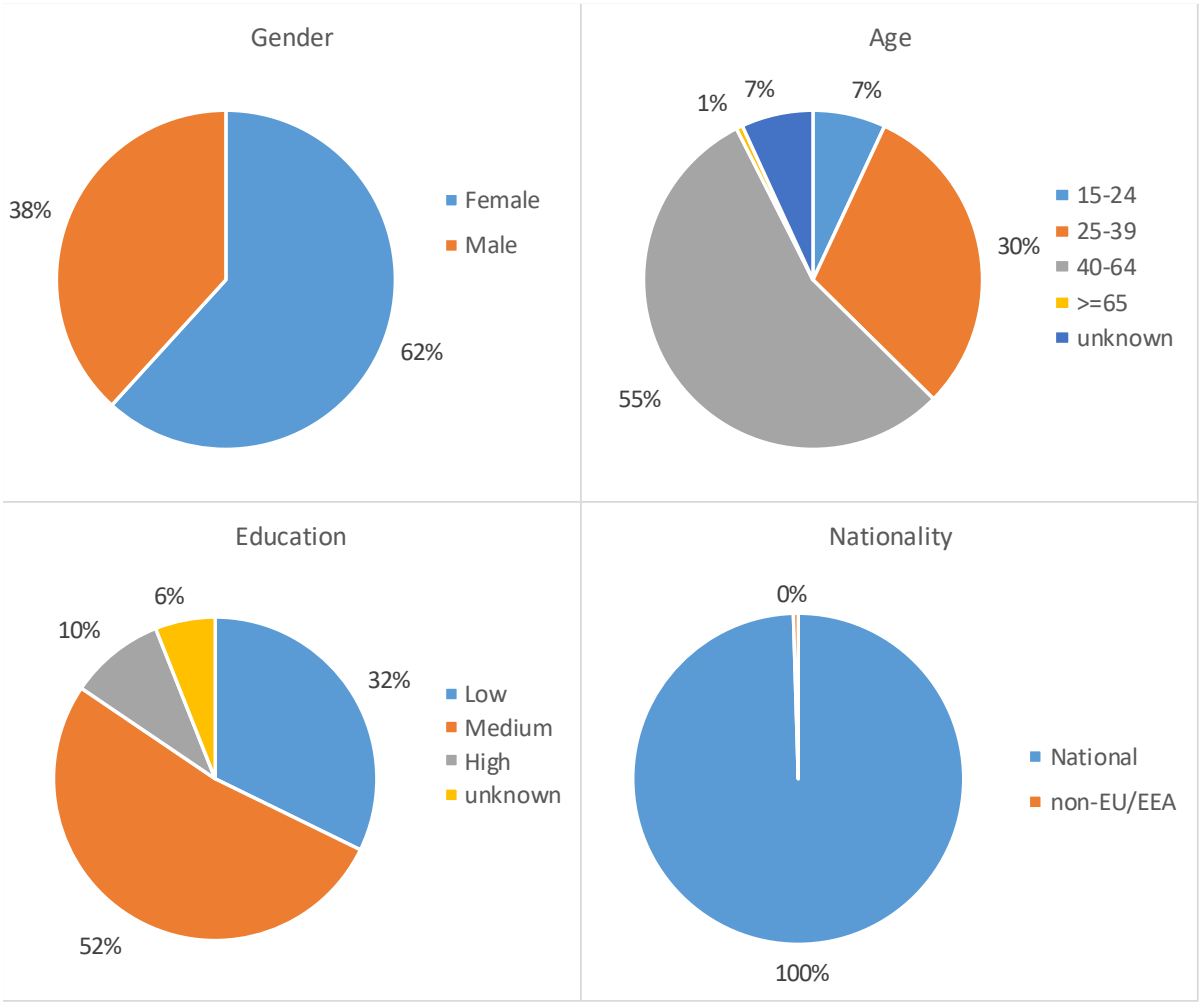

Figure 5.4.1: Socio-demographic characteristics, Croatia, 2017

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

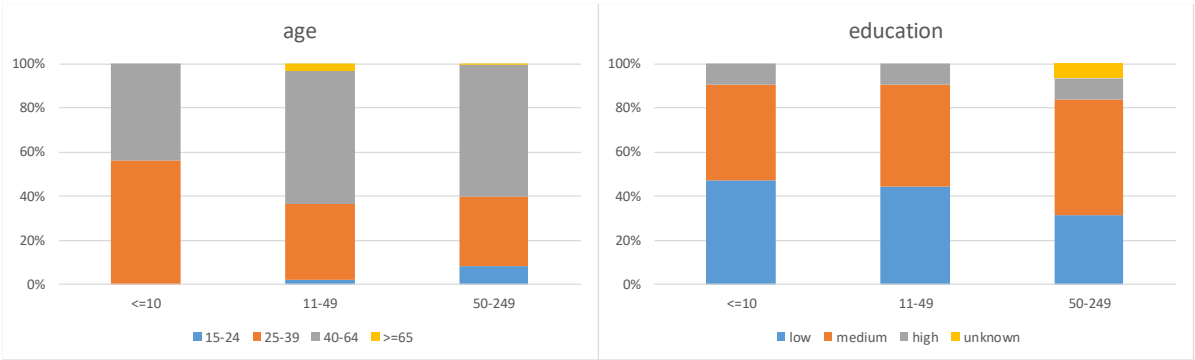

Figure 5.4.2: Distribution of the employees by enterprise size, age and education, Croatia, 2017

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.4.5 Raw materials

As well as in terms of number of enterprises, turnover and employment, segment 50-249 employees cover nearly 95% of raw material. Data on raw material has been disaggregated according to origin: domestic – fisheries, domestic – aquaculture and imported raw material. In 2018 and 2019 77% of raw material originated from domestic catch (mostly small pelagic fish –

sardine and anchovy), 14% of raw material was imported and remaining 9% originated from aquaculture.

It is important to note that in the future, connecting aquaculture and fish processing industry is one of the main tasks for fisheries development and it is already emerging as a trend in fish processing industry, both in marine and freshwater aquaculture. Merging these two sectors is leading to increase of the domestic raw material for production in processing industry as well to decrease the cost of production.

The Act on Aquaculture promotes an increase of production in aquaculture while respecting the principles of economic, social and ecological sustainability, which could have some positive effects on the collaboration of these sectors.

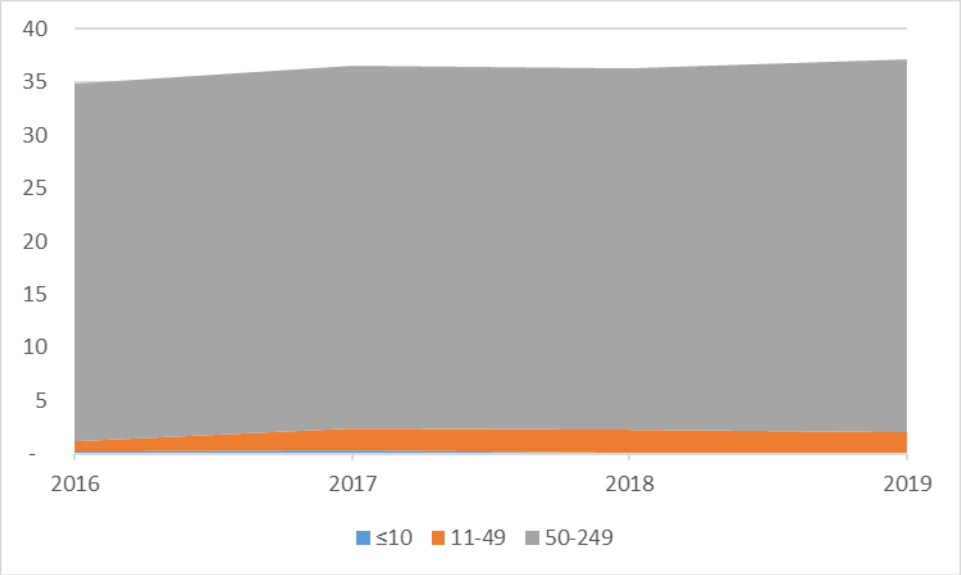

Figure 5.4.3: Distribution of raw material by enterprise categories, in thousand tonnes, Croatia, 2016-2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.4.6 Trends, drivers and outlook (including covid-19 impact)

After many initial problems related to the adjustment of new conditions of business and establishing markets when entering the EU, a structural improvement and growth is evident in all segments. New markets, EU and national support and the modernization of the entire business created a new momentum for the expansion. Fish processing enterprises invested significant funds into new processing plants, which reflected in the decrease of the number of enterprises in segment with less than 10 employees and an increase in the number of enterprises in the segment with 50-249 employees. The main reason was low-cost land properties in business zones and availability of labour force and raw material. In addition, business zones have good connection with main roads and highways, which influence the distribution of the products as well as input of the raw material. In addition, major companies with a long tradition in fish processing invested in modernization and new technologies in order to improve technical standards and adapt production for EU market. These changes caused an increase in the total number of employees and improvement of the economic performance.

Although the COVID-19 pandemic affected all business segments, the expansion of the fish processing industry in Croatia has not been significantly disrupted by the crisis. After the initial shock and adaptation of business processes, most of the processors ended the year with different than planned, but still positive, or at least slightly negative results. Since most of the processors is export-oriented, the crises caused challenges in transport, closing boundaries and other logistic issues but having a stable network of clients ensured to overcome these challenges and risks.

The sector is characterized by the dominance of female workers especially in middle-sized and large companies which dominate in the structure, with assembly line jobs, which started some positive demographic new trends in depopulated rural areas. The new conditions of work reflected prominently to the production in terms of volume and value. However, in the recent period the industry faced the declining interest of working in processing companies which leads to the import of labour and will affect socio-demographic structure in the following period. In addition, lack of educated and qualified employees demands more investment in permanent education to keep track with market conditions.

The most important product in terms of volume is frozen fish, predominantly whole fish, but in terms of value, the most important product is canned fish. While production of frozen fish is steadily rising from 2011 to 2019, production of canned sardine, anchovy and tuna variated over the period with steady growth from 2018 to 2020, regardless of challenges encountered by COVD-19 pandemic.

Overall, except in the category of frozen fish, fish production fluctuated significantly from 2011 and 2013 and then remained stable with the annual production of 23 thousand tonnes. After 2013, there are some signs of recovery in all categories and moderate but steady growth demonstrated in the recent reporting period, included 2020.

Value of fish products decreased along with the volume but with visible recovery in 2014-2020 and expected growth in upcoming period, which implies the export of the higher added value products. The total volume and value of export has a positive trend. Through the reference period, EU funds (EFF and EMFF) were available for fish processing, so the major investments are in the financing process.

Approximately 8% of total EMFF funds are allocated to the processing sector. So far, under the Measure IV.4. "Processing of fishery and aquaculture products", three tenders have been held from 2016 and 2019. For a significant number of companies applied for support, fish processing was not considered as their main activity. In previous years, they were mostly involved in aquaculture or trade and distribution of fish products. Therefore, major funds go into construction investments and additional facilities for improvements of production processes. It is important to stress that due to different kind of main activity, these companies were not a part of the fish processing population so the total amount of subsidies on investment from the EMFF does not correspond to given data in national chapter. During COVID crisis, additional tender has been held to overcome difficulties caused by the crisis.

Management measures already affected fish processing industry as most of the middle sized and large companies depend on the domestic raw material. Main challenge for fish processors in Croatia is how to provide enough raw material and planning of processing by taking into account cessation of fishing.

Although major processing companies in Croatia made some large investments in the previous period, diversity in companies' activities should be taken to account in order to assess the future expansion. Some investments of companies with processing as non-main activity are expected which could affect this indicator in the future.

In recent years, there has been a significant encouragement to join producer organizations, which have their own production capacities, permanent members - fishermen and therefore continuous input of raw materials, and on the other hand reduced costs. Investments in fishing ports also significantly support activities of fish processing companies.

Given that processors in Croatia are mostly dependent on catches of sardines and anchovies under strict management measures (for which catch limits have been established and shall be reduced due to poor stock status) - in the future the development of the sector, ie profit, will depend on added values.

5.4.7 Data coverage and quality

Data collection covered enterprises with fish processing as the main activity and enterprises with processing as an additional activity. Since there are few companies in Croatia entirely committed to processing industry, the target population was determined through multiple approaches.

Companies that according to Veterinary Directorate have approved establishments for the processing of marine organisms were sent a questionnaire with the additional statement in case they did none of the processing activity in a reference year or considered processing as an additional activity. Additionally, after checking questionnaires, balance sheets were used to cross-check data. This approach resulted in some discrepancies of population size and economic indicators compared with EUROSTAT data but also compared to the list of users of subsidies on investment through measures targeting fish processing.

It has to be pointed out that in a few cases, processing activity was stated as the main activity in terms of employment and production at national level although other activities, for example aquaculture, generated larger income. In that case, a company was included in target population as its share in total production and economic performance was of extraordinary importance for the sector. Also, it should be noted that during last reporting period one of the most significant processing plants went through structural changes which might cause some loss of data but it is expected to balance the indicators in the next reporting period.

5.5 Czechia

According to Eurostat data, in 2019, there were 19 enterprises whose main activity was fish processing in Czechia (Table 5.5.1). Compared to the previous year the total number of enterprises decreased by one. The total number of employees in the Czechian fish processing industry was 732, corresponding to 723 FTEs. The number of unpaid persons was 24. Compared to 2018, the total number of employees and FTEs remained rather stable in 2019.

The total income was EUR 96.4 million in 2019 having a rise by 5% compared to 2018. The value of total purchases of goods and services increased by 8% to EUR 79.6 million. The personnel costs increased by 6% to EUR 13.2 million. The net investment in tangible goods increased from EUR 1.5 million in 2018 to EUR 2.1 million in 2019, a growth of 40%.

Comparing the economic performance indicators between 2018 and 2019, then GVA remained stable amounting to EUR 18.9 million. Gross profit underwent a fall and decreased to EUR 5.6 million.

According to the Prodcom data [21], the Czechian fish processing industry produced 9 653 tonnes of fishery products in 2019 (10 824 tonnes in 2018). Bulk of this quantity was frozen fish fillets (90%). The main products in value were frozen fish fillets and fresh or chilled fish fillets and fish meat.

Table 5.5.1:: Overview, Czechia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	20	24	22	22	24	22	20	20	21	21	20	19	-5%
Total employees	342	341	842	836	709	677	718	750	745	762	729	732	0%
Unpaid labour	:	26	24	17	27	23	25	30	24	22	24	24	0%
FTE	333	333	837	833	703	673	710	742	741	757	725	723	0%
Income, expenditure and investments (million €)													
Production value	21.1	26.4	86.1	80.7	72.7	72.0	72.4	74.1	76.7	79.2	81.8	89.7	10%
Turnover	18.8	23.0	28.1	47.9	34.1	23.6	*27.8*	*29.1*	*28.2*	*76.7*			
Total income	34.4	41.1	101.7	93.0	83.9	83.6	82.9	84.7	85.9	88.7	92.1	96.4	5%
Total purchases of goods and services	30.8	37.2	86.8	81.4	71.5	71.5	69.8	71.0	73.0	71.9	73.7	79.6	8%
Personnel costs	3.1	3.0	11.0	10.8	9.8	9.0	9.0	9.4	10.0	11.5	12.4	13.2	6%
Net investment in tangible goods	0.3	0.2	3.1	2.8	2.6	2.8	1.8	1.8	3.0	7.3	1.5	2.1	40%
Economic performance (million €)													
Gross Value Added	4.3	4.7	16.5	13.9	13.2	13.6	13.7	14.8	14.7	17.6	18.9	18.9	0%
Gross profit	1.2	1.7	5.5	3.1	3.4	4.7	4.7	5.4	4.7	6.2	6.5	5.6	-14%

Source: Eurostat, 2019 & 2022.

Data coverage and quality

No data were submitted by Czechia in this data call. For that reason, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

[21] https://ec.europa.eu/eurostat/web/prodcom

5.6 Denmark

5.6.1 Overview

The Danish fish processing industry is mainly located around the most important fishing harbours in Denmark. These are located in the north and western parts of Jutland. Denmark is in top ten of the world largest importers and exporter of fish and fish products and the Danish processing industry produces a large variety of products based on many different species. Thus, the raw materials for the industry are purchased on the global market for fish and fish products and the dependency on domestic landing is limited. Nevertheless, the catches of cod, plaice, sole, nephrops, herring and mackerel are of some importance. Furthermore, some Danish regions and islands are depending on the local fisheries and processing industries, because alternative job opportunities in these areas are low.

The industry processing salmon is the most important in economic and employment terms in Denmark and salmon dominate the Danish import and export. The industry use fresh raw materials produced in aquaculture in Norway and Scotland, however frozen raw material are for most part imported from Chile. A large amount of salmon is passing through Denmark destined for the European marked, especially the market for fresh salmon in France and Germany. Shrimp and mussel processing is the second most important segment in Denmark, depending on the import of shrimps from Greenland. The Danish fishmeal and -oil factories are the third most important industry segment, which are dependent on domestic catches for reduction; however, they are also receiving raw material from countries like Norway, Iceland, UK and Sweden.

In Table 5.6.1, an overview of the development in the number of fish processing enterprises and the numbers of employees and full-time employees are shown. The overall structural development in the sector can be characterized by a decline in the number of enterprise and employment.

Table 5.6.1: Overview, Denmark, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	117	123	115	107	106	103	100	108	100	99	97	92	-5%
≤10 employees	56	63	56	54	57	53	47	54	48	45	43	42	-2%
11-49 employees	31	37	37	33	30	29	28	31	29	32	32	31	-3%
50-249 employees	30	23	22	20	19	21	25	23	23	22	22	19	-14%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	4,379	4,227	3,791	3,704	3,409	3,453	3,613	3,614	3,761	3,757	3,731	3,510	-6%
FTE	4,147	3,596	3,235	3,043	2,999	3,039	3,028	3,054	3,212	3,153	3,083	2,832	-8%
Indicators													
Turnover (million €)	1,703	1,693	1,829	1,859	2,010	2,230	2,269	2,489	2,726	2,610	2,549	2,503	-2%
FTE per enterprise	35.4	29.2	28.1	28.4	28.3	29.5	30.3	28.3	32.1	31.8	31.8	30.8	-3%
Average wage (thousand €)	48.8	55.8	58.6	59.4	57.0	61.3	62.9	65.6	63.1	65.0	66.7	70.0	5%
Unpaid work (%)	0.7	0.8	0.8	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.4	-14%
Enterprises doing fish processing not as main activity													
Number of entreprises	3	6	5	5	5	5	4	5	7	6	5	4	-20%
Turnover attributed to fish processing (million €)													

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In 2019, there were 92 enterprises in the Danish fish processing sector. From 2008 to 2019, the number of enterprises decreased from 117 to 92, corresponding to a 21% decrease. The sector is dominated by small and middle-sized enterprises. In Denmark, 42 enterprises have less than 10 full time employees, corresponding to 46% of the total number of enterprises. Furthermore, 31 enterprises have between 11 to 49 employees and 19 have between 50 to 249 employees. There is no large fish processing company with more than 250 full time employees.

In total, the Danish fish processing sector employed 3 510 persons in 2019, which was a decrease of 6% and 7% compared to 2018 and 2017, respectively. From 2008 to 2019, the numbers employed decreased by 20%. The number of fulltime employees also decreased from 4 147 in 2008 to 2 832 in 2019, corresponding to a decrease of 32%. The average wage per FTE increased 5% from 2018 to 2019. From 2008 to 2019, the average wage increased from EUR 49 thousand to EUR 70 thousand, corresponding to an increase of 43%. The number of persons registered as unpaid labour is of minor importance in the Danish industry, constituting only 0.4% of the workers in 2019.

The number of enterprises processing fish outside the fish processing industry is limited. There were only four enterprises in this segment, in 2019. The number has been between three and seven enterprises from 2008 to 2019.

5.6.2 Economic performance

In Table 5.6.2, the economic performance for the Danish processing industry for the period 2008 to 2019 is presented. In 2019, the total income reached EUR 2.5 billion, which was a decrease of 1% and 4% compared to 2018 and 2017, respectively. The total income consists of turnover and other income of which turnover and other income make up for 99% and 1%, respectively. There are no registered subsidies in the Danish fish processing industry.

The total cost of production reached EUR 2.4 billion in 2019, which was a decrease of 1% compared to 2018, but an increase of 4% compared to 2017. The most important cost component is the purchase of fish and other raw materials, which make up for 76% of the total cost. Other operational cost covers 15%, whereas wages and salaries cover 8%. Energy cost make up for 1% of the total production cost.

Table 5.6.2: Economic performance indicators, Denmark, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	1,702.6	1,693.2	1,828.8	1,858.7	2,010.0	2,229.8	2,269.4	2,488.9	2,726.4	2,610.2	2,549.0	2,503.0	-2%
Other income	-5.3	-49.2	60.1	68.4	19.7	-22.0	23.3	78.2	31.0	24.2	10.4	22.2	113%
Operating subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Income	1,697.3	1,644.0	1,888.9	1,927.1	2,029.7	2,207.8	2,292.7	2,567.2	2,757.4	2,634.4	2,559.4	2,525.2	-1%
Expenditure (million €)													
Purchase of fish and other raw material for production	990.9	953.2	1,041.0	1,146.9	1,177.1	1,361.1	1,397.7	1,616.7	1,632.6	1,486.0	1,840.5	1,830.9	-1%
Wages and salaries of staff	200.8	199.2	188.0	179.5	169.7	185.2	189.5	199.4	201.9	204.0	204.6	197.5	-3%
Imputed value of unpaid labour	1.5	1.5	1.5	1.2	1.3	1.0	1.0	1.0	1.0	1.1	1.0	0.8	-17%
Energy costs	33.2	30.0	35.3	36.0	30.5	33.8	34.7	38.9	25.2	21.8	25.6	24.0	-6%
Other operational costs	416.6	370.5	521.9	422.7	528.2	525.0	531.0	554.9	761.2	608.9	373.1	362.3	-3%
Total production costs	1,643.0	1,554.4	1,787.7	1,786.4	1,906.7	2,106.1	2,153.9	2,410.9	2,621.9	2,321.8	2,444.8	2,415.6	-1%
Capital Costs (million €)													
Depreciation of capital	41.0	40.1	35.7	33.6	35.5	33.4	31.0	32.1	35.6	34.5	38.1	37.0	-3%
Financial costs, net	41.1	35.9	9.5	12.4	9.3	11.0	-11.2	-1.5	0.0	-19.5	-0.7	-5.7	665%
Capital Value (million €)													
Total value of assets	1,218.4	1,195.0	1,142.9	1,134.3	1,221.6	1,209.1	1,206.1	1,355.4	1,382.9	1,486.6	1,548.5	1,615.1	4%
Net Investments	42.0	37.9	7.9	39.2	31.2	40.5	37.2	44.4	70.8	41.7	49.3	36.6	-26%
Subsidies on investments									0.0	0.0	0.0	0.0	0%
Debt	915.6	870.0	813.6	628.5	700.7	715.9	668.0	706.5	768.1	799.2	865.8	888.5	3%
Economic performance (million €)													
Gross Value Added	256.6	290.3	290.8	321.5	293.9	287.9	329.3	356.7	338.3	517.7	320.2	308.0	-4%
Operating Cash Flow	54.3	89.6	101.2	140.8	123.0	101.7	138.8	156.2	135.5	312.6	114.6	109.6	-4%
Earning before interest and tax	13.3	49.5	65.5	107.2	87.5	68.2	107.8	124.1	99.8	278.1	76.4	72.6	-5%
Net Profit	-27.7	13.6	56.0	94.8	78.2	57.2	119.0	125.6	99.8	297.7	77.2	78.4	2%
Productivity and performance Indicators													
Labour productivity (thousand €)	61.9	80.7	89.9	105.7	98.0	94.7	108.8	116.8	105.3	164.2	103.9	108.8	5%
Capital productivity (%)	21.1	24.3	25.4	28.3	24.1	23.8	27.3	26.3	24.5	34.8	20.7	19.1	
GVA margin (%)	15.1	17.7	15.4	16.7	14.5	13.0	14.4	13.9	12.3	19.6	12.5	12.2	
EBIT margin (%)	0.8	3.0	3.5	5.6	4.3	3.1	4.7	4.8	3.6	10.6	3.0	2.9	
Net profit margin (%)	-1.6	0.8	3.0	4.9	3.9	2.6	5.2	4.9	3.6	11.3	3.0	3.1	
Return on Investment (%)	1.1	4.1	5.7	9.5	7.2	5.6	8.9	9.2	7.2	18.7	4.9	4.5	
Financial position (%)	24.9	27.2	28.8	44.6	42.6	40.8	44.6	47.9	44.5	46.2	44.1	45.0	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

From 2018 to 2019, the depreciation of capital was reduced by 3%, whereas the net financial cost decreased to EUR 5.7 thousand, corresponding to a positive income. Total assets increased 4% whereas the net depth increased 3%. The net investment decreased by 26%. The Gross Value Added (GVA) is calculated as the total income deducted by energy cost, fish and other raw material cost and other operational cost. The GVA reached EUR 308 million in 2019, which was a decrease of 4% from 2018.

Earnings before interest and tax (EBIT) have been positive throughout the whole period from 2008 to 2019. In 2008, the Danish fish processing industry experienced a negative net profit, but since then the net profit has been positive. From 2018 to 2019, the net profit increase to EUR 78.4, which was an increase of 2%. However, compared to 2017 where the highest profit was obtained over the period from 2008 to 2019, it was a decrease of 74%.

The labour productivity increased by 5% from 2018 to 2019, whereas most of the other productivity and performance parameters fluctuated around the same level as in 2018. From 2017 to 2019 all productivity and performance parameters decreased as 2017 represent an all-time high. Even though, the sector has become less profitable over the last couple of years it still seems quite robust.

5.6.3 Breakdown by company size

In Table 5.6.3, the numbers of enterprises distributed on size categories are shown. The segment containing enterprises with 10 or less employees is the largest in terms of number of enterprises (42) but are in economic terms the least important. In 2019, there are one enterprise less in this segment than in 2018. The income increased with 23%, but the cost also increased with 24%. Overall, this resulted in an increase of the GVA of 3%, whereas the EBIT was zero. However, the net profit increased from EUR 3 million to EUR 8 million from 2018 to 2019.

The segment with 11 to 49 employees covers 31 enterprises. The segment experienced an increase in total income of 4% and an increase of total cost of 14%. This resulted in a decrease in GVA of 41% from 2018 to 2019. Operating cash flow and EBIT decreased 71% and 78%, respectively. Finally, the net profit decreased from EUR 68.5 thousand in 2018 to EUR 12.3 thousand in 2019, corresponding to a decrease of 82%.

Table 5.6.3: Economic performance by size, Denmark, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	60.8	104.6	78.3	89.3	93.7	116.6	101.3	99.4	106.6	43.5	43.4	53.4	23%
Total production costs	59.3	102.2	74.6	86.2	89.9	112.5	98.0	96.6	103.1	42.1	42.1	52.3	24%
Gross Value Added	11.4	14.7	13.5	13.0	13.8	13.5	11.2	11.1	12.7	9.1	9.6	9.9	3%
Operating Cash Flow	1.5	2.4	3.7	3.1	3.8	4.0	3.3	2.8	3.5	1.4	1.4	1.1	-20%
Earning before interest and tax	-0.2	0.5	2.4	1.6	2.2	2.1	2.0	1.4	2.1	0.5	0.2	0.0	-111%
Net Profit	-1.3	-0.8	1.8	0.7	1.4	1.4	1.5	1.1	2.1	15.9	3.3	8.1	147%
between 11 and 49 employees													
Total Income	337.5	392.3	499.1	465.5	526.8	540.2	509.1	533.4	704.2	671.8	659.6	687.0	4%
Total production costs	324.1	370.5	473.1	444.1	504.7	519.2	491.7	511.1	681.7	600.7	582.7	664.9	14%
Gross Value Added	57.5	74.7	79.1	68.9	69.3	67.2	55.7	65.2	66.9	116.7	117.1	69.3	-41%
Operating Cash Flow	13.4	21.8	26.0	21.4	22.0	21.0	17.4	22.3	22.5	71.1	76.9	22.1	-71%
Earning before interest and tax	3.7	10.4	16.8	14.5	14.1	12.7	11.4	14.8	14.1	65.1	70.1	15.2	-78%
Net Profit	-4.1	1.7	11.7	9.8	8.7	9.3	10.8	15.0	14.1	64.2	68.5	12.3	-82%
between 50 and 249 employees													
Total Income	1,299.1	1,147.1	1,311.5	1,372.4	1,409.2	1,551.0	1,682.3	1,934.3	1,946.6	1,919.0	1,856.3	1,784.8	-4%
Total production costs	1,259.6	1,081.7	1,240.1	1,256.1	1,312.1	1,474.4	1,564.2	1,803.3	1,837.1	1,679.0	1,820.0	1,698.4	-7%
Gross Value Added	187.8	200.9	198.2	239.6	210.8	207.2	262.4	280.4	258.6	391.8	193.5	228.8	18%
Operating Cash Flow	39.4	65.4	71.5	116.3	97.1	76.6	118.2	131.1	109.5	240.1	36.3	86.5	138%
Earning before interest and tax	9.8	38.6	46.3	91.1	71.1	53.4	94.4	107.9	83.7	212.6	6.1	57.5	843%
Net Profit	-22.2	12.6	42.4	84.3	68.1	46.6	106.7	109.5	83.7	217.6	5.3	57.9	984%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The segment of the largest enterprises in Denmark employing 50-249 are covering 19 enterprises. This segment also covers 71% of the total income and 70% of the total cost for the whole sector. For this segment, the income decreased 4% and the cost decreased with 7%. The GVA increased 18%, resulting in increased operating cash flow and improvement of the EBIT. The net profit increased to EUR 57.9 thousand in 2019 compared to EUR 5.3 in 2018. The net profit in 2018 was the second lowest net profit achieved in the period from 2008 to 2019.

Overall, the small enterprises are staying at the same level, whereas the medium segment are facing a decrease and the largest enterprises are doing better in 2019 than in 2018.

5.6.4 Socio-demographic structure

In addition to the economic data, social data on gender, age, education and nationality are collected and integrated with the economic data using data from Statistics Denmark's "Register-Based Workforce Statistic" and "Labour Market Account Statistic". The collection of social indicators for the Danish processing sector covers the years 2016 to 2019, which is provided for the 2022 data call. The social variables were included in the annual economic survey, which enabled full coverage of the social variables for the Danish industry (census data) as totals for the industry as well as distributed on size categories.

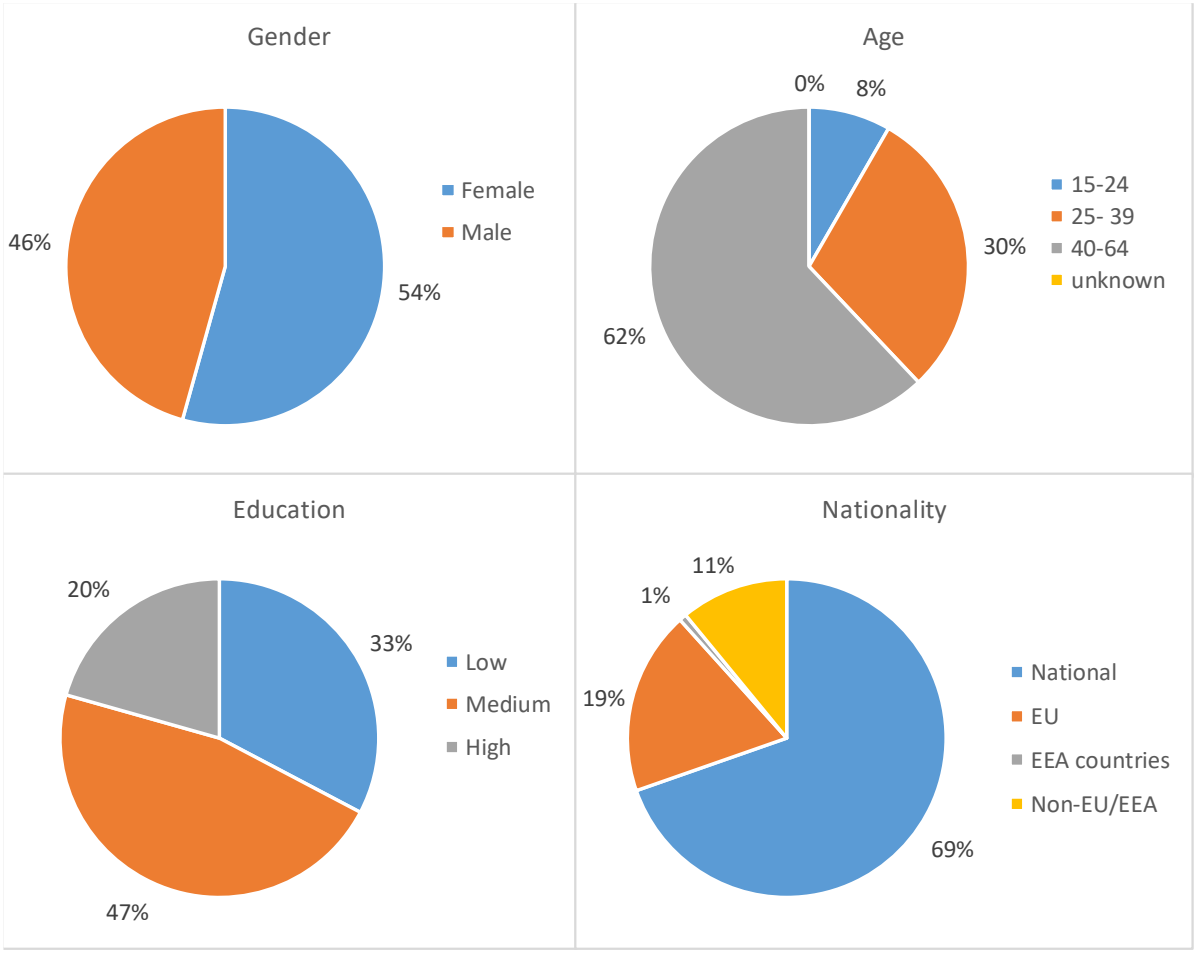

Figure 5.6.1: Socio-demographic characteristics, Denmark, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In 2019, the majority of employees were female covering 54%, whereas male employees covered 46%, which is the same distribution as in 2017. The proportion of female for each size category

of enterprises was 61%, 59% and 52% for the segments 0-9, 10-49 and 50-249. Thus, there is a larger percentage of females in the smaller enterprises, which was also the case in 2017. The age groups collected were 15-24, 25-39, 40-64 and >= 65. For the overall industry, the age group 15-24 covered 8%, the group 25-39 covered 29%, the group 40-64 covered 61%, whereas the group >=65 only covered 2%.

From figure 5.6.2, it can be seen that the percentage distribution by age is almost similar to the total distribution in all the size categories, however; for the smallest enterprises, the age group between 15-24 cover 13% and the group between 25-39 only 22%, with the rest being the same.

In terms of education, 33% had a low education (primary school), 47% a medium education and 20% had a high education. From figure 5.6.2, it can be seen that enterprises with less than 10 employees have the highest share of low educated employees. However, it is a bit surprising that the enterprises with between 10 and 49 employees has the highest share of highly educated employees. This might be explained by the fact that these enterprises need more management with higher educations than smaller enterprises and that these managers make up a relative large share of the total number of people employed in this segment.

In figure 5.6.1, the percentage people employed in the processing industry coming from Denmark (National) 69%, other EU countries 19%, EEA countries 1% and other nationalities 11% is shown. Compared to 2017, there is a slight fall in National employment from 74% to 69%. This is due to a reduction in total number of employees, where the main reduction is within Nationals, where the other groups seem quite stable.

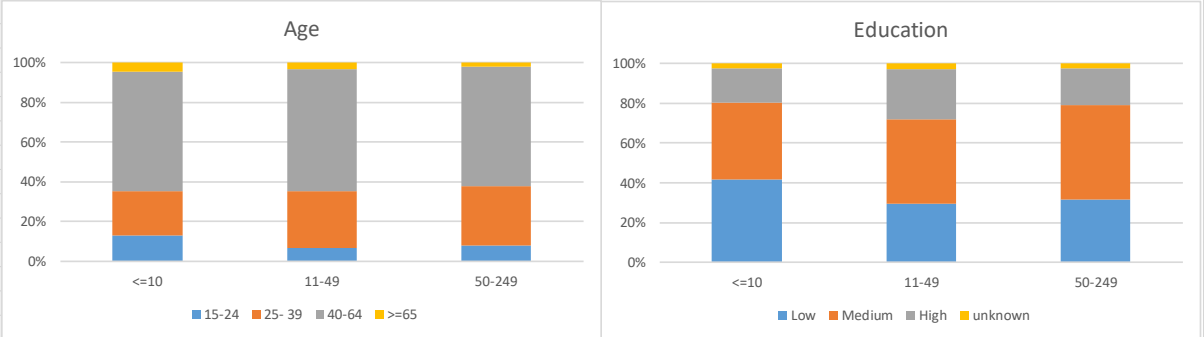

Figure 5.6.2: Distribution of the employment by age and education according to enterprise size, Denmark, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Looking at enterprise size, the proportion of Nationals for each size category of enterprises was 85%, 77% and 66% for the segments 0-9, 10-49 and 50-249. Thus, the smallest enterprises also have the highest percentage of nationals. This result seems in accordance with what could be expected, since larger companies most often have a more international profile focusing on the international market, and they therefore need employees with a broader international profile. On the other hand, smaller enterprises focus on the domestic market and therefore most often hire employees from the national labour force.

5.6.5 Raw material

Denmark is not collecting information on raw material used in the processing industry, which is in accordance with the Danish data collection program. However, the commodity sales from the industry is collected in order to get information on which species are processed. From this data, it is possible to divide the industry into segments based on the main species produced.

Based on the commodity data the Danish industry is divided into the following segments:

- Cod- and flatfish
- Herring and mackerel

- Shrimp and mussels
- Salmonids
- Mixed species
- Fishmeal and –oil

In table 5.6.4, the distribution of species in each segment can be seen. The table reveals that the processing industry is quite specialized when it comes to processing of different species.

Table 5.6.4 Percentage of commodity production based on different species for each segment, 2020

	Cod- and flatfish	Herring and mackerel	Shrimp and mussels	Salmonids	Other species	Sea- weed	Scrapings	Fish for reduction	I alt
Cod- and flatfish	**75**	0	2	9	14	0	0	0	100
Herring and mackerel	0	**75**	0	1	8	0	14	1	100
Shrimp and mussels	0	0	**89**	0	10	0	0	0	100
Salmonids	6	0	1	**89**	3	0	1	0	100
Mixed species	**38**	16	3	1	**39**	4	0	0	100
Fishmeal and -oil	0	0	0	0	0	0	1	**99**	100

Source: Based on the commodity sales statistics, Statistics Denmark.

The most important segment in terms of income and employment is the salmon processing enterprises. They process mostly fresh salmon from the Norwegian aquaculture sector to fresh- and smoked fillets for the EU market. Danish trout produced in aquaculture is also processed in this segment, where the product is mostly smoked fillets.

The shrimp processors are also an important segment mainly processing cold water shrimp from the North Atlantic, primarily wild caught from Greenland. The mussel production is a mix of fisheries and aquaculture. The fished mussels are small and mostly used for canning, where the aquaculture produced mussels are sold fresh.

The fishmeal and -oil factories use fish for reduction and scrapings from the other processing companies to produce fishmeal and -oil. The products are mainly used in the production of feed for aquaculture, but also in agriculture and for human consumption (fish oil).

The enterprises processing herring are producing filets and marinated herring, whereas mackerel are mostly canned with tomato sauce or smoked. The Cod- and flatfish segment produce a mix of fresh and prepared products such as ready meals and breaded products.

In table 5.6.5, the distribution on sales volume in tons divided on species is shown. For most species the volume of processed products are rather constant over time. The fluctuation over the years can be explained by changes in quotas, but also prices on the different raw materials.

Table 5.6.5 Commodity sales divided on species in tons

	2016	2017	2018	2019	2020
Salmonids	47.177	51.490	60.564	51.614	58.470
Codfish	45.253	46.229	43.048	39.595	37.846
Shrimp	13.552	15.029	16.058	15.509	13.882
Sild	50.958	53.864	57.105	55.391	46.158
Flatfish	909	875	785	497	792
Mackerel	12.055	8.849	12.429	15.375	13.517
Mussels	7.062	9.127	10.672	9.915	7.602
Other	25.718	20.939	18.535	20.576	19.862
Seaweed	375	442	557	606	573
For consumption	**203.059**	**206.845**	**219.754**	**209.078**	**198.704**
Scrapings etc.	218.865	167.326	173.651	137.031	106.680
Fish for reduction	247.599	341.709	290.615	278.051	259.667
Total	**669.523**	**715.880**	**684.021**	**624.161**	**565.052**

Source: Based on the commodity sales statistics, Statistics Denmark.

In table 5.6.6, the distribution of sales volume in tons for each segment is showed based on the commodity sales from the enterprises. The fluctuation over the years can be explained by enterprises moving from one segment to another.

Table 5.6.6 Production distributed on species segments in tons

	2016	2017	2018	2019	2020
Cod- og flatfish	70.534	49.552	50.814	40.486	38.469
Herring and mackerel	70.428	146.817	43.013	159.032	130.794
Shrimp and mussels	21.826	25.380	31.807	23.567	22.003
Salmonids	53.815	58.363	81.672	70.198	79.654
Mixed species	93.481	36.277	128.179	16.102	17.243
For consumption	**310.084**	**316.390**	**335.484**	**309.384**	**288.163**
Fishmeal and -oil	359.440	399.490	348.537	314.776	276.888
Total	**669.523**	**715.880**	**684.021**	**624.161**	**565.052**

Source: Based on the commodity sales statistics, Statistics Denmark.

Based on the above commodity sales statistics, important information on how changes in quotas and prices affect different segments in the Danish fish processing industry can be derived.

5.6.6 Trends, drivers and outlook (including covid-19 impact)

At this point in time, it is still difficult to evaluate the full effect of Covid-19 impact on the Danish processing industry. However, from import and export data on volumes and values (see chapter on Covid-19) it seems that this has not changed significantly and the effect on the processing industry is therefore considered to be small. An argument for this is that many of these product goes to retailers and supermarket chains that have not experienced a decrease in demand, whereas direct sales to consumers and restaurant have been more exposed by the lockdown. However, there can be differences depending on the species produced and the degree of processing.

In general, the industry relies on a steady inflow of raw materials. For industries that are relying on local/EU stocks a change in the availabilities of these materials can severely affect the industry income, production and employment. This is especially true for the Danish fishmeal and –oil processors that are relying on Danish catches for some of their raw material. For industries that are less dependent on local/EU stocks, raw materials are purchased from all over the world. In these segments, cod, herring and mackerel sectors are relying on Danish catches as well as raw material from countries fishing in the North Atlantic. The salmon processors are, on the other hand, solely dependent on the production originating from the aquaculture sector, especially Norway. The shrimp processors are dependent on the shrimp caught in the North Atlantic by Greenland and Canada, however, the processing of warm water shrimp is mostly relying on shrimp produced in aquaculture outside the EU.

Most EU stocks are at the moment fully exploited (FAO) and it is not expected that raw materials from EU fisheries will/or can increase in the near future. However, the EU aquaculture sector can, given the right framework condition, increase production and it is considered that the EU aquaculture sector has an unleashed potential to increase production.

In terms of certification, most Danish stocks are managed in accordance with the Marine Stewardship Council (MSC) guidelines and labelled accordingly. Processing companies are dependent on selling their product to supermarket chains, which most often demand that products are labelled to attract consumers and avoid bad publicity for selling non-sustainable products. Thus, the processing industry applies to these demands from the supermarket chains.

For the aquaculture sector in Denmark, the labelling scheme Aquaculture Stewardship Council (ASC) has been adopted, and more and more producers are following these guidelines. In Denmark, there is furthermore a governmental certification scheme for organic products, which can be applied for aquaculture products coming from both land-based farms, marine sea cages farms and mussel producers.

Fish processing as non-main activity is rather limited in Denmark. More than 95% of the fish products that are processed in Denmark can be allocated to the enterprises within the NACE code 10.20, where fish processing is the main activity. There have only been identified between 3-7 enterprise outside NACE 10.20 over the period 2008 to 2019 that have fish processing, but not as their main activity. These companies are identified if they have workplaces/production facilities doing fish processing, but the overall enterprise is not registered under the NACE 10.20. Do to confidentially reasons, the income from these companies cannot be reported.

At the moment, a major concern is the economic consequences for the Danish fishery following the United Kingdom's decision to leave the European Union (BREXIT). It is not only a matter of the lost fishing opportunities in British waters it also affects the negotiation between Norway and EU, which is also an important fishing ground for Danish fishers. The vessels affected by BREXIT are primarily targeting species for reduction, herring and mackerel. Thus, the Danish processing industry relying on these catches will be affected. If the same volumes of fish are landed, the processing industry will probably not be affected. An issue related to BREXIT is the new tariffs that will be placed on fish from 3. countries entering UK or sold from UK to EU, which may increase costs for Danish processing companies.

A new regulation on aquaculture production has been implemented in Denmark, in 2012. Furthermore, a new plan for increasing aquaculture production was implemented in 2016/17 allowing for an increase in both land and sea-based aquaculture production. However, in 2019 the opportunities of expanding the sea based was closed down again. Thus, only the land-based production still seems to have the opportunity to expand. However, the distribution of licenses on emission of nitrogen is still not distributed in 2022. Nevertheless, the production in the Danish aquaculture sector is expected to slightly increase in the coming years, providing more raw materials for the industry. This could potentially have a positive effect on the processing industry in Denmark, especially the segment processing salmonids.

5.6.7 Data coverage and quality

Data for the Danish fish processing industry is collected by Statistics Denmark. The data covers all enterprises in the business register covered by NACE 10.20. Data is processed to comply with the DCF and EU-MAP in cooperation with the Department of Food and Resource Economics (IFRO). The data collected by Statistics Denmark follows the definition of the Structural Business Statistics (SBS) and is, therefore, comparable with Eurostat data and data from other member states that are using the SBS definition.

In Statistics Denmark, the Account Statistics are available approximately 20 months after the end of the reference year. Data can be disaggregated on to the four segments on numbers of employees as requested by the DCF and EU-MAP. To avoid problems with confidentiality, segments should in general include more than 10 enterprises. In Denmark, the enterprises covered by NACE 10.20 cover more than 95% of the fish processing in Denmark and is a very good estimate of the total income and production of Danish processing industry.

The data collected and processed for the DCF and EU-MAP can be slightly different from the data that are being published by Eurostat on the processing industry. This is because the data for the DCF and EU-MAP are combined from two different statistics in Statistics Denmark; the Account Statistics and the Industry Commodities Trade Statistics, where data for Eurostat only covers data from the Account Statistics. The two statistics are combined to get more detailed information on the raw material use in the fish processing industry. Furthermore, combining the two statistics provide information on the species used in the processing industry.

Under the EMFF, initiatives that have supported the fish processing industry has been launched, however, there are no subsidies registered by Statistics Denmark for the processing industry. An explanation of the missing registration of these funds can be that it is paid to supporting industries and not directly to the enterprises that is registered as having fish processing as their main activity, such as, marketing firms or firm engaged in producing equipment for the processing industry. Overall, the funding corresponds to less than 1% of the industries total income and is assessed to be insignificant to the Danish processing industry.

5.7 Estonia

In 2019, there were 59 enterprises whose main activity was fish processing in Estonia (Table 5.7.1). Compared to the previous year the total number of enterprises decreased by one (2%). The total number of employees in the Estonian fish processing industry was 1 208, corresponding to 1 185 FTEs. The number of unpaid persons was 10. Compared to 2018, the total number of employees and FTEs decreased 8% and 7% in 2019, respectively.

The total income was EUR 136.3 million in 2019 increasing 5% compared to 2018. The value of total purchases of goods and services increased by 4% to EUR 113.6 million. The personnel costs increased by 1% to EUR 18.8 million. The net investment in tangible goods decreased from EUR 9.2 million in 2018 to EUR 5.4 million in 2019, a drop of 41%.

Comparing the economic performance indicators between 2018 and 2019, then GVA increased by 11% to EUR 25.9 million in 2019. Gross profit underwent a rise and reached to EUR 7.6 million.

Table 5.7.1: Overview, Estonia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*	Δ (2018-19)
Structure (number)													
Total enterprises	59	56	58	69	64	55	57	70	68	66	60	59	-2%
Total employees	2,101	1,822	1,766	1,909	1,961	1,896	1,837	1,881	1,570	1,376	1,306	1,208	-8%
Unpaid labour	5	9	6	7	0	3	4	14	13	9	7	10	43%
FTE	2,072	1,730	1,741	1,871	1,912	1,862	1,803	1,844	1,536	1,348	1,276	1,185	-7%
Income, expenditure and investments (million €)													
Production value	117.4	104.4	119.2	139.8	146.1	161.2	168.7	162.9	123.1	125.0	128.0	129.6	1%
Turnover													0%
Total income	123.6	110.2	124.6	148.6	151.3	164.3	168.4	171.5	126.6	126.8	129.9	136.3	5%
Total purchases of goods and services	99.5	85.3	98.8	127.9	125.7	138.7	143.9	129.4	104.6	106.4	108.8	113.6	4%
Personnel costs	19.4	15.8	16.2	18.0	20.1	21.4	22.4	23.0	20.4	18.4	18.6	18.8	1%
Net investment in tangible goods	6.7	4.6	7.5	11.4	3.5	3.1	6.1	7.7	5.1	3.8	9.2	5.4	-41%
Economic performance (million €)													
Gross Value Added	25.2	22.9	26.5	25.9	29.1	29.6	27.5	25.3	22.0	23.4	23.4	25.9	11%
Gross profit	5.9	7.1	10.2	7.9	9.1	8.3	5.1	2.4	1.6	5.0	4.8	7.6	58%

Source: Eurostat, 2022

2019 data were provided directly by the expert and originate from Statistic Estonia*

The majority of Estonian fish processing enterprises are medium, as their average number of employees is less than 50. Baltic herring and sprat caught by trawlers from the Baltic Sea are the most important local raw material for the Estonian fish processing enterprises. Estonian coastal fishing provides reasonably large volumes of expensive freshwater fish like perch, pikeperch and pike which are used as raw material for fillets. Salmon from northern countries is imported for processing[22]. Due to its small size, the fish markets and processing enterprises do not depend on domestic aquaculture production[23]. According to the data of Prodcom[24], the Estonian fish

[22] Expert knowledge based on catch data, import data and production output of processing companies. Information on catches can be found on the website of the Agriculture and Food Board: https://pta.agri.ee/ettevotjale-tootjale-ja-turustajale/kutseline-kalapuuk/puugistatistika. Information on fishery products based on Prodcom data: https://ec.europa.eu/eurostat/web/prodcom. The foreign trade info comes from the statistical database of Statistics Estonia which also sends its data to Eurostat: https://andmed.stat.ee/en/stat.

[23] According to Statistics Estonia the production volume of fish farms was only 1062 tonnes in 2019 and thus aquaculture was not a significant source of raw material (Estonian fish processing industry produced 59,632 tonnes of fishery products in 2019). https://andmed.stat.ee/en/stat.

processing industry produced 59 632 tonnes of fishery products in 2019 (53 522 tonnes in 2018). Bulk of this quantity was frozen whole salt-water fish (66%), which mainly was exported to Ukraine. The main products in value were fish fillets in batter or breadcrumbs including fish fingers, frozen whole salt-water fish and prepared or preserved crustaceans, molluscs and other aquatic invertebrates.

The proportion of exports in the total sales revenue of companies whose main business is fish processing accounted for 60% in 2019 (59% in 2018)[25]. The production was exported to 51 countries. The main Estonian export countries for fish and fisheries products in value were Finland, Sweden, Iceland, Ukraine and Denmark in 2019.

The launch of production at the fishmeal and fish oil plant of the Central Association of Estonian Fish Producers was an important event for the entire fisheries sector in Estonia. The sales revenue of the new plant amounted to EUR 9.85 million in 2019, which was also reflected in the increase in the total sales revenue of the Estonian fish processing industry.

Data coverage and quality

No Estonian data were submitted in the 2021 fish processing sector data call. Estonia decided not to collect data on the fish processing industry under the DCF / EU-MAP from 2017. Thus, DCF data were only available until 2015, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data (years 2008–2018), which are publicly available. 2019 data were provided directly by the expert and originate from Statistic Estonia, which is source to Eurostat.

[24] https://ec.europa.eu/eurostat/web/prodcom

[25] Expert assessment based on the knowledge of the sector (financial statements source).

5.8 Finland

5.8.1 Overview

There were 119 fish processing enterprises operating in Finland in 2019 that recorded total turnover of EUR 402 million generating gross value added of EUR 53 million. The processing industry employed 812 FTEs or 1100 persons. The fish processing industry in Finland is highly concentrated in the sense that 10 companies with the highest turnover produced around 88% of the total revenue generated by the industry in 2019. Majority of enterprises are micro and small enterprises that accounted for 35% of the total income of the industry. There were 31 non-main processing enterprises in 2019, which generated EUR 118 million turnover.

In 2019, fish processing enterprises used 76 thousand tonnes of fish as raw material, 45 thousand tonnes were domestic fish and 31 thousand tonnes were imported. Use of domestic fish dropped dramatically in 2015 due to Russian embargo for EU foodstuff in autumn 2014 as a counter measure to EU sanctions against Russia over Ukraine crisis. Despite significant increased amounts of domestic rainbow trout and Norwegian salmon processed there was a marked drop in turnover of the sector in 2015. The industry has recovered since and was able to produce record high turnover in 2019. The processing of Norwegian salmon decreased in 2019 together with increasing production of domestic deep frozen Baltic herring and sprat for export.

Table 5.8.1: Overview, Finland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	143	137	143	143	143	147	137	136	134	136	131	119	-9%
≤10 employees	131	125	131	127	124	125	113	113	112	116	111	100	-10%
11-49 employees	9	9	9	13	15	22	19	20	19	16	16	15	-6%
50-249 employees	3	3	3	3	4	0	5	3	3	4	4	4	0%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	961	880	885	870	962	1,010	1,237	1,004	963	966	1,039	1,100	6%
FTE	682	742	742	777	775	808	1,072	803	751	760	823	812	-1%
Indicators													
Turnover (million €)	160	195	236	263	265	356	397	300	310	353	396	402	2%
FTE per enterprise	4.8	5.4	5.2	5.4	5.4	5.5	7.8	5.9	5.6	5.6	6.3	6.8	9%
Average wage (thousand €)	34.8	36.4	35.5	36.1	40.1	50.1	39.4	39.6	41.2	40.4	40.8	43.6	7%
Unpaid work (%)	3.9	3.2	3.9	3.3	3.1	4.2	3.6	4.8	4.1	3.4	3.4	2.5	-25%
Enterprises doing fish processing not as main activity													
Number of entreprises	22	49	56	13	13	21	21	20	20	28	28	31	11%
Turnover attributed to fish processing (million €)	10.3	128.8	147.1	49.9	49.9	93.8	93.8	102.6	102.6	133.6	133.6	117.5	-12%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.8.2 Economic performance

Finnish processing sector was booming with 10-20% annual growth rate from 2008 until 2015 when the turnover dropped by 24%. Turnover remained at the lower level in 2016 but have increased since to record high EUR 402 million in 2019 with an increase of 2% from previous year. At the same time the other income decreased to EUR 1.1 million and operating subsidies to EUR 0.1 million.

Total costs follow the total income closely. The main reason is that the raw material makes up majority of the costs, some 80% of the total operating costs corresponding to EUR 302 million in 2019. Other operational costs, wages and salaries of staff are other main cost items in the sector. All costs increased in 2019 except for the imputed value of unpaid labour. Increasing costs resulted in weakening profitability, although the turnover improved. The gross value added decreased by 6%, operating cash flow fell by 25%, EBIT by 41% and net profit by 44%. The

processing sector was making around EUR 53 million gross value added and EUR 9 million net profit in 2019.

The gross value added of processing industry increased steadily up to EUR 63 million in 2014 but dropped with turnover in 2015 by 30%. The profitability improved until 2018 but decreased in 2019 due to increased production costs. In general, the sector is operating with low net profit margin: an average 3% of the total income. The processing sector invested triple the amount of previous year in 2019. At the same time, the debt increased, and the financial position weakened. The return on investments were record high in 2018 but fell sharply in 2019 to 5.8%.

Table 5.8.2: Economic performance indicators, Finland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)													
Turnover	160.0	195.4	236.1	262.8	264.7	356.0	396.8	299.8	309.8	353.3	395.8	402.4	2%
Other income	1.2	1.0	3.3	1.4	1.7	1.9	1.8	1.9	0.8	1.0	1.5	1.1	-30%
Operating subsidies	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.8	0.1	-85%
Total Income	161.3	196.5	239.5	264.2	266.5	358.1	398.9	301.8	310.7	354.4	398.2	403.6	1%
Expenditure (million €)													
Purchase of fish and other raw material for production	107.6	131.7	168.4	189.3	185.8	248.1	278.2	220.0	229.3	266.0	295.9	301.9	2%
Wages and salaries of staff	22.8	26.1	25.3	27.1	30.1	38.8	40.7	30.3	29.7	29.7	32.5	34.5	6%
Imputed value of unpaid labour	0.9	0.9	1.0	0.9	1.0	1.7	1.5	1.5	1.3	1.0	1.1	0.9	-21%
Energy costs	2.3	2.7	3.3	3.2	3.0	4.0	4.3	3.5	2.3	2.4	2.6	2.6	1%
Other operational costs	18.3	22.7	25.4	29.7	32.8	46.8	53.0	33.7	34.8	36.9	42.9	46.3	8%
Total production costs	151.9	184.1	223.4	250.3	252.6	339.4	377.8	289.1	297.3	336.1	375.0	386.2	3%
Capital Costs (million €)													
Depreciation of capital	3.5	4.2	5.1	4.8	5.7	7.4	9.7	5.9	6.5	6.3	6.3	7.4	17%
Financial costs, net	2.2	1.7	1.8	1.8	1.9	1.0	0.0	1.1	1.2	1.8	0.4	0.8	119%
Capital Value (million €)													
Total value of assets	73.6	86.7	103.5	108.3	120.2	169.9	161.5	134.2	139.0	147.8	155.2	172.8	11%
Net Investments	3.1	7.6	4.9	5.0	14.2	3.3	5.9	9.3	11.3	2.7	8.1	30.6	278%
Subsidies on investments									3.5	0.1	0.5	0.9	76%
Debt	56.7	67.1	74.3	74.4	85.3	112.9	100.6	89.0	89.5	93.7	97.3	111.2	14%
Economic performance (million €)													
Gross Value Added	33.0	39.3	42.4	41.9	44.8	59.0	63.1	44.4	44.2	48.9	56.0	52.6	-6%
Operating Cash Flow	9.4	12.4	16.2	13.9	13.9	18.7	21.1	12.7	13.4	18.3	23.2	17.4	-25%
Earning before interest and tax	5.9	8.2	11.0	9.2	8.2	11.3	11.4	6.8	6.9	12.1	17.0	10.0	-41%
Net Profit	3.6	6.4	9.2	7.3	6.3	10.3	11.4	5.7	5.7	10.2	16.6	9.2	-44%
Productivity and performance Indicators													
Labour productivity (thousand €)	48.5	53.0	57.1	53.9	57.9	73.1	58.9	55.3	58.8	64.4	68.0	64.8	-5%
Capital productivity (%)	44.9	45.3	40.9	38.7	37.3	34.7	39.1	33.1	31.8	33.1	36.1	30.4	
GVA margin (%)	20.5	20.0	17.7	15.9	16.8	16.5	15.8	14.7	14.2	13.8	14.1	13.0	
EBIT margin (%)	3.6	4.2	4.6	3.5	3.1	3.2	2.9	2.3	2.2	3.4	4.3	2.5	
Net profit margin (%)	2.3	3.3	3.8	2.8	2.4	2.9	2.8	1.9	1.8	2.9	4.2	2.3	
Return on Investment (%)	8.0	9.4	10.7	8.5	6.8	6.7	7.1	5.1	5.0	8.2	10.9	5.8	
Financial position (%)	23.0	22.6	28.2	31.3	29.0	33.5	37.7	33.7	35.6	36.6	37.3	35.7	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.8.3 Breakdown by company size

The Finnish fish processing sector is dominated by micro enterprises employing less than 10 persons. There were 100 micro enterprises in the sector in 2019 and they amounted to 84% of all the main activity enterprises in the industry. However, these micro enterprises contributed only 8% of the total income of the sector. The 4 medium-sized enterprises accounted for two thirds of the total income and 15 small enterprises 27%. The small and medium sized enterprises dominated the sector also in terms of employment and economic performance.

The Russian food embargo hit heavily the medium sized enterprises and the turnover almost halved in 2015. After that the turnover has increased rapidly and the medium size enterprises have had the double total income of that small enterprises in the past three years.

In 2019 the small enterprises had the best profitability of the sector with net profit of almost EUR 6 million. Although in the recent years, the medium size enterprises have been the most profitable group of firms. In 2018 they had the record high net result of over EUR 10 million, but the net profit decreased dramatically to less than EUR 3 million in 2019. These companies have not been able to realize the returns in the net profit due to the hight production costs and

especially increased personnel costs in 2019. Micro enterprises had smaller income and total production costs in 2019 than in the previous year, but they still made some increased net profit of EUR 0.7 million.

Table 5.8.3: Economic performance by size, Finland, 2012-2019

Variable	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees									
Total Income	41.2	44.2	33.3	28.7	36.0	40.6	38.6	34.1	-12%
Total production costs	38.8	43.8	32.5	28.3	35.0	38.5	36.8	32.6	-12%
Gross Value Added	9.7	9.0	7.2	6.3	6.7	7.4	7.0	6.4	-8%
Operating Cash Flow	2.4	0.4	0.8	0.4	1.0	2.0	1.7	1.5	-13%
Earning before interest and tax	1.0	-0.8	-0.4	-0.6	0.1	1.2	0.9	0.8	-8%
Net Profit	0.5	-0.9	-0.7	-0.8	-0.1	1.0	0.6	0.7	8%
between 11 and 49 employees									
Total Income	110.8	313.9	134.1	144.2	121.5	111.4	110.0	108.8	-1%
Total production costs	102.5	295.6	127.8	137.3	116.2	105.5	101.7	100.5	-1%
Gross Value Added	21.5	50.0	19.0	22.1	19.3	16.8	18.4	18.7	1%
Operating Cash Flow	8.4	18.3	6.3	6.9	5.3	5.9	8.3	8.3	0%
Earning before interest and tax	5.9	12.2	3.4	4.2	2.7	3.8	6.2	6.1	-1%
Net Profit	5.2	11.2	3.0	3.3	2.2	3.4	5.7	5.8	2%
between 50 and 249 employees									
Total Income	114.5		231.4	128.9	153.2	202.4	249.6	260.7	4%
Total production costs	111.3		217.4	123.5	146.1	192.0	236.4	253.2	7%
Gross Value Added	13.6		36.9	16.0	18.2	24.7	30.6	27.5	-10%
Operating Cash Flow	3.2		14.0	5.4	7.0	10.4	13.2	7.5	-43%
Earning before interest and tax	1.3		8.4	3.3	4.1	7.1	9.9	3.1	-69%
Net Profit	0.5		9.1	3.3	3.6	5.8	10.3	2.7	-73%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.8.4 Socio-demographic structure

The employment of the processing industry was increasing from 2009 until 2014 both in numbers of employees and full time equivalent. In 2015 and 2016, the employment measured in FTE clearly decreased. In 2019 the employment was 812 full time equivalent, which was 1% decrease from the previous year. An average processing enterprise in 2019 employed 6.8 FTEs with an average wage of EUR 43.6 thousand per employee. Labour productivity has increased by 34% since 2008 and in 2019 the GVA per FTE decreased by 5% to EUR 64.8 thousand.

Almost two thirds of employees in the processing sector are male, mostly at the age of 40-64 years. Over half (59%) of the employees have medium level education and 90% of the employees are Finnish citizens. Small share of the labour force comes from other EU member states (7%) or from non-EU/EEA countries (3%).

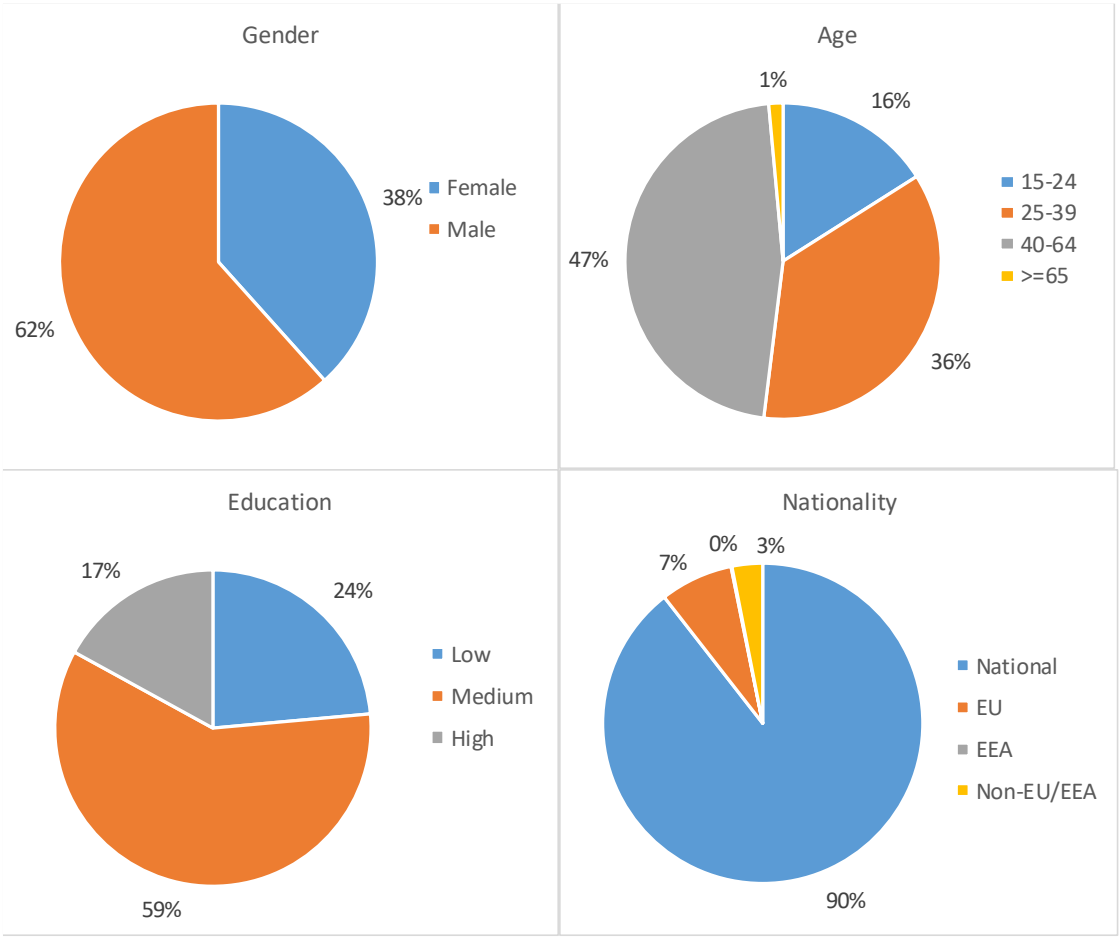

Figure 5.8.1: Socio-demographic characteristics, Finland, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.8.5 Raw materials

The main species used in Finnish fish processing are Baltic herring, salmon and rainbow trout according to the fish processing statistics by Natural Resources Institute Finland. The Finnish industry processed also European whitefish, vendace and various other freshwater fish species.

Herring has traditionally been the most important species in Finnish fish processing in terms of weight. It made up 35% of the raw material used for processing in 2019. The domestic consumption of herring has decreased significantly, and salmon has become the most important species in terms of value. Together with rainbow trout they account for 60% of the total weight of fish produced in 2019. The most important market for herring was Russia until the Russian embargo. Nowadays most of the processed herring and sprat are exported to Estonia and Denmark.

Majority of the raw material used for fish processing in Finland is domestic fish and 40% is imported, mainly Norwegian salmon. In 2019 deep frozen Baltic herring and sprat were the most important processed products in terms of weight. The other two most important products were fresh Norwegian salmon fillet and fresh domestic rainbow trout fillet. Production of Norwegian salmon together with domestic rainbow trout reached 38 thousand tonnes in 2019. Increased price of salmon due to decreased production in Norway and Chile in 2016 led to a marked decrease in salmon processing; there was 22% decrease from 2015 in the use of Norwegian salmon. Salmon is mostly processed to fresh fish market as fillets and other fresh product forms. Also smoked products are important.

According to the fish market review released by Natural Resources Institute Finland (Luke), the production of domestic rainbow trout is not enough for the domestic needs and the imports of fresh rainbow trout from Sweden have been vital for meeting the demand. In the recent years

imports from other countries have increased as well. While the price of salmon has been high decreasing the domestic demand for salmonids, the interest in processing Baltic herring for human consumption in the domestic markets has increased. Production capacity for processing Baltic herring has grown in Finland, and the domestic consumption of Baltic herring is rising.

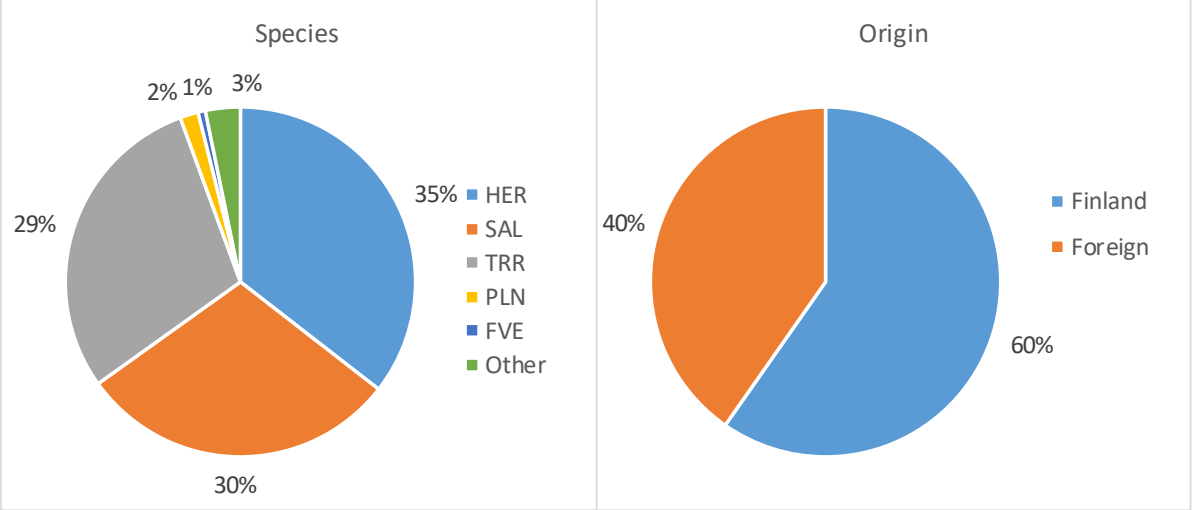

Figure 5.8.2: Main raw material used by species and origin, Finland, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.8.6 Trends, drivers and outlook (including covid-19 impact)

The Finnish fish processing sector has been increasingly concentrated. The ten biggest companies in the sector in terms of turnover made up 88% of the total revenues in 2019. The competitiveness and performance of the sector is mostly connected to the price developments of fish, mainly Baltic herring, rainbow trout and salmon, but also developments of the operational costs play an important role. Salmon prices continued to remain high in 2020 impacting the outlook for the Finnish processing. The price of Baltic herring for processing was also at the highest level in the 21st century.

According to the fish market review by Luke, the Covid-19 pandemic affected the fish processing sector as the demand by horeca sector decreased. This affected especially the markets of highly priced domestic fish and many fishermen increased their direct sales. Tightening competition and increasing production costs due to the pandemia lowered the gross margins for fish processing companies. The domestic primary production of fish suffered from reduced demand and low prices while the fish retail sector secured good supply of fish for consumers. Due to lowering world market price for salmon and transport issues, there was oversupply for salmon in 2020 and the imports of rainbow trout increased. Norwegians sold their overproduction at a low price to Finland when some of Norwegian companies decided to end their production due to difficulties in the Asian markets. As a result, the fish retail sector increased sales of fresh fish products. Due to the downturn in the fur economy, most of the industrial fish was used in the fish meal plants or for exports.

According to the preliminary economic results for 2020 by Natural Resources Institute Finland, the turnover for fish processing sector was EUR 414 million with an increase of 3%. The medium size enterprises were able to increase their turnover while the micro and small enterprises had lower turnover than in 2019. At the same time, the production costs increased in the sector in general. The personnel costs increased by 13% while energy and raw material costs increased by 3%. These increases in production costs affect the profitability of the sector negatively and weakened the net result in 2020. The most important export countries for Finnish processed products were Estonia and Belarus in 2020. Most of the export to Estonia (EUR 20 million) were Baltic herring and rainbow trout. The exports to Belarus were worth of EUR 18 million and it consisted over 90% of rainbow trout.

In 2016, the first fishmeal plant started in operation with estimated annual production of 30-40 thousand tonnes Baltic herring as raw material for fishmeal and oil that will be further processed as fish feed for fish farming. Currently, the fishmeal production accounts for around 40% of Finnish herring and sprat catches.

The new governmental programme promoting domestic fish aims to ambitiously double fish consumption and domestic fish production in Finland by 2027. This would require considerably higher utilization of Baltic herring for processing as food fish. Currently, domestic consumption of Baltic herring is rising in Finland. More and more companies have started filleting Baltic herring, the production capacity is growing, and new product innovations based on Baltic herring are taking place to an increasing extent. There is also a growing demand for the domestic wild fish. The supply, however, has been limited for the past years.

5.8.7 Data coverage and quality

The economic data is compiled by combining data from the structural business and financial statement statistics of Statistic Finland (SF) and production survey data from the Natural Resources Institute Finland (Luke). Financial data covers all enterprises having fish processing as their main activity in Business Register of Statistics Finland in 2019. Luke carries out a survey on production of processed fish every second year. The latest information available for the report is for 2019. The production survey is carried out as a stratified survey with a target population including all enterprises operating in fish processing, including also enterprises that do not have fish processing as their main activity.

5.9 France

5.9.1 Overview

The fish processing industry is a small component of the food processing sector in France: its turnover accounts for approximately 2% of the turnover of the whole food processing industry. Since 2017, the French fish processing sector encompasses about 300 enterprises and generates a total turnover of €4.5 billion. However, the analysis of recent structural trends and current economic performances is impaired by the continuous degradation of the data provided by France regarding this industry in the recent years (see the "data issues" section at the end of this chapter). Two sources may be used to gather data on the French fish processing industry: the results of the survey implemented by FranceAgriMer provided in response to the DCF and the data provided by the French national statistical services to Eurostat. Historically, the DCF data were completer and more reliable, however the quality of the data degraded continuously over time: no data were transmitted for the years 2016 and 2017, and the 2018 data are incomplete. Eurostat data are more consistent over time, nevertheless three limitations have to be highlighted: i) methodological breaks in time series occurred in the years 2014, 2015 and 2017; ii) 2018 data are incomplete; iii) the data for the year 2016 are inconsistent, especially with respect to the number of firms, even though no methodological changes are reported this year. Due to these numerous information gaps, the present chapter will rely on DCF data mainly for analysing economic performance indicators and social aspects, and on Eurostat data mainly for analysing structural trends, including by enterprise size.

Although the number of enterprises increased slightly from 310 to 333 between 2010 and 2019 (+7%), the French fish processing industry created only 135 jobs (+1%). However, the share of permanent jobs has improved, the number of full-time equivalents growing more rapidly (402 additional FTE, +4% increasing rate), and the average salary has increased by 33% between 2010 and 2019 (Table 5.1.4). This is related to a spectacular jump in total income (+53%), production value (+48%) and gross value added (+38%), which allowed for the same jump of personal costs (+38%) during this period.

Table 5.9.1: Overview, France, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019	Δ (2017-19)
Structure (number)													
Total enterprises	348	314	310	318	317	351	327	380	495	311	316	333	7%
Total employees	11 594	11 104	12 780	11 779	11 990	13 282	12 480	12 073	13 641	12 003	13 524	12 915	8%
Unpaid labour	0	0	34	40	33	42	62	49	53	51	41	43	-16%
FTE	10 525	9 842	11 367	10 995	11 056	11 661	10 954	11 218	12 665	11 021	12 255	11 769	7%
Income, expenditure and investments (million €)													
Production value	2 809,7	2 708,9	2 785,6	2 993,8	3 042,6	3 172,1	3 195,1	3 302,9	3 775,0	3 695,6	*3 804,2*	4 123,3	12%
Turnover													
Total income	3 140,3	3 028,5	3 148,6	3 411,9	3 516,3	3 646,1	3 511,5	3 676,8	4 172,5	4 455,1	*4 516,1*	4 823,4	8%
Total purchases of goods and services	2 554,7	2 385,1	2 573,8	2 856,5	2 935,0	2 999,4	2 896,4	2 995,2	3 541,0	3 732,0	*3 763,3*	3 998,8	7%
Personnel costs		410,5	437,1	448,8	462,5	491,0	470,0	477,9	540,2	528,6	*549,8*	601,8	14%
Net investment in tangible goods		20,9	84,3	93,9	128,1	36,5	64,6	21,0	55,0	84,8	55,7	114,7	35%
Economic performance (million €)													
Gross Value Added	555,5	560,0	565,2	555,6	568,6	603,5	599,0	625,1	651,9	699,1	*718,6*	777,8	11%
Gross profit	137,4	149,6	128,1	106,8	106,1	112,5	129,0	147,2	111,6	170,4	*168,8*	176,1	3%

*Source: EUROSTAT, 2022. *Data for 2018 were incomplete and some indicators (in italics) have been estimated (see section 7 for details).*

5.9.2 *Economic performance*[26]

The cost structure of the French fish processing industry shows that raw material represents the bulk of production costs. The share of raw material purchases in total production costs has continuously increased: it was 36% in 2008, 40% in 2010, 45% in 2013 and finally 56% in 2018 (Table 5.9.2). However, this share remains relatively low in comparison with most of the other European countries. Other operational costs followed an opposite pattern: they represent around 30% of total production costs at the end of the period, although they were as high as 44% in 2008. This suggests that other operating costs may have been overestimated in the data, while raw material purchases may have been underestimated (in other words, it may be suspected that 'other operational costs' have included a significant amount of raw material). On the other hand, the cost of raw material has continuously increased since 2008, and raised up by 61% between 2008 and 2018, while total production costs increased by only 4%. Thus, the opposite trends of raw material and other operational costs alone explains the relative stability of total production costs over the period. However, it should be noted that the value recorded for energy costs in 2018 is about 4 times less than the 2015 or 2014 value, which may lead to suspect an abnormal estimate resulting in an underestimates of total production costs for 2018.

Table 5.9.2: Economic performance indicators, France, 2008-2018

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Income (million €)											
Turnover	4,315.2	4,334.5	4,507.3	4,802.3	4,861.6	5,095.0	5,263.5	5,516.1			4,522.9
Other income	49.0	42.1	28.0	153.6	127.7	438.6	891.6	42.0			374.4
Operating subsidies	8.9	3.6	5.5	5.5	11.9	13.3	4.0	15.5			3.1
Total Income	4,373.1	4,380.3	4,540.7	4,956.8	5,001.3	5,449.9	6,159.1	5,573.7			4,900.4
Expenditure (million €)											
Purchase of fish and other raw material for production	1,464.6	1,578.7	1,754.6	1,902.8	2,066.8	2,187.4	2,219.9	2,369.9			2,355.2
Wages and salaries of staff	604.1	640.2	655.7	742.6	817.1	813.4	891.6	905.7			521.3
Imputed value of unpaid labour	2.9	3.2	3.3	4.3	3.0	3.8	3.8	1.1			0.0
Energy costs	195.2	198.7	271.2	231.2	269.8	310.6	387.1	304.9			84.2
Other operational costs	1,805.1	1,794.4	1,697.9	1,874.0	1,565.5	1,578.7	1,469.0	1,683.0			1,257.0
Total production costs	4,072.0	4,215.1	4,382.6	4,754.9	4,722.0	4,893.8	4,971.4	5,264.6			4,217.7
Capital Costs (million €)											
Depreciation of capital	281.1	58.6	79.8	106.3	67.1	20.1	20.6	35.3			38.8
Financial costs, net	12.6	7.6	12.0	6.2	7.2	11.0	12.2	3.1			1.3
Capital Value (million €)											
Total value of assets	2,041.8	1,972.4	2,109.9	2,238.7	2,551.9	2,617.6	2,890.8	3,121.1			2,746.8
Net Investments	80.3	141.5	159.2	188.9	170.9	122.3	131.7	154.3			164.9
Subsidies on investments											32.2
Debt	1,421.7	1,140.4	1,211.0	1,312.1	1,366.8	1,398.6	1,594.6	1,716.3			1,183.0
Economic performance (million €)											
Gross Value Added	899.3	804.9	811.6	947.9	1,087.4	1,457.0	2,079.2	1,200.3			1,200.9
Operating Cash Flow	301.1	165.2	158.1	206.6	279.2	653.1	1,187.7	309.1			682.7
Earning before interest and tax	20.1	106.6	78.3	100.3	212.1	633.1	1,167.1	273.8			644.0
Net Profit	7.5	98.9	66.2	94.1	204.9	622.1	1,154.9	270.8			642.7
Productivity and performance Indicators											
Labour productivity (thousand €)	59.2	53.7	53.5	60.5	68.1	90.5	129.8	76.4			
Capital productivity (%)	44.0	40.8	38.5	42.3	42.6	55.7	71.9	38.5			43.7
GVA margin (%)	20.6	18.4	17.9	19.1	21.8	26.3	33.8	21.6			24.5
EBIT margin (%)	0.5	2.4	1.7	2.0	4.2	11.4	18.9	4.9			13.1
Net profit margin (%)	0.2	2.3	1.5	1.9	4.1	11.2	18.8	4.9			13.1
Return on Investment (%)	1.0	5.4	3.7	4.5	8.3	24.2	40.4	8.8			23.4
Financial position (%)	30.4	42.2	42.6	41.4	46.4	46.6	44.8	45.0			56.9

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

[26] Based on data submitted by France under the 2021 data call

Net investments have increased from €80.3 million to €188.9 million between 2008 and 2011, then decreased down to €122.3 million in 2013 and then increased again to reach €154.3 million in 2015 and finally €154.9 million in 2018. They represent a significant and apparently increasing level (2.8% of the turnover in 2015, 3.6% in 2018), which denotes positive expectations from the future of the industry. In 2008, the debt of the French fish processing companies represented a third of their turnover; this ratio decreased then to less than 28% during the period 2009-2013, and it raised again to 30% in 2014 and 31% in 2015, but finally dropped to 26% in 2018. Nevertheless, their financial position is continuously improving, and reached its best level ever in 2018, indicating that a more important share of the cash-flow is used to consolidate the value of assets.

Productivity indicators are not easy to analyse, as labour productivity is missing for the year 2018 and some abnormal values seem to have been recorded in the previous years: for instance, the level of labour productivity, which is observed in 2014, and perhaps also the one of 2013, seems far much too high, what indicates a possible estimate error for some variables these years. Considering available data, estimates for gross valued added margin, net profit margin and return on investment seem all to indicate an excellent level of global economic performances from the French processing sector as a whole.

5.9.3 Breakdown by company size

Between 2012 and 2019, the total number of companies in the French fish processing industry has increased from 317 to 333, the turnover from €3.5 billion to €4.8 billion and the value added from €568.6 million to €777.8 million (Table 10.1.4). However, these patterns are very different according to the company size categories (Table 5.9.3).

Table 5.9.3: Economic performance by size, France, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
From 0 to 9 persons employed												
Enterprises - number					167	186	213	240	308	213	210	222
Gross operating surplus - million euro					0.9	2.2	-0.1	9.4	-1	1.1		6.3
Production value - million euro					106	72.1	187.5	130.5	127.7	108.4		107.2
Turnover or gross premiums written - million euro					141.1	125.8	232.8	172.2	155.1	129.6		127.6
Value added at factor cost - million euro					26.1	19.3	34	31.5	28.1	21.8		27.6
From 10 to 19 persons employed												
Enterprises - number			57	57	50	65	40	45	60	35	38	36
Gross operating surplus - million euro	8.2		3.1	5	7.8	8.6	5.6	7.9	4.5	1.7		2.8
Production value - million euro	105.6		176.3	210.9	274.4	268.8	202	195.2	156.4	164.2		115.6
Turnover or gross premiums written - million euro	124.4		187	221.7	306.2	295.2	222.4	223.3	197.3	190.2		127.6
Value added at factor cost - million euro	24.7		40.1	32	41.6	46.7	33.5	34.9	33.1	29.3		25.9
From 20 to 49 persons employed												
Enterprises - number			56	64	57	59	45	55	71	34	35	42
Gross operating surplus - million euro	16.7		18.5	9.7	18.7	24.8	16.4	24.5	35.5	16.6		14.8
Production value - million euro	395.2		375.7	360.3	417.4	480.9	417.4	439.3	508.9	265.3		349.5
Turnover or gross premiums written - million euro	440.8		421.7	409.7	536.3	576.7	541	550.4	616.7	296.8		437.6
Value added at factor cost - million euro	81.8		86.2	75.6	85.5	97.8	85	92.1	106.6	58		75.3
From 50 to 249 persons employed												
Enterprises - number		34	29	39	33	30	20	28	40	20	23	25
Gross operating surplus - million euro	47.7	63.6	26.8	20.2	13.2	12.3	27.1	24.8	11.3	44.3	39.3	42.5
Production value - million euro	998.6	983.2	870.4	991.2	870.4	900.1	814.2	883.4	1159	795.1	1021.7	1104.9
Turnover or gross premiums written - million euro	1075	1074.4	1006.3	1157.8	959.9	1018.9	885.5	940.9	1254.6	938.1	1144.1	1236.6
Value added at factor cost - million euro	202.7	194.3	150.1	159.3	142	145.5	133.9	147.2	153.3	146.9	162.7	175.9
250 persons employed or more												
Enterprises - number					10	12	9	11	15	10	10	8
Gross operating surplus - million euro					65.5	64.7	80.1	80.6	61.2	106.7		109.7
Production value - million euro					1374.3	1450.3	1574	1654.4	1823	2362.5		2446.2
Turnover or gross premiums written - million euro					1572.7	1629.6	1629.9	1790.1	1948.9	2900.4		2894
Value added at factor cost - million euro					273.4	294.1	312.6	319.3	330.8	442.9		473.2

Source: EUROSTAT, 2022

The number of companies increased only for very small companies employing less than 10 persons (+33%) but decreased for all the other enterprise categories: it has felt by 28% for small companies employing from 10 to 19 persons, by 26% for medium companies employing from 20 to 49 persons, by 24% for large companies employing from 50 to 249 persons and by 20% for very big companies employing 250 persons or more.

As regards economic performances, three patterns can be observed during the period 2012-2019. The first pattern concerns the very small companies, which experienced a decrease of the turnover (-10%) but an increase of the value added (+6%). The second pattern is characterized by a decrease of both the turnover and the value added: this concerns small companies and medium companies, whose turnover and value added dropped by 58% and 38% respectively for the first ones and by 18% and 12% for the second ones. The third pattern combines a growth of both the turnover and the value added, which increased respectively by 29% and 24% for the large companies and by 84% and 73% for the very big companies. These noticeable size effects suggests that the two models of the very small or the large company have positive expectations, while the intermediate model of company experiences more difficulties.

5.9.4 Trends, drivers and outlook (including Covid-19 impact)

The French processing industry is highly diversified. According to Prodcom data, the industry was dominated until 2018 by fish fillets and frozen fillets and fishes, when these products generated a turnover of €721 million in 2018, representing 25% of the total production value. However, these products experienced a dramatic fall in 2019 and 2020 and represent now the smallest industry segment.

Table 5.9.4: Output of the fish processing industry by product, France 2011-2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019*	2020
Quantity (tons)										
Prepared dishes	99 375	100 388	104 289	102 356	87 766	100 231	98 444	100 297	114 549	110 450
Surimi	51 664	49 816	51 975	52 018	49 311	51 717	58 858	58 584	80 545	77 472
Prepared and canned fishes	29 888	53 959	59 470	61 157	56 001	53 714	48 189	46 258	55 808	58 740
incl. prepared and canned tuna	*21 200*	*18 392*	*18 292*	*19 519*	*20 184*	*19 906*	*16 345*	*17 002*	*17 443*	*18 691*
Prepared crustaceans and molluscs	57 460	54 417	62 278	71 798	69 139	69 042	67 355	56 585	60 186	55 465
Dried, salted and smoked products	45 937	50 873	60 046	44 602	27 394	38 615	33 522	22 678	29 150	38 093
incl. smoked salmon	*32 536*	*32 459*	*42 108*	*27 252*	*23 025*	*24 154*	*21 038*	*18 568*	*20 897*	*17 900*
Fish fillets and frozen fishes and fillets	131 532	144 857	120 457	102 757	87 471	71 454	86 443	92 123	23 936	8 741
Other	243	21	350	318	9 322	82	70	47	21	544
TOTAL	416 099	454 330	458 866	435 006	386 404	384 856	392 881	376 571	364 195	349 505
Value (1000 Euros)										
Prepared dishes	551 697	578 843	608 022	630 408	528 852	591 320	602 523	627 252	*704 592*	657 156
Dried, salted and smoked products	702 562	744 723	1 048 663	761 035	582 599	630 934	603 381	565 304	*133 951*	613 127
incl. smoked salmon	*607 233*	*578 858*	*869 324*	*584 500*	*524 478*	*568 854*	*544 952*	*504 533*	*nd*	*419 575*
Prepared crustaceans and molluscs	432 462	401 141	525 376	652 294	621 610	651 946	647 108	527 347	*530 566*	494 842
Surimi	225 237	233 238	241 271	245 526	243 158	221 767	253 620	236 409	*415 843*	415 117
Prepared and canned fishes	158 630	339 074	253 922	258 421	277 889	274 169	259 859	234 879	*301 646*	307 326
incl. prepared and canned tuna	*108 538*	*105 317*	*121 142*	*104 630*	*104 786*	*100 806*	*95 907*	*100 144*	*105 382*	*110 239*
Fish fillets and frozen fishes and fillets	731 788	775 797	692 391	654 762	615 737	564 518	685 225	720 738	*153 294*	36 725
Other	17 796	12 840	17 645	3 250	16 413	19 806	21 344	22 418	*14 339*	20 381
TOTAL	2 820 170	3 085 656	3 387 291	3 205 695	2 886 258	2 954 459	3 073 058	2 934 348	*2 254 230*	2 544 674

Source: elaboration by the EWG after PRODCOM data, 2022 (nd: missing data; 2019 value data are incomplete)

The prepared dishes, which had already been in second place since 2017, occupy now the leading position within the industry with a turnover worth €657 million in 2020, after peaking at over €700 million in 2019. Between 2011 and 2020, prepared dishes have grown by 11% in volume and 19% in value. Dried, salted and smoked fish, the bulk of which is made of smoked salmon, now occupies the second place, although the production declined by 17% in volume and 13% in value between 2011 and 2020. It should be noted that the decline in smoked salmon production

was much more pronounced, falling from 32,536 tons and €607 million in 2011 to 17,900 tons and €420 million in 2020, a decline of -45% and -31% respectively. Prepared crustaceans and molluscs, worth €495 million in 2020, and surimi, worth €415 million the same year are also important segments of the industry, the surimi being the most dynamic one in the recent years, with an increase of the production value by 76% between 2018 and 2019. At last, the canned products, which experienced a decreasing trend in the years 2017 and 2018, have recovered in 2019 and 2020 their level of the previous years. Within this segment, canned tuna's leadership position is challenged by canned mackerel, whose production value exceeded temporarily that of canned tuna in 2018.

Between 2011 and 2020, the French fish processing industry production experienced a decrease by 16% in volume and by 10% in value. Most of this decrease is explained first by the fish fillets and frozen fillets and fishes, second by the smoked salmon and finally to a lesser extent by canned tuna. The impact of Covid-19 on the industry should be visible by comparing 2020 data to 2019 data considering the previous trends of the different industry segment. It is noticeable that most of the segment of the industry which have experienced a decrease in production correspond to elaborated (prepared dishes, surimi) or expensive (salmon) products, while products who have experienced an increase are more basic products (canned products and smoked fishes other than salmon). However, it is difficult to estimate the impact of Covid-19 from the available data for two reasons: the data for the production value of smoked salmon in 2019 is missing, while the dramatic fall of the fish fillets and frozen fillets and fishes observed in 2020 was already occurring this 2019. Similarly, the impact of Covid-19 on sales prices appears to be limited in general: prices increased by 4% for surimi but decreased by 3% for prepared dishes and canned products. As for the fish fillets and frozen fillets and fishes, the fall of the production is accompanied by a fall of the sales prices, which raises the question of whether this type of product is at a turning point in terms of changing consumer habits after the pandemic.

5.9.5 Data coverage and quality

France data coverage and quality is deteriorating for various reasons.

Global production data by types of products were usually compiled by the Ministry for Food and Agriculture for the PRODCOM database using primary data from professional sources and are now provided by the French national statistics service based on a result of an annual survey. Products of the fish processing industry are covered by NACE rev 2 code 10.20Z (processing and preserving of fish, crustaceans and molluscs) and part of NACE rev 2 code 10.85Z *i.e.* NAF code 10.85.12.00 (prepared dishes with fish, crustaceans and molluscs). Unfortunately, no data are available in the PRODCOM database for smoked salmon in 2019: smoked salmon being one of the most important product categories of the French fish processing industry, the unavailability of these data prevents any comparative analysis of production trends between the main sub-sectors of the industry.

The data from the survey operated under the supervision of FranceAgriMer for the DCF, which were of very good quality and reached a high level of precision until 2010, appear to be less reliable in the latest years. During the "fish processing industry" expert meeting of January 2018 (EWG 17-16), numerous data inconsistencies were already detected regarding the years 2011, 2012 and 2013 which prevented the interpretation of some indicators; as regards 2014 and 2015 data, "other operating costs" appeared to be wrong and needed to be corrected twice. During the next meeting of November 2019 (EWG 19-15), the dataset for the year 2016 and 2017 shown high inconsistencies, which made it useless for the EWG 19-15 report. According to these data, the total turnover of the French fish processing sector was supposed to have reached €12.7 billion in 2016, what would mean that it would have been three times higher than the previous years. The 2017 data show a normal pattern as regards turnover; however, the number of enterprises falls by 30% between 2015 and 2017. Thus, it appears that the methodology for including companies in the database and estimating missing data has changed several times without stable repository and should therefore be clarified.

For the years 2017 and 2018, FranceAgriMer seems to have restricted the perimeter of the survey to the enterprises affiliated to the 10.20Z industry segment only, while the initial survey

was based on an exhaustive list of enterprises gathered from various sources, including sanitary licences and complementary NACE codes. However, the population of enterprises covered by the DCF survey appeared much lower than the population of the same NACE code recorded by the SBS data of Eurostat for 2017 and 2018. In addition, despite this restrained scope of the survey, the data quality continued to degrade. During the present expert meeting, the data provided by France were missing for the years 2016, 2017 and 2019, and incomplete for 2018. Due to a continuous degradation of the reliability of the data obtained, no survey has been implemented by FranceAgriMer after 2018.

5.10 Germany

5.10.1 Overview

In 2019, the German processing sector consisted of 210 enterprises with fish processing as their main activity. The segment with the highest number of enterprises (up to 10 employees) only generated 2% of the industry's turnover. In contrast, the small number of large enterprises with more than 250 employees (just 7) concentrated 45% of the employment and 58% of the turnover of the sector. The 20 enterprises with 50-249 employees accounted for 28% of turnover and employment, while the segment 10-49 employees added up to 23% of the employment and 13% of the turnover.

Due to this industry structure and given that under the Structural Business Statistic Regulation data is already collected for enterprises with 20 and more employees, Germany presents economic data only for the aggregated segment of 20 and more employees.

Table 5.10.1: Overview, Germany, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	281	263	265	265	250	253	258	248	247	244	223	210	-6%
≤10 employees	197	184	186	183	171	176	178	164	157	154	137	118	
11-49 employees	55	52	51	58	56	54	56	54	60	61	59	65	
50-249 employees	21	20	22	17	15	15	16	22	23	22	20	20	
≥250 employees	8	7	6	7	8	8	8	8	7	7	7	7	
Employment (number)													
Total employees	8,441	7,566	7,031	6,780	7,010	6,751	6,561	6,665	6,255	6,141	6,653	6,633	0%
FTE	7,995	7,212	6,786	6,544	6,664	6,476	6,251	6,373	5,876	5,885	6,324	6,305	0%
Indicators													
Turnover (million €)	2,367	2,034	1,973	1,966	2,040	2,060	1,983	2,091	2,080	2,173	2,130	2,196	3%
FTE per enterprise	28.5	27.4	25.6	24.7	26.7	25.6	24.2	25.7	23.8	24.1	28.4	30.0	6%
Average wage (thousand €)	33.9	34.7	35.5	35.6	36.2	36.0	38.4	37.6	39.7	40.8	40.4	41.5	3%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises		95		80									
Turnover attributed to fish processing (million €)		30.0		50.0									

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The total number of processing firms in Germany has decreased by 25% since the beginning of the series. During 2018-2019 the total number of enterprises decreased by 6%. While the number of firms with more than 50 employees has been stable for the last years, there was an increase of 10% of firms with 11-49 employees in 2019 reaching the highest number (65) in the series so far. In absolute terms, the decrease of microenterprises was the strongest, as they have lost a total of 79 firms since the beginning of the series – 17 alone during 2017-2018 and additional 19 during 2018-2019. That means a total decrease of 40% since 2008.

Corresponding to the development of the number of enterprises within the segments, the number of employees reported for enterprises with more than 20 employees remained stable during the last years.

In contrast to the relatively small size of the German fleet in the European context, the German processing industry plays a stronger role in the EU, with a 5th position by turnover and by employment. In some key sub-segments of the industry, such as fish finger production, Germany is a player of worldwide relevance. Regarding geographical distribution, the highest turnover and employment from processing concentrate in the North Sea coast: in Bremerhaven, three out of

five top employers are fish processing industries[27] and in Cuxhaven fish processing is one of the main economic sectors employing a total of 1 418 persons when considering also its subsidiary sectors[28].

5.10.2 Economic performance

After a small decrease in 2018, the turnover of the German processing industry has increased by 3% in 2019 (+1% compared to 2017). With 2 196 million euro the highest value in ten years was reached in 2019. During 2017-2019 vast increases of the value of other income can be observed (see Table 5.10.2): company and patent sales and activities within the sector relating to offshoring during 2018 and 2019 resulted in higher income reported from other activities (+171% in 2018 and even +275% in 2019). Due to these divestitures and relocations of business activities, business models changed and affected the tax loads. This factor explains the changes in operational subsidies during 2017-2019.

Table 5.10.2: Economic performance indicators, Germany, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	2,366.5	2,034.0	1,972.7	1,966.5	2,040.4	2,059.7	1,982.9	2,091.4	2,079.8	2,172.6	2,129.5	2,195.6	3%
Other income	6.7	4.4	4.3	5.1	11.4	6.2	9.7	16.1	7.2	7.5	20.4	76.2	275%
Operating subsidies	1.2	1.0	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.1	4.6	-0.4	-109%
Total Income	2,374.4	2,039.4	1,977.5	1,971.9	2,051.8	2,066.0	1,992.6	2,107.4	2,087.0	2,180.2	2,154.5	2,271.4	5%
Expenditure (million €)													
Purchase of fish and other raw material for production	1,433.5	1,297.5	1,181.7	1,208.2	1,282.8	1,260.3	1,212.3	1,237.2	1,281.6	1,359.3	1,300.2	1,384.7	7%
Wages and salaries of staff	270.8	250.5	240.8	232.9	241.1	233.4	239.8	239.4	233.4	240.1	255.7	261.3	2%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	38.8	36.4	36.7	39.3	44.9	47.0	45.8	44.4	35.2	34.6	39.0	36.7	-6%
Other operational costs	540.8	387.6	378.7	398.1	456.4	413.2	427.7	479.1	434.6	434.9	420.4	410.4	-2%
Total production costs	2,284.0	1,972.0	1,837.9	1,878.5	2,025.3	1,954.0	1,925.6	2,000.1	1,984.8	2,069.0	2,015.3	2,093.1	4%
Capital Costs (million €)													
Depreciation of capital	40.8	38.2	34.0	36.1	40.8	41.0	32.9	37.4	32.8	35.9	37.3	38.3	3%
Financial costs, net	19.0	14.4	11.1	13.4	13.4	11.9	10.1	8.1	4.5	4.0	3.8	4.0	6%
Capital Value (million €)													
Total value of assets	586.2	410.1	403.5	402.7	392.3	952.7	915.5	932.5	982.9	961.1	1,105.7	1,167.5	6%
Net Investments	50.9	31.6	33.2	25.7	28.4	25.7	25.0	29.1	42.7	33.5	59.9	51.5	-14%
Subsidies on investments									0.6	1.5	0.3	0.8	173%
Debt	316.5	221.4	184.6	223.4	222.8	802.7	765.5	746.8	541.8	431.8	449.3	519.1	16%
Economic performance (million €)													
Gross Value Added	360.1	316.8	379.9	325.9	267.6	345.4	306.8	346.7	335.6	351.2	390.3	440.1	13%
Operating Cash Flow	90.4	67.4	139.6	93.4	26.5	112.0	67.0	107.4	102.2	111.2	139.2	178.3	28%
Earning before interest and tax	49.7	29.2	105.6	57.3	-14.3	71.0	34.1	70.0	69.3	75.3	101.9	140.0	37%
Net Profit	30.7	14.8	94.5	43.9	-27.7	59.1	24.1	61.9	64.8	71.3	98.1	136.1	39%
Productivity and performance Indicators													
Labour productivity (thousand €)	45.0	43.9	56.0	49.8	40.2	53.3	49.1	54.4	57.1	59.7	61.7	69.8	13%
Capital productivity (%)	61.4	77.3	94.2	80.9	68.2	36.3	33.5	37.2	34.1	36.5	35.3	37.7	
GVA margin (%)	15.2	15.5	19.2	16.5	13.0	16.7	15.4	16.5	16.1	16.1	18.2	19.4	
EBIT margin (%)	2.1	1.4	5.3	2.9	-0.7	3.4	1.7	3.3	3.3	3.5	4.7	6.2	
Net profit margin (%)	1.3	0.7	4.8	2.2	-1.3	2.9	1.2	2.9	3.1	3.3	4.6	6.0	
Return on Investment (%)	8.5	7.1	26.2	14.2	-3.6	7.5	3.7	7.5	7.1	7.8	9.2	12.0	
Financial position (%)	46.0	46.0	54.2	44.5	43.2	15.7	16.4	19.9	44.9	55.1	59.4	55.5	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Total production costs increased by 4% in 2019 (+1% compared to 2017). The shares of raw material, wages, energy costs and other operational costs of the total production costs remained

[27] Bremerhaven Gesellschaft für Investitionsförderung und Stadtentwicklung mbH (2019): Daten und Fakten 2019 https://www.bis-bremerhaven.de/sixcms/media.php/631/DatenFakten_2019.pdf (last retrieved, February 21, 2022)

[28] Agentur für Wirtschaftsforderung Cuxhaven, Ernährungs- und Fischwirtschaft (2020): https://www.afw-cuxhaven.de/assets/Uploads/Broschuere-Fischwirtschaft-Cuxhaven-2020.pdf (last retrieved, February 21, 2022)

stable over the last three years. Nevertheless, in absolute terms, the costs for raw material have risen by 7% in 2019 (+2% compared to 2017) reaching the highest level since 2008. Wages increased by 2% compared to 2018 and by 9% compared to 2017. Energy costs decreased in 2019 by 6%. As an increase of 13% occurred in 2018, they are still 6% higher in 2019 than in 2017. Other operational costs decreased further by 2% in 2019 after they already decreased by 3% in 2018.

The costs for depreciation of capital further increased by 3% in 2019 resulting in a total increase of 7% since the last report, while financial costs are on the level of 2017 again after a decrease of -6% in 2017-2018.

Against this background, the gross value added of the German processing industry amounted to 440 million euro with a growth of 13% after a previous increase of 11% in 2018 making it 25% higher than 2017. Net profit grew by even 39% in 2019 and 38% in 2018. Earning before interests and tax increased by 37% and the operating cash flow by 28% which means that all indicators of economic performance were at the highest level in 2019 since beginning of the time series. It needs to be stressed that these indicators need to be put into context of the development of the sector income due to irregular activities such as company and patent sales and relocation of firms abroad explained at the beginning of this section.

The most recent data shows the continuation of the positive evolution of productivity indicators mentioned in the last report. All indicators grew in 2019 except for financial position which decreased by -6% in 2019. As it increased by 8% in 2018, it is still higher than in 2017.

5.10.3 Socio-demographic structure

The socio-demographic data for the German processing sector was collected for the year 2020 and refers to the total population of firms without the focus on enterprises with 20 and more employees used for the economic data. It is based on data from the Federal Employment Agency that registers all persons employed belonging to the social security scheme in Germany together with the additional characteristics gender and nationality (domestic, EU and Non-EU). The variables employment by level of education and employment by age were collected during a survey and projected to the sector level using the available census data.

Looking at the total of workers within the German processing sector from the gender perspective it can be said that the composition is almost balanced with a slight majority being male (54%, see Figure 5.10.3 Gender).

The categories used during the survey to determine the age of the workforce were <=14, 15-24, 25-39, 40-64 and >= 65 years of age. Most workers (61%) were between 40 to 64 years old (see Figure 5.10.3 Age). The second largest age group was that of 25-39-year-olds (32%), followed by the younger generation (15-24 years) that accounted for only 5% of the total workforce. While no worker was younger than 14 years old, 2% were older than 65 years. The following specifications can be given regarding the gender distribution of the employees: the female workforce is slightly older in average than the male. While 39% of the male workforce is younger than 40 years old, this is the case for only 34% of the female employees.

The majority of workers (55%) served an apprenticeship or graduated from high school. The education level of this group is categorized as "medium" (see Figure5.10.3 Education). Another 34% obtained a secondary education or no qualification and is shown as "low" education level in Figure 5.10.3. The remaining 11% of the employees have a "high" education level, which includes all kinds of university studies, but also professional qualifications. The distribution of gender is almost balanced with slightly more females having a "low" education level (35% of the female workforce compared to 32% of the male workforce) and slightly more males obtaining a "high" education (12% of the male workforce compared to 10% of the female workforce).

Finally, the nationality of the workforce is split between national, EU, EEA and non-EU/EEA workers, with a clear majority of national workers (72%). EU workers represent 18% of the German workforce and workers coming from outside the EU the remaining 10%. The amount of EEA workers is negligible. The distribution of gender by nationality is almost equal in all nationality groups.

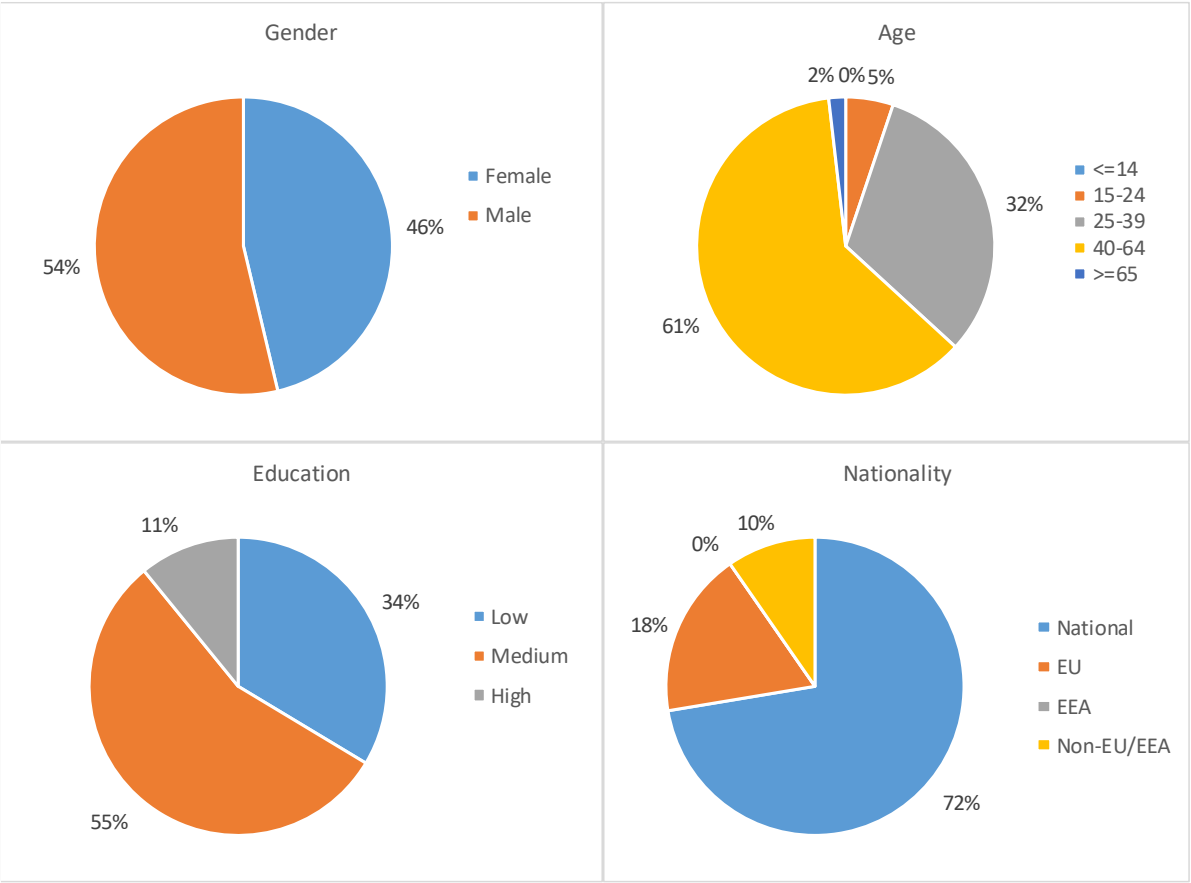

Figure 5.10.1: Socio-demographic characteristics, Germany, 2020

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.10.4 Raw materials

According to the Federal Statistical Office, the German fish processing industry produced a total of 417 411 t of products in 2019. There is no further information available on the volume or source of the used raw materials.

Therefore, a section on raw material was included into a survey conducted in 2020 among German fish processors. During that survey, information on the total volume of raw material used in 2019 and the origin of the raw material per species (domestic, EU and non-EU) were requested. Furthermore, specification of the type of raw material (fresh, frozen and semi-processed) and regarding the source of raw material (capture fisheries and aquaculture) could be given in the questionnaire. The total of the received valid responses to the survey display the following distribution: only one quarter of the raw material used by the responding firms in 2019 originated from Germany. 52% was imported from other EU countries, while 20% were purchased from outside the EU. The majority (73%) of the processed raw material originated from capture fisheries. Only 27% of the raw material processed in 2019 by the surveyed processors was produced in aquaculture. The biggest share of the raw material purchased by the responding firms was fresh (70%), 18% frozen and 12% was already semi-processed.

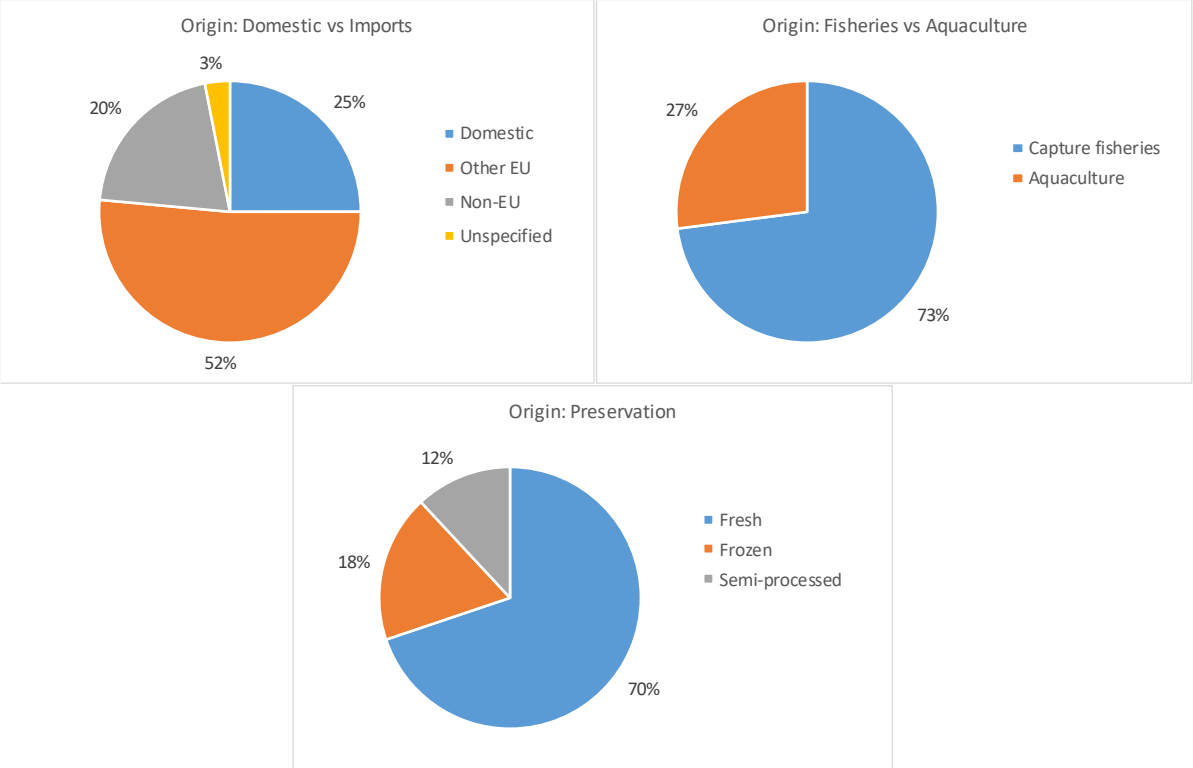

Figure 5.10.4: Main raw material used by origin, Germany, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Looking at the specifications given during the survey the most reported species by the responding processors were herring, salmon, crustaceans, saithe, cod, Alaska pollock and trout. All of these species were among the ten most consumed species in Germany in 2019 (see section 5.10.5 Trends, drivers and outlook).

5.10.5 Trends, drivers and outlook *(including Covid-19 impact)*

Trends[29]

The German market depends mostly on imports. The volume of imported fish and seafood (941 763 t) represented 89% of the total volume in the German market in 2019. The dependency rose compared to the previous years (87% in 2017 and 2018) reaching the highest value since 2014. The main contribution of imports to the German fish and sea food market in terms of value consisted of freshwater fish and sea fish to the same proportion (24%), 16% crustaceans and 36% processed fish products.

Regarding the demand, per capita fish consumption remains below the EU average: it has decreased from 15.5 kg in 2011 to 14.3 kg in 2019. This per capita fish consumption consisted of 58% sea fish, 31% freshwater fish and 11% crustaceans. This composition means a slight increase of freshwater fish and a decrease in sea fish and crustaceans compared to 2018. In 2019 the ten most consumed species were salmon (18,8%) followed by Alaska pollock (17,7%), tuna (11,4%), herring (10%), crustaceans (7,4%), trout (6,8%), squids (2,7%), saithe (2,3%), cod (2,1%) and mackerel (1,8%).

In total, private households in Germany consumed 400 964 t of fish and aquatic products at home generating 4 079 million euro. This represents an increase of 4,9% in value compared to 2018.

[29] Fisch-Informationszentrum e.V. (2021): Daten und Fakten 2021.

According to the Federal Statistical Office (Destatis), enterprises of the German fish processing industry with more than 20 employees produced a total of 417 411 t of products in 2019. This is a decrease of 5,4% by volume compared to 2018. The composition of this total production volume remained stable during 2018-2019 and was as follows: it consisted of 55% frozen products, 19% processed products, 8% products with fresh fish, 6% convenience products, 5% salads, 5% smoked fish products, 1% crustaceans and mollusc products and 1% other products.

Trade partners[30]

The main trade partner of Germany in the EU in 2019 was Poland. Its imports alone added up to 20,1% of the value of the imported products, followed by the Netherlands (11,4%) and Denmark (9,7%). For non-EU countries the main trade partners were Norway with a share of 10,3% of the value of the imports, China (9,7%), the USA (4,3%) and Vietnam (3,7%).

The most important trade partners change regarding the imported product groups: in 2019, the majority of canned tuna was imported from the Philippines and Papua New Guinea, while canned herring was imported mostly from Poland and Denmark, canned sardines from Morocco and the Netherlands and canned mackerel from Denmark and the Netherlands.

Certification

Germany remains the largest market for MSC labelled products in the world[31] with 2965 different MSC certified products sold in 2019.[32] Starting in 2018, Kaufland (a big retail player) had all fish products sold in its stores MSC or ASC certified.[33] In addition, more fair-trade products are available on the German market such as the fair-trade tuna products sold in the retail stores of dm since 2018.[34]

The suspension of MSC certification for all North East Atlantic mackerel fisheries coming into force 2th of March 2019 also affected German processors dependent on the raw material from theses fisheries.[35] As there were stock levels of raw material with MSC certification left the impacts are yet to become visible.

North Sea cod fisheries lost their MSC certification ending of 2019 after stocks dropped below the safe biological level.[36] As cod is under the ten most consumed species in Germany that might affect German processors even though the sources for this raw material are diversified.

Outlook

The future implementation of the Brexit in 2020 presents difficulties considering the indirect impact through UK's role as a provider of sea food products. In 2019 the imports from the UK represented 1,7% of the total value of imports to Germany.[37] A possible effect of the exit of the UK in the import contingent also increases the uncertainty for the German processing industry. The same is the case for the poor situation of the stocks in the Baltic Sea and the resulting reduction of the TACs for 2020 and 2021. These factors will continue to challenge the sector in the future.

Covid-19 Impacts

The outbreak of the Corona pandemic in 2020 faced industries around the world with big challenges – the German fish processing industry was no exception. The various restrictions on

[30] Fisch-Informationszentrum e.V. (2020): Daten und Fakten 2020.
[31] MSC (2019): Working together for thriving oceans. The MSC Annual Report 2018-19. Marine Stewardship Council, London, UK.
[32] MSC (2021): Supplementary Information to the MSC Annual Report 2020-21. Marine Stewardship Council, London, UK.
[33] https://unternehmen.kaufland.de/presse/pressemitteilungen/pressemitteilungen-detail.y=2018.m=11.n=kaufland-macht-den-unterschied.html (last retrieved, February 21, 2022).
[34] https://followfood.de/service/pressestimmen/presseartikel/dm-listet-mit-followfish-erstmals-Fischprodukte-in-den-Filialen.html (last retrieved, February 21, 2022).
[35] https://www.fischmagazin.de/willkommen-seriennummer-5348.htm (last retrieved, February 21, 2022).
[36] https://www.msc.org/media-centre/press-releases/press-release/north-sea-cod-to-lose-sustainability-certification (last retrieved, February 24, 2022).
[37] Fisch-Informationszentrum e.V. (2020): Daten und Fakten 2020.

social and economic life to contain the virus (such as the temporary closure of restaurants and hotels and the cancelation of events) affected German processors in their distribution as many of their clients are in that sector. Adapting to the new circumstances was not always possible as distribution channels vary regarding the demanded species, products and sizes. According to the industry, towards the end of 2020 lacking transportation within international cargo logistics led to late deliveries and high prices. Nevertheless, the temporary closure of the gastronomy sector in combination with working from home and short-term work arrangements ultimately led to a change in consumer behavior towards growing demand in retail and online shops. Stocks in retail from the previous production year were reduced due to hording activities within the German society at the beginning of the pandemic.

In 2020 private households bought 457 631 t of fish and seafood with a total value of 4 748 million euro for the consumption at home.[38] This means an increase of 14,2% in volume and 16,4% in value. The biggest increase in volume was for fresh products (+19% in 2020 compared to 2019) followed by frozen products that went up by 15%. Smoked and canned products increased by 13%, marinated products by 11% and other products by 9%.

According to the Federal Statistical Office in Germany, fish processing enterprises with more than 20 employees increased their production by 4% in volume and by 1,1% in value in 2020.

5.10.6 Data coverage and quality

The Federal Statistical Office in Germany (Destatis) holds a database with data on the number of enterprises and employees. In addition to this enterprise register, the Federal Statistical Office in Germany (Destatis) conducts a probability sample survey on several cost items with a threshold of companies with 20 and more employees. These data sets are well established and provide reliable and validated time series. In order to avoid doubling data collection, these primary data are used for the purpose of the data collection in the fish processing sector. The quality of the available data can be regarded as very high due to the fact that the data on the fish processing industry by the Federal Statistical Office (Destatis) are collected under European Structural Business Statistics (SBS) standards.

Furthermore, the Federal Employment Agency registers all persons employed belonging to the social security scheme in Germany together with the additional characteristics gender and nationality. The data collection of the Federal Employment Agency is based on the registration procedures for legal social security which is why the data quality can be regarded as very high as well.

For the variables where data are not available via other administrative bodies (as it is the case for financial income, subsidies on investments, weight of raw material by origin, weight of raw material by production environment, weight of raw material by species and weight of raw material by type of processed material) or data on employment figures are not sufficiently covered by the Employment Agency (as it is the case for employment by level of education and employment by age), the Thünen Institute of Sea Fisheries conducts an additional standardised survey.

Data on the variables gross debt and total values of assets are not included in any of the available national statistics. Therefore, publicly available financial accounts of the biggest German fish processing companies were used with a sample size that amounted to 70-75% of the turnover published by Destatis for 2018 and 2019.

[38] Fisch-Informationszentrum e.V. (2021): Daten und Fakten 2021.

5.11 Greece

5.11.1 Overview

In Greece, the fish processing sector includes activities such as: freezing, processing (filleting, salting, drying, smoking, marinating, cooking, canning) and deshelling of shellfish, mostly mussels (more than 99%). Most processing units have been developed in proximity to large urban centers to ensure ease of access and distribution of products. It must be pointed out though that several companies of significant size are in cities in remote areas without access to ports or fish auction sites. For example, a major fish processing company with over 200 employees and almost 30 mil. turnover is located 110 kms from the closest port. That is because, traditionally, those cities' markets had minimal access to fresh fish and the respective demand had to be satisfied by consumption of salted and canned fish at first and later by contemporary frozen fisheries products.

In Greece, many companies that demonstrate fish processing activity operate a parallel significant secondary activity as well like fish trading and production of fish-free meals and cans. For 2018, 168 enterprises demonstrated fish processing as main activity. For 2019, the respective number was 155, showing a decrease of 8%. As shown in table 5.11.1., the greater reduction belongs to the ≤10 employees' category (from 130 in 2018 to 119 in 2019). This reduction corresponds to companies that have fisheries processing as a parallel activity, which they interrupt or significantly reduce depending on market conditions each year. In that case, they usually either cease the processing activity or buy already processed fisheries for packaging and distribution under their own firm.

An example of successive strategy changes is the reduction in fleet catches in Greece, in 2019, that led to an increase of raw material cost for small companies (for species such as anchovy and sardines) and forced them to an increase of their parallel activity such as fish trading or production of other categories of processed food products. The 18% increase of the companies with fish processing as a non- main activity in 2019 is partly due to that fact. However, in 2020, due to covid-19 lockdown measures, large quantities of fish that in previous years were directed to restaurants, remained unsold and as a result, they were absorbed by the processing activity leading to an increase of the number of companies that demonstrated significant manufacturing activity during that year. Finally, in 2021, due to the algal bloom phenomenon in the Greek seas, there has been a drastic decrease in fish stocks, resulting in a sharp increase of small pelagic fish prices and significant fish imports for the first time from third countries such as Croatia, further resulting in increased raw material costs mainly for small businesses that may affect the small companies' processing activity.

In Greece, the sector is comprised mostly of very small companies, a percentage of 77% for both years while the 11-49 category corresponds to 18% of the total sector and only 5% belong to the 50-249 category as the number of enterprises of those two size categories remains relatively the same during the last 3 years.

For 2018, 168 enterprises employed 2,292 employees in total numbers and 2,048 in FTE numbers while in 2019, the 155 enterprises that demonstrated fisheries processing activity employed 2,357 employees and 2,144 in FTE numbers, a 3% increase in total numbers and 5% in FTE.

The increase of employees' number in the sector in 2019, despite the decrease of companies with processing activity, is related to the 15% reduction of the average wage during that year. The wage reduction is related with labor cost subsidies programs that reduce labor cost and with the employment of part time workers with very low per diem costs from very small companies.

The 7% reduction of the sector's turnover in 2019 is, as mentioned above, related to the decrease of processing as main activity mostly by very small companies.

Table 5.11.1: Overview, Greece, 2011-2019

Variable	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)										
Total enterprises	152	147	144	133	145	159	169	168	155	-8%
≤10 employees		107	111	100	112	121	129	130	119	-8%
11-49 employees		34	27	29	29	31	32	30	28	-7%
50-249 employees		6	6	4	4	7	8	8	8	0%
≥250 employees		0	0	0	0	0	0	0	0	0%
Employment (number)										
Total employees	2,505	2,330	2,183	1,964	2,062	2,277	2,392	2,292	2,357	3%
FTE	2,265	2,055	1,763	1,606	1,690	2,033	2,130	2,048	2,144	5%
Indicators										
Turnover (million €)	268	233	195	214	239	251	296	254	235	-7%
FTE per enterprise	14.9	14.0	12.2	12.1	11.7	12.8	12.6	12.2	13.8	13%
Average wage (thousand €)	13.2	10.9	12.8	13.2	15.8	13.2	15.9	16.4	13.9	-15%
Unpaid work (%)	5.2	3.3	4.5	4.4	4.4	4.6	3.1	3.8	3.6	-6%
Enterprises doing fish processing not as main activity										
Number of entreprises		7	10	9	10	10	11	11	13	18%
Turnover attributed to fish processing (million €)		1.1	0.7	0.7	0.7	0.8	0.9	0.9	1.1	28%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.11.2 Economic performance

For the third year in a row, in 2019 the turnover from fish processing activity decreased, demonstrating a 7% drop compared to 2018 while the total income of processing sector increased by 6% as a result from the 29% increase of other income during that year. Company decisions explained further in the previous section led to enhancement of parallel activities in 2019, e.g., trading of fresh fish, frozen meat, fruit and vegetables, or other canned and processed foods.

An ensuing result of the previous fact is the 5% decrease of fish and raw material purchase for processing activity in 2019, following the 10% decrease in 2018 compared to 2017. Combined with an 11% reduction of wages and staff salaries, those two production cost categories lowered the total production cost by 2% for 2019 despite small energy and other operational costs increase (3% both).

Capital costs increased almost by 30% mainly because of capital depreciation. Financial costs dropped a further 3% in 2019 after a 33% decrease in 2018 compared to 2017 following debt restructuring. On capital value terms, 2019 demonstrated a small rise of 3% on both assets and new investments while debt remained on the same levels with 2018 at 201.7 mil. €

Continuing the 2017 increasing trend, all economic performance indicators demonstrated in both 2018 and 2019 significant increase ending in 2019 with gains of 30% GVA and more than 50% for cash flow, earnings before interest and tax and net profit, compared to 2018.

Regarding productivity and performance indicators, labour productivity demonstrated a 23% increase in 2019 compared to 2018 helped by the labor cost reduction that was mentioned above. The strong profitable performance of the sector, especially of very small processing companies in 2018 and 2019, contributed to the continued improvement of all indicators that started in 2017.

Table 5.11.2: Economic performance indicators, Greece, 2011-2019

Variable	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)										
Turnover	268.3	232.9	195.2	214.3	238.8	251.0	295.9	253.6	235.2	-7%
Other income	0.0	0.0	2.4	2.2	1.7	118.4	153.1	137.5	177.9	29%
Operating subsidies	0.6	0.8	2.0	1.9	0.4	0.0	0.0	0.0	0.0	0%
Total Income	268.9	233.6	199.6	218.3	240.9	369.4	449.0	391.1	413.1	6%
Expenditure (million €)										
Purchase of fish and other raw material for production	139.1	140.8	139.6	143.3	156.9	159.8	177.6	160.0	151.3	-5%
Wages and salaries of staff	28.3	21.6	21.6	20.2	25.5	25.5	32.9	32.3	28.6	-11%
Imputed value of unpaid labour	1.5	0.7	1.0	0.9	1.2	1.2	1.0	1.3	1.1	-16%
Energy costs	12.1	12.2	11.9	7.5	13.3	28.7	35.7	26.4	27.3	3%
Other operational costs	36.8	29.7	14.3	8.0	19.0	143.0	168.5	113.8	117.6	3%
Total production costs	217.8	205.1	188.4	179.9	215.9	358.2	415.7	333.7	326.0	-2%
Capital Costs (million €)										
Depreciation of capital	14.1	6.6	6.7	11.2	5.9	7.3	8.1	4.8	6.4	32%
Financial costs, net	17.2	23.3	27.2	26.3	12.3		10.9	7.3	7.1	-3%
Capital Value (million €)										
Total value of assets		510.6	435.5	397.7	315.7	233.4	323.9	255.0	263.1	3%
Net Investments	9.3	1.4	14.9	6.9	-0.6	0.7	2.8	5.2	5.3	3%
Subsidies on investments							0.1	0.3	0.1	-77%
Debt	199.1	294.0	409.3	419.1	254.4	206.0	280.1	199.1	201.7	1%
Economic performance (million €)										
Gross Value Added	80.3	50.1	31.8	57.7	51.2	37.9	67.2	90.9	116.8	29%
Operating Cash Flow	51.1	28.5	11.3	38.4	24.9	11.2	33.3	57.4	87.1	52%
Earning before interest and tax	37.0	21.9	4.5	27.3	19.0	3.9	25.1	52.5	80.7	54%
Net Profit	19.8	-1.3	-22.7	0.9	6.7	3.9	14.2	45.2	73.6	63%
Productivity and performance Indicators										
Labour productivity (thousand €)	35.5	24.4	18.0	35.9	30.3	18.6	31.6	44.4	54.5	23%
Capital productivity (%)		9.8	7.3	14.5	16.2	16.2	20.8	35.6	44.4	
GVA margin (%)	29.9	21.5	16.1	26.7	21.3	10.3	15.0	23.2	28.3	
EBIT margin (%)	13.8	9.4	2.3	12.5	7.9	1.1	5.6	13.4	19.5	
Net profit margin (%)	7.4	-0.6	-11.3	0.4	2.8	1.1	3.2	11.6	17.8	
Return on Investment (%)		4.3	1.0	6.9	6.0	1.7	7.8	20.6	30.7	
Financial position (%)		42.4	6.0	-5.4	19.4	11.8	13.5	21.9	23.3	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.11.3 Breakdown by company size

For the companies that employ 10 or less employees, total income had a small decrease compared to 2017's high point of 119 million euros and a 5% drop for 2019 (107 mil.) compared to 2018 (113.3 mil.). Production cost also kept a decline, with 14% drop in 2019 but cost's higher drop rate combined with the relatively high income led to the increase of GVA (4%), Operating Cash Flow (6%), Earnings before tax and interest (7%) and Net Profit (8%). In Greece, most fisheries processing companies demonstrate a significant parallel activity, mostly fish trading that often supports the processing activity with cash flow and frequently surpass it as the main source of revenue. In the case of the very small and small company categories, the companies demonstrate high profits based on trading activity while using the same resources, i.e., the company's transportation and storage assets. In both 2018 and 2019, the ≤10 category demonstrated higher other income values than main activity turnover. In 2018 turnover amounted to 48.9 mil. with 64.3 mil. other income while in 2019 the values were 48 mil. and 59 mil. respectively.

The 11-49 category demonstrated a significant total income raise of 20% in 2019 compared to 2018 and a very limited increase of production costs of 2%. This remarkable performance in 2019

is depicted in all indicators that show exceptional raise. A reason for that is the 71% increase of other income (from 45.6 mil. in 2018 to 78.15 mil. in 2019) while main activity income reduced from 90.2 mil. in 2018 to 85.35 mil. in 2019. The enhancement of parallel activities like fish trading is responsible for the total income raise in this category as well.

The 50-249 category, even though it consists of only 8 companies, for both 2018 and 2019 represents almost 45% of the sector's turnover and 47% of purchase of fish and other raw material for production. However, other income for that category is lower than ≤10 and 11-49 categories for both years. The 50-249 category performs better in both years compared to 2017, demonstrates a 9% drop in GVA and stability in both total income and total production costs in 2019 compared to 2018 (0% and -1% respectively). Compared to 2018, 2019 also shows significant raise in cash flow (32%) and earnings before interest and tax (57%) but continues the trend of negative net profit from 2016 with a 47% drop.

Table 5.11.3: Economic performance by size, 2012-2019

Variable	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees									
Total Income	28.3	33.7	20.5	39.3	52.8	119.1	113.3	107.2	-5%
Total production costs	36.1	32.2	33.3	37.9	66.8	77.8	65.4	56.3	-14%
Gross Value Added	-3.6	6.6	-9.9	7.3	-6.5	50.8	58.6	61.1	4%
Operating Cash Flow	-7.8	1.5	-12.8	1.4	-14.0	41.3	47.9	50.9	6%
Earning before interest and tax	-9.5	-2.5	-19.5	0.7	-14.9	40.5	47.2	50.4	7%
Net Profit	-14.8	-20.9	-33.9	-0.1	-14.9	39.6	46.5	50.2	8%
between 11 and 49 employees									
Total Income	98.3	62.4	82.1	94.6	142.7	147.4	135.8	163.5	20%
Total production costs	96.4	85.3	69.7	91.5	115.0	130.4	131.4	134.0	2%
Gross Value Added	10.5	-14.9	19.6	12.4	35.3	27.0	14.4	39.5	174%
Operating Cash Flow	1.9	-22.9	12.5	3.1	27.7	17.0	4.5	29.5	563%
Earning before interest and tax	0.2	-23.7	11.6	0.5	26.3	15.1	3.4	27.2	704%
Net Profit	-2.7	-24.2	7.3	-2.9	26.3	13.1	1.6	25.0	1438%
between 50 and 249 employees									
Total Income	107.0	103.5	115.7	107.0	173.9	182.5	142.0	142.3	0%
Total production costs	72.6	70.8	76.9	86.5	176.4	207.5	137.0	135.7	-1%
Gross Value Added	43.2	40.1	48.0	31.6	9.0	-10.6	17.8	16.2	-9%
Operating Cash Flow	34.4	32.7	38.8	20.4	-2.5	-25.0	5.0	6.7	32%
Earning before interest and tax	31.3	30.7	35.2	17.8	-7.4	-30.4	2.0	3.1	57%
Net Profit	16.2	22.5	27.5	9.7	-7.4	-38.5	-3.0	-1.6	-47%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.11.4 Socio-demographic structure

For 2018, the male employees were 1,352 and the female 940. In 2019, the respective numbers were 1,331 and 1,026 demonstrating no variation in the male employees' number and almost 9% raise in the female category.

For 2019, most of the fish processing industry employees were male with a percentage of 56% followed by 44% female employees. Freezing sector consists mostly of male employees and the other two sectors (a) salting, canning, filleting, etc and b) de-shelling of mussels,) traditionally consists mainly of female employees.

The sector's age classification categories were 15-24 with 14%, 25-39 with 47% and 40-64 with a 39% percentage. This distribution is common in Greece and although the minimum age for employment in Greece is 15, the average age to start working (mostly part time job while

studying) is 19-20 and mostly to food sector in touristic areas (coffee shops, restaurants, pubs, etc.) hence the low percentage of 15-24. Most employees in the 15-24 category are either doing their school and college practice in the processing sector or they are family members of companies' owners.

Regarding the education levels of the sector's employees, medium level (high school) is the major category with a percentage of 57%, followed by high (university) with 35%, and low (primary school) with 8%. The employees with high education work mainly in the laboratory or in the administration office (accountants, secretaries, sales personnel, etc.), although there is a high percentage of employees with university diplomas that are irrelevant to the processing sector (i.e., teachers), and not depicted in their salary.

Regarding the nationality, 40% of the employees are Greek citizens, 21% are from EAA and 7% from other countries. There is a high percentage (32%) of unknown nationality due to lack of knowledge of the owner of the company or their lack of willingness to provide this information. Because certain fish processing procedures are not considered attractive by the available domestic workforce (i.e., gilling and filleting of fish), these positions are usually filled by people in financial need or immigrants.

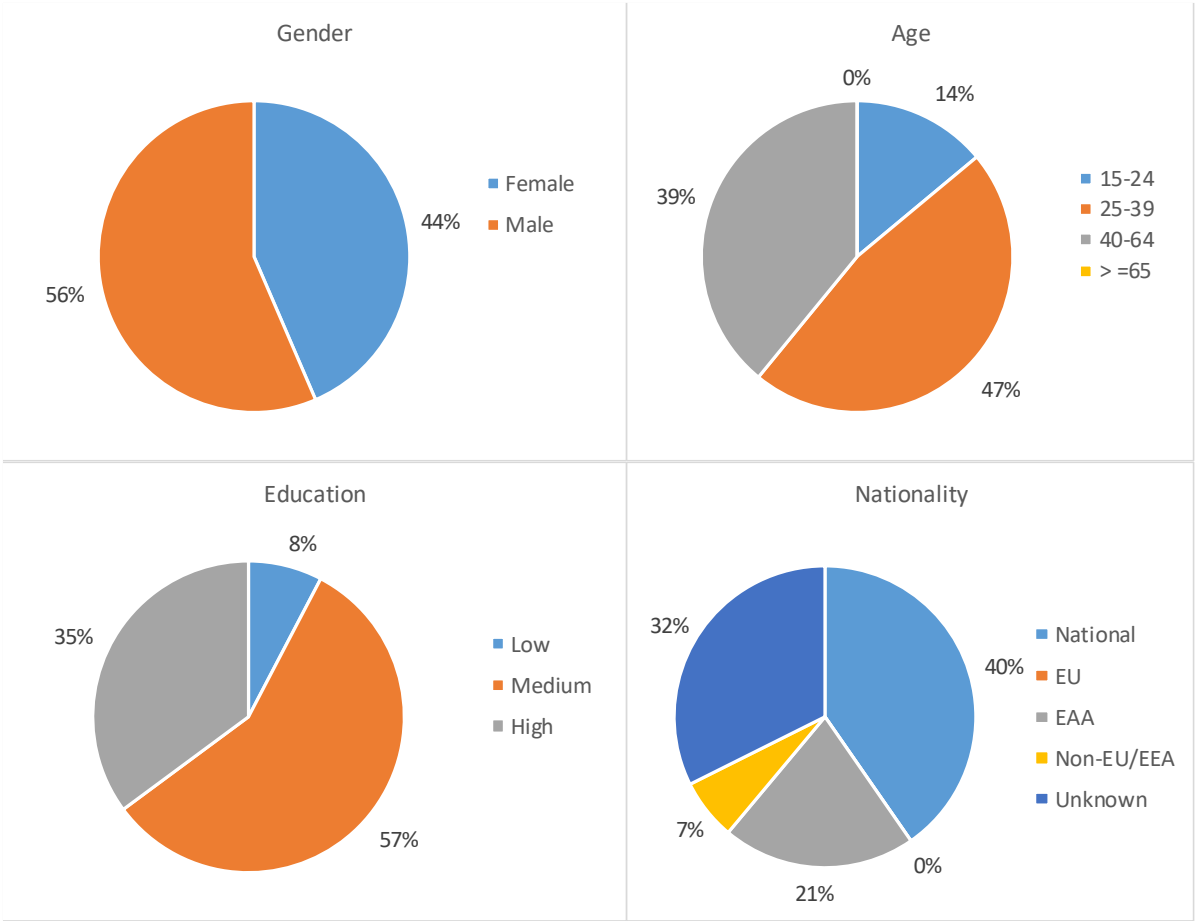

Figure 5.11.1: Socio-demographic characteristics, Greece, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

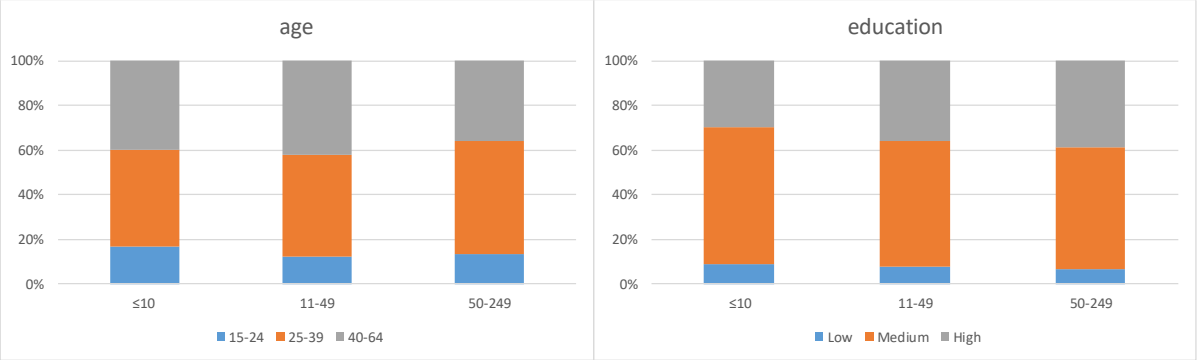

Figure 5.11.2: Distribution of the employment by age and education according to enterprise size, Greece, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.11.5 Raw materials

In the fish processing industry, there are mainly four sources for purchasing raw material: a) it can be bought directly at the landing site or fish auction market, b) it can be captured by boats belonging to the company, c) it can be bought or produced by an aquaculture unit/company and d) it can be imported.

In Greece, for the fiscal year 2019, the category of companies with no more than 10 employees purchased the 19% of the total raw material of the sector, the category 11-49 the 34% of the total raw material of the sector and the last category 50-249 the 47%.

The Greek processing industry is highly diversified by the size category of the companies but mainly due to the processing activity. As shown in the Figure 5.1111.3 below, the companies in the 50-249 category, represent the largest percentage of raw material purchases but also demonstrate the largest products sales of the sector, and they acquire their raw material mostly through trade, (79% for the fiscal year 2019), from fish auction came the 12% and the remaining 9% came from aquaculture units from Greece and from abroad (mostly from Chile, Morocco, Ecuador, Norway, etc). They acquire a great variety of species, from small pelagic fish (mostly from Greece) to expensive lobsters (imported). For the same 50-249 category, approximately 25% of raw material is of Greek origin and mainly of low value, while the rest comes from Non-EU/EAA countries, along with very small quantities of EU origin, with salmon being the predominant species.

The companies in the 11-49 category for the years 2018 and 2019 show a variation in the origin of the raw material they used that differentiates during several periods in the fiscal year, following the rules of the market based on supply and demand and depending on periodic prices of raw materials.

Companies in the last category, employing up to 10 people, use as sources for small pelagic fish mainly the fish auctions and purchase other species (shrimp, octopus, molluscs, squid etc.) mainly from Non-EU/EAA maintaining a low variety of products to reduce financial risk.

The fisheries processing industry in Greece is dominated by frozen products. From total raw material purchased in 2019, 39,632 tonnes were used for frozen products, 12,157 were used for processed products and 1,095 for deshelling of mussels. Of final products, 80% are frozen (fillet, whole fish, or prepared meal), 11% are canned products, 6% salted, 2% smoked and 1% salads.

Finally, the main processed species by percentage of raw material are squid (5.8 thousand tonnes), sardine (3.7), anchovy (3.4), prawn (2.95) and octopus (2.85). Those five species combined amount to 36% of total raw material purchased in 2019.

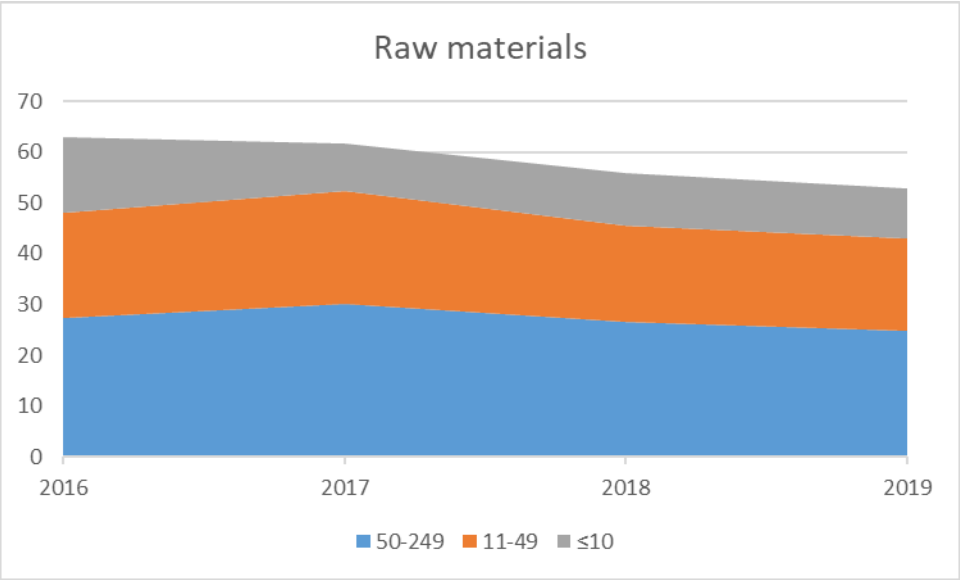

Figure 5.11.3: Evolution of raw materials used by firm size in thousand tonnes, Greece, 2016-2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.11.6 Trends, drivers and outlook (including Covid-19 impact)

In Greece, for 2019, fish processing industry distributed the largest part of its annual production to domestic market (34 thousand tonnes that amount to 77% of total production) and the rest was exported to EU (9.5 thousand tonnes or 22%) and only 1% to other foreign markets. The comparatively small percentage of exports is due to the strong competition of products from non-EU/EAA countries (Ecuador, Morocco, etc.) due to the particularly low price of their frozen products. Out of the 34 thousand tonnes sold in Greece, 26.4 thousand tonnes were frozen products, 7 thousand tonnes were processed fish and 602 tonnes were deshelled mussels. EU exports consisted of 6.5 thousand tonnes of frozen products and 3 thousand tonnes of processed fish, and the rest exports included 401 tonnes of frozen products and 229 tonnes processed fisheries.

In the years 2018 and 2019, the Greek fish processing industry demonstrated significant increase in cash flow and net profit small achieving a decrease in operating costs while managing to reduce debt compared to 2017. In Greece, most fish processing companies demonstrate a financially important secondary activity, mainly fresh fish trading and sales. The secondary activity revenue was used to support the process activity. In the case this trend continues, it could facilitate access to new bank loans for processing companies. It could also facilitate improved agreements for raw material purchases and possible new investments.

According to company representatives and owners, several actions are needed to address the problems of the sector's low competitiveness especially compared to non-EU/EAA countries and facilitate access to new foreign markets. They include the development of new business plans for production process restructure, production of new and improved fishery commodities of high added value and diversification of products to cover evolving consumption patterns. Another important factor could prove the adoption of sustainable production processes and use of ecofriendly materials combined with sustainable product labelling emphasizing on nutritional value (Omega-3 fats, high quality pre-cooked foods, etc.). Also, an effort has also begun to ensure protected designation of origin or geographical indication labelling for the traditional Greek salted anchovy and sardine products. A successful example is the Avgotaraxo of Mesologgi Lagoon (striped grey mullet fish roe).

Covid-19 impact

Regarding the impact of Covid-19 to the Greek fish processing industry, according to owners and the early companies' balance sheets of 2020, pandemic can become both an obstacle to the continuation of the sector's positive economic performance of 2018-2019 period but can also

provide opportunities. Only few balance sheets for the fiscal year 2019 predict a drop of sales for 2020 for 5-10%.

As soon as full lockdown measures were applied in 2020, they immediately led to disruption of the production process in most processing companies due to movement restrictions for employees. An example of the severity of that measure's impact was the complete shutdown of one of the biggest fisheries canning factories in Greece for a whole week due to the measures it was forced to take because of covid-19 case in its personnel. The result was the loss of significant revenue due to the production disruption and inability to fulfill orders. When partial lockdown measures applied, employment reached almost pro-covid levels.

Lockdown measures had an impact on raw material supply due to limited access to fish auction markets and landing sites. Although raw material imports did not stop, a 5-10% rise of prices was inevitable. There was also a 10-15% rise of packaging materials and spare parts import costs.

Lockdown measures in the first months of the pandemic that affected the restaurants did not affect the demand for preserved and frozen fish as it concerned only frozen shells and shrimps in a small percentage. Owners and company representatives also estimate a very low impact on processing industry due to the lower tourism during the 2020 summer.

Furthermore, the limited access to restaurants caused an increase in household consumption of frozen aquaculture fish purchased in supermarkets. There was also a rise of household demand and consumption of octopus and shrimp as appetizers, fisheries that were traditionally consumed in restaurants.

Another covid-19 impact was a temporary drop of raw material prices from fish market auctions during in the spring of 2020 due to offers of unsold small fish stocks.

5.11.7 Data coverage and quality

As in previous surveys, the 2018-2019 data collection for fish processing sector was implemented by the Hellenic Agricultural Organisation-Demeter (HAO Demeter) of the Greek Ministry of Rural Development and Food. The data collection methodology followed the Greek National Work Plan. The majority of the socio-economic data of the SA and Ltd companies operating under the International Financial Reporting Standards (IFRS), was derived from the published annual balance sheets and the yearly financial statements of the companies, while the additional required information regarding social data and detailed production cost structure, was provided by questionnaires completed by the companies and the replies were combined with onsite visits and interviews. For the small enterprises the data collection was achieved mainly from the completed questionnaires and the onsite visits and interviews.

The collected data were supplemented and cross-checked by data from Prefectural Chambers of Commerce, Industry and Trade, Prefectural Directorates of Fisheries and Veterinary Services, as well as the National Food Control Agency (EFET), Hellenic Ministry of Rural Development and Food business and professional online data bases.

The methodology for the data collection of the fish processing sector was census with high achieved sample rate. The estimation procedure was applied for energy cost and unpaid labor using non-probability sample survey method, according to National Work Plan.

For social data, all companies provided data under gender segmentation. For 2019, 65 companies provided the extra segmentation regarding age, education, and nationality. Due to the low level or response regarding the extra social information, data from the 65 fully completed questionnaires and from other sources were used to create a strata analysis and the census method was replaced with a non-probability sample method. The chosen used sample was a subset of a population that reflects the characteristics of the entire population adequately.

5.12 Hungary

5.12.1 Overview

The fish processing sector in Hungary is relatively small. Enterprises whose activity includes the European Classification of Economic Activities NACE code C10.2 "Processing and preserving of fish, crustaceans and molluscs" are regarded as the target population. Sampling units are enterprises classified under the category of fish processing plants by the Hungarian Central Statistical Office including enterprises involved in repackaging, smoking and trading.

MS has submitted data under the 2021 Fish processing for the period 2016-2018 and thus, these data were used for the EWG analysis. According to these data, in 2018, there were in total 13 enterprises whose main activity was fish processing in Hungary (Table 5.12.1). Compared to the previous year the total number of enterprises was decreased by 13%, reaching 13 firms. In Hungary, the industry, in 2018, is comprised mostly of very small companies, a percentage of 69%, while the 11-49 size category corresponds to only around 8% of the total sector namely one company and 23% belong to the 50-249 category. The number of enterprises of these three size categories varies from year to year.

The total number of employees in the Hungarian fish processing industry was 330 which, corresponds to 79 FTEs. There was not any unpaid labour. Compared to 2017, the total number of employees and FTEs increased significantly by 11% and 14% in 2018, respectively, despite the reduction in the number of food processing firms.

The turnover was EUR 17.4 million in 2018 showing an increase of 10% compared to the year 2017. The main part of the turnover is derived from the 50-249 size category, the biggest size category of Hungarian fish processing sector, where the increase is nearly 50% compared to 2017, mainly because of the introduction of one more company (from two to three), for this size category.

Table 5.12.1: Overview, Hungary, 2016-2018

Variable	2016	2017	2018	Δ (2017-18)
Structure (number)				
Total enterprises	13	15	13	-13%
≤ 10 employees	9	8	9	13%
11-49 employees	2	4	1	-75%
50-249 employees	2	2	3	50%
≥ 250 employees	0	0	0	0%
Employment (number)				
Total employees	233	296	330	11%
FTE		69	79	14%
Indicators				
Turnover (million €)	15	16	17	10%
FTE per enterprise		4.6	6.1	31%
Average wage (thousand €)		31.8	33.8	6%
Unpaid work (%)	0.0	0.0	0.0	0%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.12.2 Economic performance

The value of total purchases of goods and services decreased by 7% to EUR 9.9 million in 2018. On the other hand, the wages and salaries of staff were increased significantly by 21% to EUR 2.7 million. The same picture stands for the personnel costs showing a rise of 25%. According to the data, 2018 was the year that significant investments took place by the enterprises since this variable had a significant rise of 895% compared to 2017, reaching EUR 5.2 million.

The economic performance of the Hungarian fish processing was significantly improved in 2018 being at a net profit-making position of around EUR 3.4 million, showing a significant increase of 101% compared to previous year. Comparing the economic performance indicators between 2017 and 2018, were all increased: GVA increased by 48% to EUR 6.7 million in 2018 and operating cash flow increased by 72% to EUR 4.1.

Table 5.12.2: Economic performance indicators, Hungary, 2016-2018

Variable	2016	2017	2018	Δ (2017-18)
Income (million €)				
Turnover	15.1	15.8	17.4	10%
Other income	0.3	0.3	0.4	28%
Operating subsidies	0.0	0.0	0.0	1%
Total Income	15.4	16.1	17.8	10%
Expenditure (million €)				
Purchase of fish and other raw material for production	9.2	10.6	9.9	-7%
Wages and salaries of staff	1.7	2.2	2.7	21%
Imputed value of unpaid labour	0.0	0.0	0.0	0%
Energy costs	0.2	0.2	0.3	10%
Other operational costs	0.9	0.7	0.9	25%
Total production costs	12.0	13.8	13.8	0%
Capital Costs (million €)				
Depreciation of capital	0.6	0.6	0.6	-7%
Financial costs, net	0.1	0.0	0.1	82%
Capital Value (million €)				
Total value of assets	13.1	13.7	14.0	2%
Net Investments	0.4	0.5	5.2	895%
Subsidies on investments	0.0	0.0	0.1	0%
Debt	5.4	5.6	4.4	-22%
Economic performance (million €)				
Gross Value Added	5.1	4.6	6.7	48%
Operating Cash Flow	3.4	2.4	4.1	72%
Earning before interest and tax	2.8	1.7	3.5	101%
Net Profit	2.7	1.7	3.4	101%
Productivity and performance Indicators				
Labour productivity (thousand €)		65.7	85.2	
Capital productivity (%)	38.7	33.3	48.2	
GVA margin (%)	33.0	28.3	37.8	
EBIT margin (%)	18.1	10.8	19.6	
Net profit margin (%)	17.8	10.6	19.2	
Return on Investment (%)	21.3	12.7	25.0	
Financial position (%)	58.5	59.3	68.9	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.12.3 Breakdown by company size

Table 5.12.3: Economic performance by size, Hungary, 2016-2018

Variable	2016	2017	2018	Δ (2017-18)
less than or equal to 10 employees				
Total Income	1.2	0.8	2.8	263%
Total production costs	1.3	0.9	2.1	130%
Gross Value Added	0.2	0.0	0.9	18764%
Operating Cash Flow	0.0	-0.1	0.7	-604%
Earning before interest and tax	-0.1	-0.2	0.7	-510%
Net Profit	-0.1	-0.2	0.6	-426%
between 11 and 49 employees				
Total Income	5.2	5.4	0.4	-94%
Total production costs	4.0	5.3	0.3	-94%
Gross Value Added	1.5	0.6	0.1	-87%
Operating Cash Flow	1.2	0.1	0.0	-74%
Earning before interest and tax	1.0	-0.1	0.0	-120%
Net Profit	1.0	-0.1	0.0	-117%
between 50 and 249 employees				
Total Income	9.0	10.0	14.7	47%
Total production costs	6.7	7.5	11.3	50%
Gross Value Added	3.4	3.9	5.7	46%
Operating Cash Flow	2.3	2.4	3.4	38%
Earning before interest and tax	1.8	2.0	2.8	44%
Net Profit	1.8	2.0	2.8	42%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.12.4 Socio-demographic structure

In 2018, there were 330 people employed in the processing sector of Hungary, equivalent to 79 FTEs.

The proportion of female and male in the enterprises was not equivalent, since most of the fish processing industry employees were male at a percentage of 55% and 45% of total people employed being female.

The sector's age classification categories reported (<30, 30-50 and >50) do not correspond to the age classes reported by the rest of the MS. Overall, the 30-50 age class made up the largest proportion (38%) of people employed in the processing industry, followed by the <30 age class (20%). A further 16% was apportioned to the >50 age class and the rest proportion of people employed reaching the 16% is unknown.

As for the education, 43% of total people employed in the industry were educated up to a medium level (high school) being the major category in respect of education levels. It is followed

by 18% with high education level (university) and then followed by low level (primary school) at 15%. The rest at 24% is unknown.

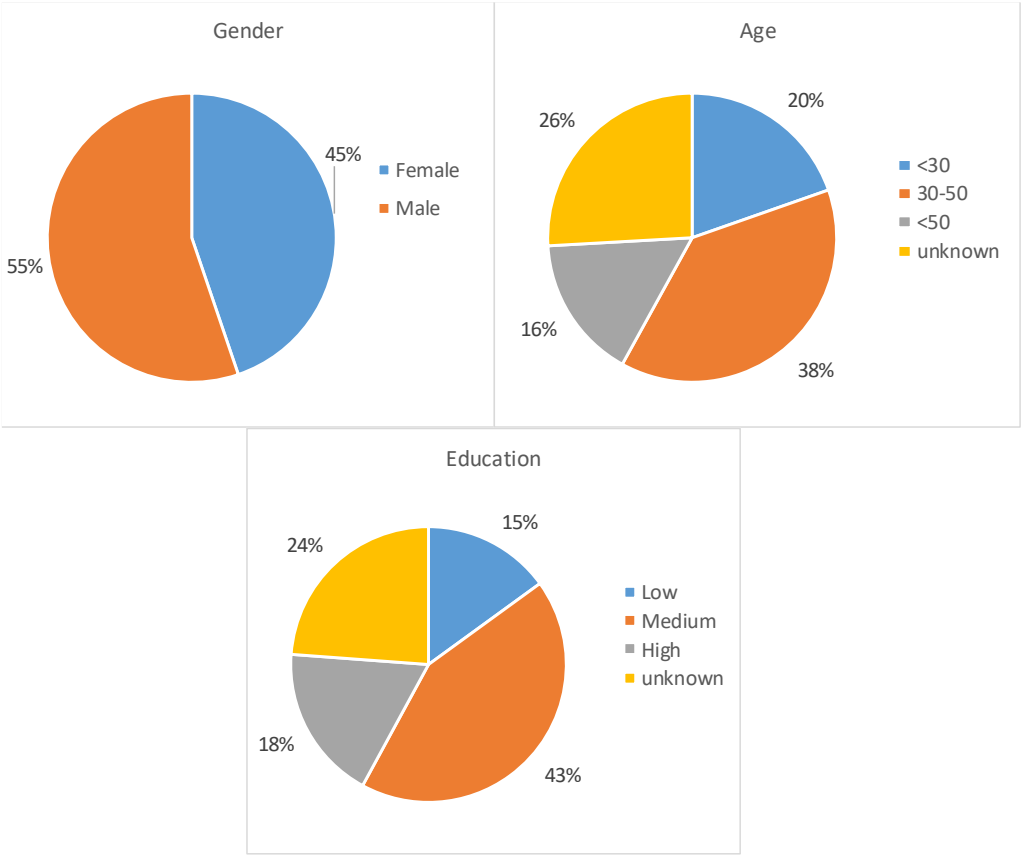

Figure 5.12.1: Socio-demographic characteristics, Hungary, 2018

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.12.5 Raw materials

The torpedo shaped catfishes, as shown in the Figure 5.12.2 below, is the main species that dominates the Hungarian fish processing sector as it is made up 47% of the raw materials used for processing in 2018. The next most important processed species by percentage of raw materials is carp, used at 20%. Those two species amount to 67% of total raw materials. Some other species used as raw material are silver, bighead carps nei at 6%, European hake at 5%, rainbow trout at 4%, cod net also at 4% and 14% other species.

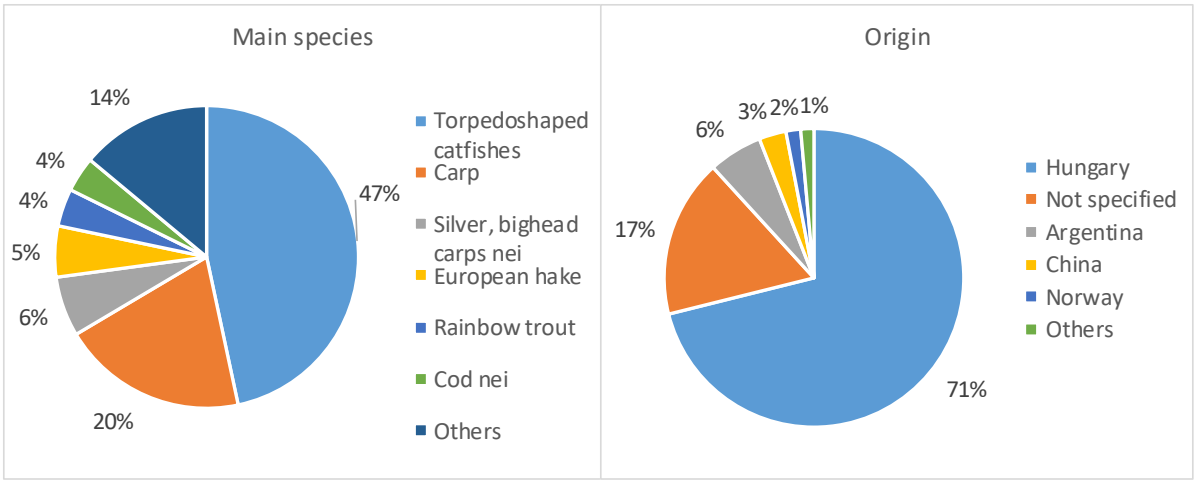

Figure 5.12.2: Raw materials species and origins, Hungary, 2018

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.12.6 Trends, drivers and outlook (including Covid-19 impact)

No expert from Hungary attended the EWG hence no expertise was available during the meeting.

5.12.7 Data coverage and quality

In this data call, Hungary provided data on economics, raw materials and socio-demographics aspects of the employment for three years (2016-2018).

For that reason, the EWG prepared part of this section based on DCF submission.

5.13 Ireland

5.13.1 Overview

There was a total of 166 fish processing enterprises in Ireland in 2019 up 4% from 2018 (160). However, prior to 2019 there had been a declining trend in enterprise number since 2008 when total enterprises stood at 172.

The industry comprised of whitefish, pelagic, shellfish, smoked and whitefish operators. Whitefish, shellfish and salmon (smoked) processors accounted for the largest number companies in Ireland, while the 25 largest processors specialising in whitefish and pelagic dominate output by weight and value.

The whitefish sector is made up of 14 larger processors with a turnover more than €10 million with the remaining companies being a mixture of small firms and first point of sale entities, which includes the four main Fishermen's Co-operatives. Main export markets include the UK, Spain and France.

The pelagic processing sector comprised of around 13 companies with many of the larger processors based principally in the northwest of the country. The main markets for the more affordable pelagic products remained robust in West Africa and Asia. However, escalating logistics costs and freight bottlenecks, particularly in China, remained stubbornly problematic in the last year. Value added products tend to be sold to the domestic market as well as exported to Europe and the UK.

The salmon and shellfish processing sector comprised of roughly 75 companies made up of larger processors and a mixture of small processors, and smokers. The main exports for salmon are France, UK, Poland and Germany, while for shellfish the main export countries are France, UK, Spain and Asia.

Total turnover in 2019, EUR 622 million, was down 7% from 2018 (EUR 671 million) and up by 9% from 2008, following a gradual 10-year increasing trend reaching at height in 2017 of EUR 679 million.

In 2019, there were approximately 2 878 FTEs employed in the fish processing industry. This is an overall 3% increase on 2018. However there has been a drop in overall employment from 2017. This may be, in part, due to estimation errors that inflated figures for 2017. Male employees continue to represent around 65% of total employees a relatively constant trend. Investment in the seafood industry has led to an increase in the numbers employed through the provision of grant aid in specific schemes and programmes influencing the number of FTE.

The processing sector sources its raw material from domestic and foreign landings into Irish ports, aquaculture production and imports. In 2019, there were 208 thousand tonnes of seafood landed by the offshore domestic fleet into Irish ports with an estimated value of EUR 283 million. The primary landing ports in 2019 were Killybegs, Castletownbere, Dingle, Dunmore East, Ros a Mhil, Kilmore Quay, Howth, Greencastle, Union Hall, and Clogherhead. The top fisheries species landed in 2019 were Atlantic mackerel, Norway lobster, Brown crab, Horse mackerel, monkfish, megrim, hake, blue whiting, tuna and whiting.

Aquaculture production in 2019 was 38 thousand tonnes with an overall value of EUR 172 million. The primary species-cultures, in order of output value are: caged salmon (All organically certified), farmed oysters, rope and bottom cultured mussels. The majority of aquaculture is carried out along the western seaboard.

The number of businesses has remained relatively stable over the period 2008-2019. There was a 6% increase in the number of <10 employment category between 2018 and 2019. Total Employment and FTE meanwhile have decreased over the two years from 2017 from a high of 4 076 to 3 962 in 2019. FTE saw an associated decrease from 2017 to 2018 from 3 138 to 2 784 although there was a slight increase of 3% again in 2019 to 2 878.

Average wages and salaries have remained relatively consistent with some fluctuations. Data estimates for 2019 (EUR 26.8 thousand) may be underestimated as the value decreased by 24% from 2018 (EUR 35.4 thousand). The ratio of total employment to FTE has remained consistent from 2017 to 2019; 77%, 75% and 73%, respectively. Labour productivity saw an increase from 2017 into 2018 from an estimated at EUR 47.2 thousand in 2017 to EUR 79 thousand, this figure declines by 3% for 2019 which was estimated as EUR 77 thousand.

The proportion of unpaid work declined steeply (-81%) to 1.1% in 2019 from 5.8% in 2008 and is part of a mostly continuous decline from 2012. However, data on unpaid labour is sparse and the trends may be an artifact of the sample size and estimation process. The number of non-main activity processing enterprises remained constant and stood at 15 in 2019, though turnover for this group increased by 20% in 2019 to EUR 43 million from a figure of EUR 35.8 million in 2018.

Table 5.13.1: Overview, Ireland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	172	169	169	168	164	165	162	161	164	157	160	166	4%
≤10 employees	93	98	96	97	87	86	84	92	88	86	85	90	6%
11-49 employees	58	60	60	57	58	57	55	47	49	45	48	48	0%
50-249 employees	21	11	13	14	19	22	23	22	27	26	27	28	4%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	2,867	3,020	3,064	3,200	3,342	3,534	3,688	3,797	3,949	4,076	3,709	3,962	7%
FTE	2,596	2,633	2,677	2,761	2,678	2,789	2,874	2,963	3,029	3,138	2,784	2,878	3%
Indicators													
Turnover (million €)	571	538	545	559	656	613	655	686	630	679	671	622	-7%
FTE per enterprise	15.1	15.6	15.8	16.4	16.3	16.9	17.7	18.4	18.5	20.0	17.4	17.3	0%
Average wage (thousand €)	32.2	30.5	27.5	29.5	28.2	32.6	32.5	33.2	26.3	31.2	35.4	26.8	-24%
Unpaid work (%)	5.8	6.0	5.2	4.7	4.9	3.4	3.4	3.4	4.1	3.2	1.7	1.1	-34%
Enterprises doing fish processing not as main activity													
Number of entreprises	0	16	25	22	29	20	20	22	16	16	16	15	-6%
Turnover attributed to fish processing (million €)	0.0	52.9	27.5	11.5	22.2	50.5	52.6	80.6	47.7	34.6	35.8	43.2	20%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.13.2 Economic performance

The amount of total income generated by the Irish fish processing industry in 2019 was EUR 650.7 million, down 6% from EUR 693 million in 2018. Turnover made up 96% of total income in 2019 with other incomes and subsidies making up the rest. Data on operating subsidies was not available for 2018 and 2019. Total income has continued a general decreasing trend since 2014 to 2019 (16%). Turnover recovered in 2017 (EUR 679 million) but has decreased again in 2018 and 2019 to EUR 671 million and EUR 621 million respectively.

The cost structure continues to be dominated by raw material costs, which experienced an 18% decrease from 2018 to 2019 and represents 62% of the total production costs. Raw material costs were 48% of the total income in 2019. However, estimates for raw material costs, along with all cost, have shown a marked decrease. Purchase of raw material was EUR 527 million in 2017 but reduced to EUR 385 million in 2018. This decrease is in part due to the low sampling size achieved in the processing sector survey and as such the figures should be treated with caution. Labour costs, the next largest component, made up 15% of total costs in 2019 and Other operational costs were estimated as 14% of total costs in 2019, an increase of 32% from 2018. Other operation costs have fluctuated widely over the time period (2008-2019) and the value for 2019 is the highest reported since 2014. It is possible that the types of other costs included in this variable are not consistent between enterprises over the time period.

Gross Value Added (GVA) in 2019 (EUR 223 million) was consistent with 2018 but presented a very large, 51%, increase from 2017. This high increase in GVA was mostly driven by the lower

total cost estimates for 2018 and 2019 and points to possible issues with the total raised data submitted. This trend is reflecting in the operating cash flow with rose from EUR 50.7 million in 2017 to EUR 123 million in 2018.

Given the increase in total income and decrease in total production costs net profit was estimated at EUR 131 million, an increase of 27% from 2018 and a massive increase from EUR 12.6 million in 2017. Again, the confidence in these figures is questionable given the big fluctuations and is mostly likely a result of estimation errors as a result of low sampling levels.

Table 5.13.2: Economic performance indicators, Ireland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)													
Turnover	571.5	537.9	544.8	558.7	656.5	613.3	655.3	685.8	630.0	679.0	671.5	621.7	-7%
Other income	4.0	1.3	0.9	2.8	7.8	37.5	118.3	71.2	2.4	9.1	21.7	28.9	33%
Operating subsidies	5.9	4.7	3.8	3.5	3.3	1.7	3.8	3.7	0.4	0.3	0.0	0.0	0%
Total Income	581.4	543.9	549.5	564.9	667.6	652.6	777.5	760.8	632.8	688.4	693.1	650.7	-6%
Expenditure (million €)													
Purchase of fish and other raw material for production	282.5	270.3	355.2	388.5	463.0	418.7	524.0	524.4	479.7	527.6	384.5	315.2	-18%
Wages and salaries of staff	78.8	75.4	69.8	77.7	71.9	87.7	90.3	95.2	76.5	94.7	96.9	76.2	-21%
Imputed value of unpaid labour	4.9	4.8	3.9	3.8	3.7	3.0	3.2	3.3	3.3	3.2	1.7	0.9	-48%
Energy costs	13.1	12.6	15.1	8.8	10.5	8.2	12.5	11.4	10.1	12.0	4.4	4.3	-2%
Other operational costs	9.6	9.2	73.4	69.5	80.0	92.7	114.7	100.7	63.8	0.3	81.9	107.9	32%
Total production costs	388.9	372.2	517.3	548.2	629.1	610.4	744.8	735.0	633.3	637.7	569.3	504.5	-11%
Capital Costs (million €)													
Depreciation of capital	15.4	17.8	20.2	14.3	15.9	10.9	13.3	15.6	12.3	25.7	15.0	12.7	-15%
Financial costs, net	3.3	3.2	3.9	3.3	3.6	2.4	3.2	2.9	0.0	12.4	5.6	2.5	-56%
Capital Value (million €)													
Total value of assets	270.5	258.8	233.0	177.2	199.6	179.0	298.1	403.0	327.5	554.3	564.7	360.3	-36%
Net Investments	8.6	8.3	19.6	17.6	19.4	11.1	18.4	40.5	12.0	19.5	9.1	11.7	29%
Subsidies on investments									0.0	2.0	1.9	1.2	-37%
Debt	206.0	197.1	98.9	75.7	75.6	40.9	85.3	70.8	103.6	105.1	194.9	138.9	-29%
Economic performance (million €)													
Gross Value Added	270.3	247.2	102.0	94.7	110.8	131.2	122.4	120.6	78.9	148.2	222.3	223.2	0%
Operating Cash Flow	192.5	171.7	32.2	16.7	38.4	42.2	32.7	25.8	-0.5	50.7	123.8	146.2	18%
Earning before interest and tax	177.1	153.9	12.0	2.4	22.6	31.3	19.3	10.2	-12.8	25.0	108.8	133.5	23%
Net Profit	173.8	150.8	8.1	-0.9	18.9	28.9	16.2	7.4	-12.8	12.6	103.1	131.0	27%
Productivity and performance Indicators													
Labour productivity (thousand €)	104.1	93.9	38.1	34.3	41.4	47.1	42.6	40.7	26.0	47.2	79.9	77.6	-3%
Capital productivity (%)	99.9	95.5	43.8	53.5	55.5	73.3	41.1	29.9	24.1	26.7	39.4	62.0	
GVA margin (%)	47.0	45.8	18.7	16.9	16.7	20.2	15.8	15.9	12.5	21.5	32.1	34.3	
EBIT margin (%)	30.5	28.3	2.2	0.4	3.4	4.8	2.5	1.3	-2.0	3.6	15.7	20.5	
Net profit margin (%)	29.9	27.7	1.5	-0.2	2.8	4.4	2.1	1.0	-2.0	1.8	14.9	20.1	
Return on Investment (%)	65.5	59.5	5.1	1.4	11.3	17.5	6.5	2.5	-3.9	4.5	19.3	37.0	
Financial position (%)	23.9	23.9	57.6	57.3	62.1	77.2	71.4	82.4	68.4	81.0	65.5	61.5	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.13.3 Breakdown by company size

There were 166 main processing enterprises operating in 2019, divided into categories <10 (n= 90), 10-49 (n= 48) and 50-249 (n= 28) employed. Enterprise number was up 4% from 2018 and down 3% from 2008 (172 enterprises), part of an overall consolidation of enterprises. Total turnover increased, by 18%, for the less than or equal to 10 employees segment rising to EUR 135 million in 2019. Both the between 11 and 49 employees and between 50 and 249 employees showed decreasing turnover in 2018 by 12% and 9% respectively. For the 11-49 segment the reduction to EUR 325 million in 2019 was still an increase from the 2017 value of EUR 209 million. The 50-249 segment demonstrated a continued decrease from 2017.

Net profit showed a similar trend as turnover. The 0-10 segment had an estimated positive net profit for the first time since 2009 at EUR 27 million. Both the 11-49 and 50-249 segments demonstrated decreasing net profits with values of EUR 65 million and EUR 38 million respectively.

Table 5.13.3: Economic performance by size, Ireland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
less than or equal to 10 employees													
Total Income	44.7	41.8	43.8	43.2	35.8	29.3	31.9	34.1	79.7	78.5	115.1	135.3	18%
Total production costs	32.1	31.0	38.6	47.0	41.2	33.6	48.1	46.8	85.7	86.0	135.9	105.4	-22%
Gross Value Added	20.8	19.0	12.9	12.4	7.0	7.8	-2.1	2.5	12.1	5.7	6.4	39.6	516%
Operating Cash Flow	12.5	10.8	5.2	-3.9	-5.4	-4.3	-16.2	-12.7	-6.0	-7.5	-20.8	30.0	-244%
Earning before interest and tax	11.3	9.4	-1.3	-6.3	-7.3	-5.6	-16.8	-13.2	-9.6	-10.4	-24.8	28.1	-213%
Net Profit	11.1	9.2	-2.4	-6.8	-7.6	-5.9	-17.2	-13.9	-9.6	-11.9	-26.6	27.4	-203%
between 11 and 49 employees													
Total Income	323.8	303.0	304.4	315.2	367.5	320.1	336.2	281.4	194.3	209.5	370.0	325.5	-12%
Total production costs	215.5	206.4	299.3	308.1	348.2	310.9	380.9	266.7	195.0	172.6	277.4	252.1	-9%
Gross Value Added	150.6	137.7	46.6	45.2	53.3	47.6	-13.4	47.8	29.7	66.2	138.2	116.0	-16%
Operating Cash Flow	108.3	96.6	5.1	7.2	19.3	9.2	-44.7	14.7	-0.7	36.9	92.5	73.4	-21%
Earning before interest and tax	99.7	86.7	-2.2	-1.7	9.5	3.8	-52.5	6.3	-3.8	29.1	85.5	66.6	-22%
Net Profit	97.9	85.0	-3.4	-3.6	8.0	3.1	-54.3	5.3	-3.8	25.5	83.0	65.4	-21%
between 50 and 249 employees													
Total Income	212.9	199.2	201.3	206.6	264.3	303.3	409.4	445.3	358.7	400.3	208.1	189.8	-9%
Total production costs	141.2	134.9	179.4	193.2	239.7	266.0	315.7	421.5	352.6	379.1	156.0	147.0	-6%
Gross Value Added	99.0	90.5	42.5	37.2	50.5	75.9	137.9	70.3	37.0	76.4	77.7	67.7	-13%
Operating Cash Flow	71.7	64.3	21.9	13.4	24.5	37.3	93.6	23.8	6.2	21.3	52.1	42.8	-18%
Earning before interest and tax	66.0	57.8	15.4	10.4	20.4	33.1	88.7	17.1	0.6	6.3	48.1	38.8	-19%
Net Profit	64.8	56.7	14.0	9.5	18.5	31.7	87.7	16.0	0.6	-1.0	46.7	38.2	-18%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.13.4 Socio-demographic structure

The collection of social variables for the Irish processing sector started in 2019, collecting data for 2017 which is reported below. Data was requested via an annual random sample economic survey. As the Irish survey is currently voluntary for clients, the quality of the results is dependent on client goodwill and level of response rate. Survey returns for the newly launched survey for 2017 data were low. The survey was continued in 2020 and 2021 but received similarly low return rates. As a result, the data presented below, for each of the social indicators, has been estimated with the use of known proportionalities of each business to the sectoral whole for such variables as turnover, FTE and total employment. Applying the survey proportionalities across all variables and the entire sector may be problematic and without a complete census of these variables cautions must be taken when interpreting these data.

The majority of employees involved in the processing sector in Ireland in 2017 were male (65%) followed by 35% female. Preliminary data for 2018 and 2019 show that the percentage of male workers rose to 70% and 75% respectively. The gender balance for each size category of enterprises is similar ranging from 29-45% for female workers.

The age group aggregations used during the data collection were 15-24, 25-39, 40-64 and >= 65, 50% of the of the total employed (2,059) were in the age group 40-64, followed by 32% (1,303) representing people between 25-39 years, 12% (505) for the age group below 24 years and 3% employees were below over 65 years and another 3% unknown. The percentage distribution by age differs by size categories (Figure 5.13.1). Most notably there are no 15-24 presented in the <10 segment although this also has a high number of unknown age categories which could be made up of this age group. However, the smaller enterprises to have the highest proportion of the >65-year age category. Provisional data for 2018 and 2019 show that the majority of workers (56% and 53% respectively) are men aged between 40-64 years old.

There was not sufficient data reported for education level to be able to report raised national totals for this variable. Overall, the majority (79%) of workers are Irish with 18% being from the EU and remainder 3% being Non-EU/EEA workers. There is variation in the nationality proportions

by segment with the smaller enterprises having no workers (based on survey data) from non-EU/EEA and a higher percentage of EU workers at 41% compared to 10% and 18% for the 11-49 and 50-249 segments, respectively. Data for 2019 indicates that Irish workers make up 80% of the workforce and the remainder are 20%, the sampled companies did not indicate any non-EEA workers but given that this was at 3% in 2017 is it possible that companies with this cohort were not sampled.

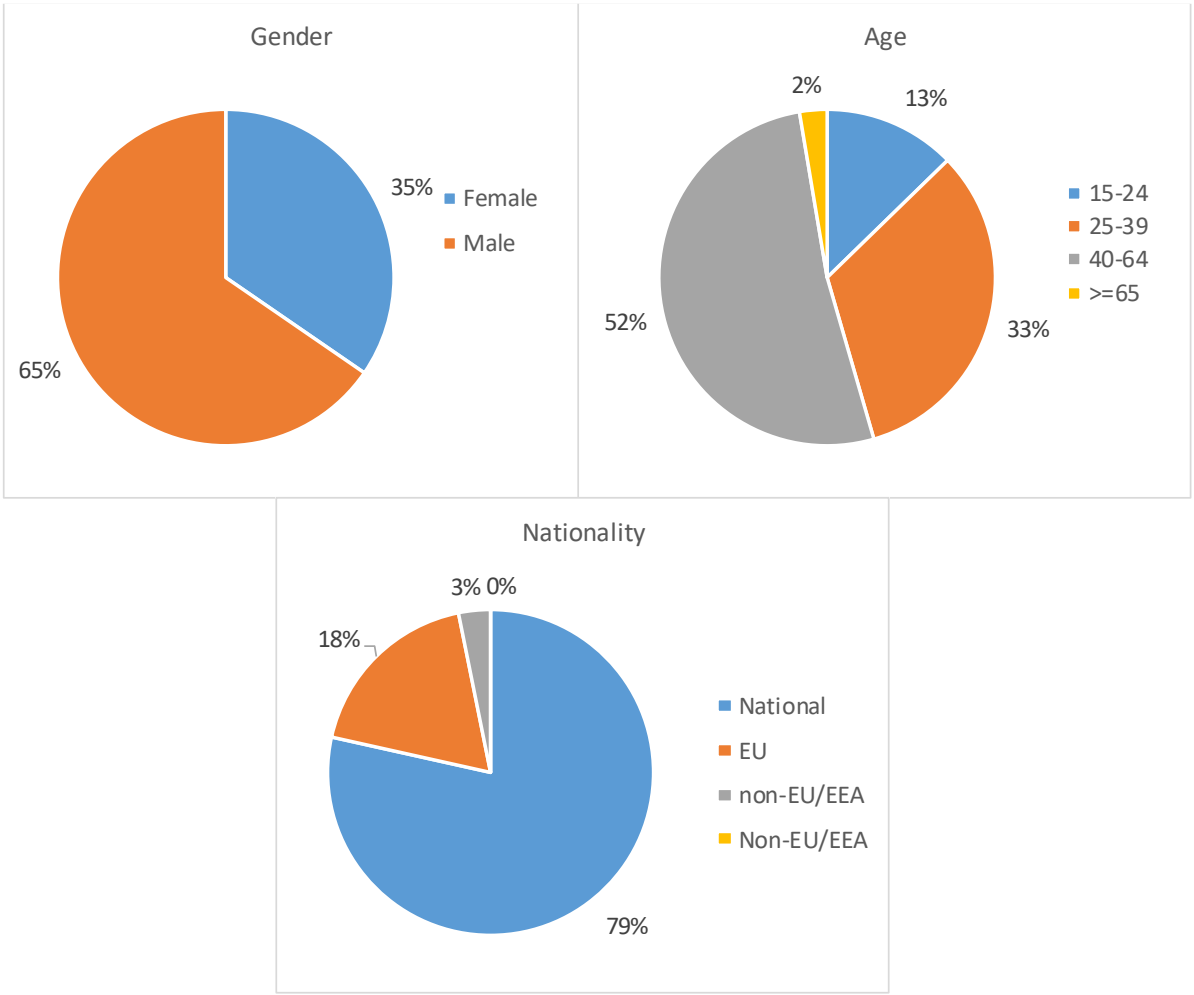

Figure 5.13.1: Socio-demographic characteristics, Ireland, 2017

Source: MS data submissions under the 2019 Fish processing data call and elaboration by the EWG.

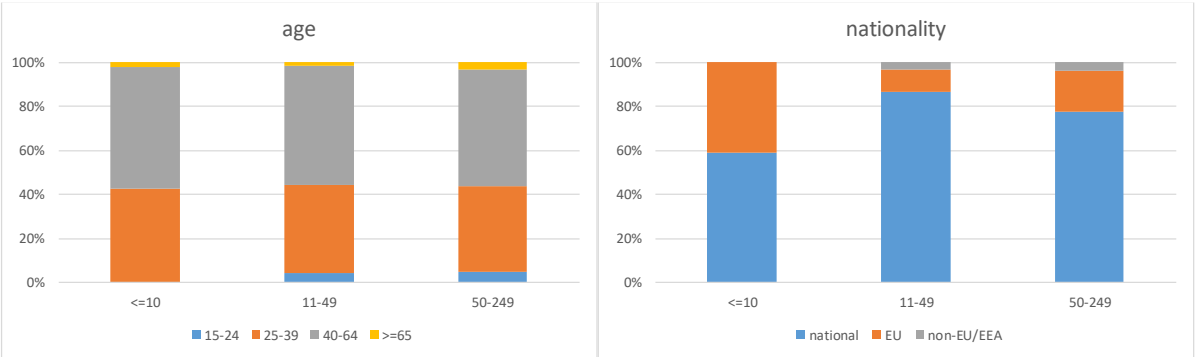

Figure 5.13.2: Socio-demographic characteristics, Ireland, 2017 by segment.

Source: MS data submissions under the 2019 Fish processing data call and elaboration by the EWG.

5.13.5 Trends, drivers and outlook (including covid-19 impact)

While the data presented above demonstrates an increase in profitability this trend may be an overestimate of the sectors performance due to the issues with data availability and estimation procedures.

Developing greater processing scale to capitalise on the increased supply of output from aquaculture and landings into Ireland from other countries, is considered a key driver for growth in the industry. Water pollution, waste management, and carbon dioxide emissions associated with intensive energy and fuel use for the transportation of products, are the major environmental challenges faced by the seafood processing sector. Ireland continues to strive for certification and to address the UN's Sustainable Development Goals (SDGs). Irish processors are involved in a suite of certification processes from national standards to IFS & BRC certification and MSC.

One national programme is Origin Green which is Ireland's food and drink sustainability programme, operating on a national scale, uniting government, the private sector and the full supply chain from primary producers to food producers and right through to the foodservice and retail sectors. The programme is the worlds' only national food and drink sustainability programme and enables the industry to set and achieve measurable sustainability targets that respect the environment and serve local communities more effectively. BIM (Ireland's Seafood Development Agency) supports the Seafood sector to achieve Origin Green verification by working directly with businesses to develop plans and establish targets and actions. It also supports seafood businesses in achieving their targets by addressing key issues that emerge and are a sustainability challenge.

There are a number of challenges facing the industry especially since 2020 with Covid-19 and Brexit. Due to Brexit there were short-term losses incurred by the processing sector during the first quarter of 2021 due to the quota reductions under the Trade and Cooperation Agreement (TCA), as well as the non-tariff barriers that have been introduced since the beginning of 2021.

Covid

Covid-19 was a major disrupter in many key processing markets. Rolling lockdowns and travel restrictions cut demand for higher value shellfish and whitefish products, particularly as food service channels collapsed on the continent.[39] This collapse was somewhat mitigated by processors adapting to the surge in demand for packaged fresh and frozen retail products as they quickly adapted towards online home delivery opportunities, but this was limited and at a small scale. Markets for the more affordable pelagic products remained robust in West Africa and Asia, however escalating logistics costs and freight bottlenecks, particularly in China, remained problematic.

All seafood exports (raw and processed) were impacted by Covid. Exports to China declined significantly in January to March and only recovered somewhat in the second half of 2020. Exports to France were impacted in January due to low supply of salmon with the main Covid-19 impacts occurring in March and April. Exports recovered well for the remainder of the year until December which saw a 30% decline compared with 2019. Monthly exports to Italy were already down 25% in January before Covid-19 impacts due to oversupply of Dublin bay prawns with the highest impact occurring in April, with a decline in value of around 50%. By July, trade had recovered to previous levels, but further partial lockdowns ensured a 25% volume decline for the remainder of the year.

Trade with Spain has been affected the least due to the strong demand for seafood in the retail sector. Major impacts can be seen in March at the height of the pandemic and again, in November and December when seafood sales in the hospitality sector predominate. Exports to the UK actually increased in 2020, by 4% in volume and 9% in value driven by increased volumes of

[39] Business of Seafood 2020. A snapshot of Ireland's Seafood Sector. Bord Iascaigh Mhara.

mackerel and fish meal with very strong price growth in salmon exports, particularly in the run up to Christmas.

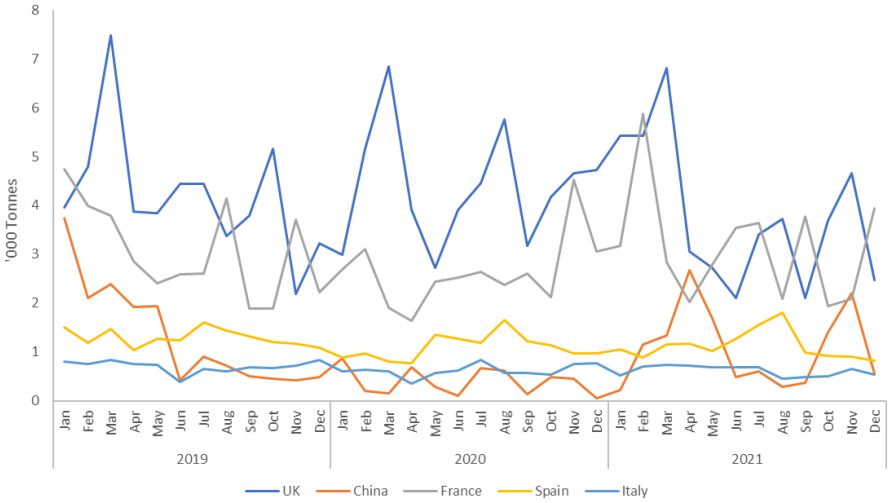

Figure 5.13.3: Summary of Irish monthly exports, 2019-2021

Brexit

The whitefish processing sector has been primarily impacted by Brexit from a raw material access perspective, processing capacity and to a lesser degree from a logistics perspective. There is a distinct subset of companies who are more exposed due to their business model such as first point of sale entities (e.g., Co-ops) and other producers who export into and operate logistics via the UK. The main issue has been in sourcing raw material due to the logistics challenges presented by Brexit. The impact on their UK customers, who largely export value added to the continent, has been significant and this is having a knock-on effect on the value and need for raw material coming from Ireland. It has also been difficult for the sector to maintain good service levels to continental customers due to the difficulties experienced on the landbridge routes and lack of capacity on the direct routes to mainland Europe.

5.13.6 Data coverage and quality

Data collection over the DCF and EU MAP periods up to 2019 is impacted by low survey returns and inconsistencies in data raising methodologies. Data collection has been done indirectly and directly for different variables and indirectly via the datasets of other agencies. This is in particularly pertinent for the classification of seafood processors which can differ from different national agencies. For example, data submitted to EuroStat for 2019 from national statistics has a total of 106 enterprises while this report estimates data for 166 enterprises. In addition, the survey response rate for the under 10 employed segments, the largest by number of businesses, is consistently low. Therefore, the estimated data for this segment, and its associated figures may be under/over representative of the industry and caution should be taken with interpretation of the data for this segment for all years.

The collection and collation of data for 2016-2019 relied on the use of voluntary questionnaires augmented with data from audited accounts from the Companies Registration Office (CRO). Survey target rates vary between employment categories with a high achievement of sampling targets for certain variables and an under achievement of targets for others. The achieved sample rates for 2016 to 2019 were very low. As mentioned previously, the sample data collected from the industry are raised to total population level. As such, there is variation associated with estimated variables from sample data and this may have introduced sample bias and affected the final raised data sets. The increase in profitability for 2018 and 2019 may be a real trend but conservatively it may be in part due to issues with sampling and estimation errors.

5.14 Italy

5.14.1 Overview

This national report focuses on the economic and social performance of the processing industry up to the two-year period 2018-19, by relying on data collected under the EUMAP framework, but also taking into account the main changes observed during the biennium 2020-21, with a particular focus to the dynamics determined by the Covid-19 pandemic.

The Italian agri-food production structure is characterized by many companies processing fish and fishery product, but not all of them as a main activity. The number of companies carrying out the fish processing as main activity, equal to 427 in 2019, has remained almost unchanged in the last two years (only -2% of contraction). The diversification of activities is typical of the sector: indeed, from a consultation of the registers of active companies in 2018, it appears, that over 30% of companies declared to carry out, in addition to the processing of fishery products (Nace code 10.20), being the main activity, also wholesale of fresh fishery products (Nace code 46.38.10); of frozen, quick-frozen, preserved, dried fishery products (Nace code 46.38.20) and the processing and preservation of fruit and vegetables (Nace code 10.30)[40]. On the other hand, is also not negligible the number of companies processing fish and fishery products not as the main activity: 206 in 2019 for which the estimated turnover attributable solely to the processing of fish and fishery products was equal, in 2019, to € 555 million.

As far as the typology of production, the Italian fish processing sector is mainly driven by the canning sector, with a share of companies around 67%, the rest being represented by companies active in the frozen food production[41]. The performance and the survival of the overall fishery sector, including the fish processing industry is led by the high consumption of Italian consumers: indeed, Italy has been one of the countries for which the *per capita* consumption of fish over the last 50 years has increased. Since the last FAO report[42], the *per capita* consumption has been around 21 kg. In the food *basket* of Italian consumers, the top fish products are canned ones, primarily tuna. Over 1 in 3 Italians (about 36%) consumes canned tuna products and their preserves. ANCIT[43] describes that the Italian canned fish market in 2020 exceeded two billion Euros, confirming itself as one of the most virtuous of the Italian food industry. The canned tuna sub-segment was one of the most virtuous sectors with an estimated market value, for 2020, of over €1.40 billion (+ 6% compared to 2019), a national production of over 80,300 tons (+ 8.21%) and a per capita consumption of about 2.67 Kg[44].

The decrease in the number of enterprises (table 5.14.1) must be attributed, in particular, to the contraction of the segment with employees up to 10 while an increase of the high-sized enterprises is registered. The trend that is causing a contraction of companies with less than 10 employees highlights that those economies of scale are easily achievable for bigger companies and, therefore, with more capitalized production facilities. As far as employment, a light increase is observable in the last few years, and since 2018, the number of employees exceeds 6 thousand units but, in line with a contraction of -2% in the total number of enterprises, there was a contraction on the employment of -1%.

[40] As recommended by the EUMAP guidelines for the collection of data for the fish processing sector, the turnover of the main companies refers only to the NACE code 10.20 while that produced by other activities (e.g. wholesale) is imputed to other income.

[41] EU Fish processing sector 2019. STECF report.

[42] FAO 2022. Italy. Text by Marino, G., Crosetti, D., Petochi, T.. Fisheries and Aquaculture Division, Rome. https://www.fao.org/fishery/en/countrysector/it/en

[43] Associazione Conservieri Ittici e delle Tonnare.

[44] Source: ANCIT (2021)

Table 5.14.1: Overview, Italy, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	376	414	547	530	537	587	574	577	445	433	434	427	-2%
≤ 10 employees	192	221	347	375	372	444	430	447	321	295	291	268	-8%
11-49 employees	152	166	175	136	144	127	126	112	106	117	121	124	2%
50-249 employees	31	27	24	18	21	16	18	18	18	21	20	30	50%
≥ 250 employees	1	0	1	1	0	0	0	0	0	0	2	5	150%
Employment (number)													
Total employees	5.425	5.285	5.950	6.109	6.197	6.292	5.628	5.926	5.905	5.968	6.101	6.037	-1%
FTE	4.573	4.454	5.015	5.148	5.223	5.426	4.422	4.778	4.572	4.568	4.859	4.804	-1%
Indicators													
Turnover (million €)	2.906	2.201	2.623	2.281	2.557	2.287	2.235	2.243	2.196	2.109	2.077	2.165	4%
FTE per enterprise	12,2	10,8	9,2	9,7	9,7	9,2	7,7	8,3	10,3	10,6	11,2	11,2	0%
Average wage (thousand €)	50,9	46,2	47,4	39,8	42,7	40,3	47,0	43,1	50,0	49,8	46,7	50,0	7%
Unpaid work (%)	3,8	3,8	7,9	3,8	4,4	8,0	8,1	8,2	7,4	5,4	5,3	5,3	1%
Enterprises doing fish processing not as main activity													
Number of entreprises	162	177	233	227	231	185	205	208	208	214	207	206	0%
Turnover attributed to fish processing (million €)	252,7	191,4	228,1	198,4	222,3	383,8	501,8	550,6	552,0	583,3	563,5	555,8	-1%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The turnover observed over the entire period covered by the data collection is almost stationary (compared to the total number of production organizations). In 2019, the turnover was around € 2.2 billion, growing by +4% compared to 2018, although the decrease in the number of production units. Wages have increased compared to 2018. They have been calculated on the FTE and are about 50,000 Euros per employee. The increase was probably recorded because the number of employees structured in companies increased. In larger companies, workers with wages and salaries (paid employees) increase compared to unpaid workers and/or workers who do not have a full-time salary (in smaller companies, seasonal work or part-time contracts are more frequent rather than in middle/large size ones).

5.14.2 Most of this Economic performance

The performance of agri-food manufacturing in 2019 was € 522 billion. The value of the Italian agri-food system represents 15% of the national GDP produced by Italy in 2019. The agri-food sector has continued to record growth throughout the last decade. The added value of agri-food in ten years has grown by about 12%, recording a growth rate twice that recorded, in the same decade, by the entire manufacturing sector (CREA, 2021)[45]. The sector operates with a total of 427 companies, registered with the NACE 10.20 as a main activity code. The processing industries also confirmed growth in 2019 with + 4% compared to the previous year, which in value expressed a turnover of 2.16 billion Euros. The trend of the entire period records a contraction of 30% (from 2008-2019), although in 2019 the values are approaching the best performance in turnover in the last five years, where, in 2015, a turnover of over €2.25 billion was recorded. Slight diversification increases, recording a further increase in other incomes compared to 2018. In 2019 an increase of 11% is recorded for the operating subsidies. All the income items hence register a positive trend, and the total income recorded a +4% compared to 2018, and a decrease of -7%, compared to 2008, but compared to 2015 it growth by + 18.5%. As regards general expenditures, they exceeded €2.5 billion in 2019. Total spending grew by + 4% compared to 2018. The trend since 2008 records a decrease by about -12% while, on the other hand, a growth of +16% is recorded in respect to 2015. In percentage terms, the most incidental item (about 75%) was that of raw materials, whose value, equal to €1.93 billion, is 3% higher than in 2018. Labour costs (adding both wages plus salaries and unpaid) represent approximately 9.3% of total expenditure. Again, energy was the data that continued to grow as well as that in services, respectively +4% and +11% (2019 vs 2018). Depreciation of capital is

[45] Source: CREA: L'agro-alimentare italiano settore chiave dell'economia Leader in Europa per valore aggiunto agricolo (2021)

growing, due to investment and modernization policies in technologies and infrastructures that have characterized the segment processing starting from 2017 with public funding to the sector. Financial costs decreased by -4% compared to 2018; this is a value strictly linked to subsidies to investments: the part of the coverage attributable to the beneficiary organizations of public funding (EMFF funds) was guaranteed, since 2017, by third-party sources of funding. In 2019 this value is reduced, as it can be assumed that companies have partially repaid the debt raised since 2017. The performance of the sector in 2019 shows an increase in the value of assets, with a boost to investments combined with subsidies and a slight increase in the total value of debt (+ 1%). The economic performance resulted in a net profit of €52 million, increasing of +20% compared to the previous year, starting from a gross value added of €356 million, which grew by 8% compared to 2018. This situation underlines the industry's difficulty in generating growth in net profit.

Table 5.14.2: Economic performance indicators, Italy, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	2.906,1	2.201,2	2.623,4	2.281,2	2.557,0	2.287,3	2.234,9	2.243,0	2.195,7	2.108,5	2.076,7	2.164,7	4%
Other income	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	404,3	525,0	513,4	534,2	4%
Operating subsidies	5,6	4,7	4,8	17,6	23,8	5,8	4,0	6,3	0,0	4,5	4,5	5,0	11%
Total Income	2.911,7	2.205,9	2.628,2	2.298,9	2.580,8	2.293,1	2.238,9	2.249,3	2.600,0	2.638,0	2.594,6	2.704,0	4%
Expenditure (million €)													
Purchase of fish and other raw material for production	2.125,3	1.435,1	1.952,7	1.653,4	1.752,1	1.657,0	1.596,1	1.613,0	1.985,1	1.938,1	1.888,4	1.936,2	3%
Wages and salaries of staff	223,9	197,9	218,9	197,2	213,1	201,4	191,1	188,9	211,7	215,0	215,1	227,5	6%
Imputed value of unpaid labour	9,0	7,9	18,8	7,9	9,8	17,5	16,8	16,9	16,9	12,4	12,0	12,7	7%
Energy costs	119,8	93,2	87,7	97,5	92,3	81,4	79,4	78,5	141,3	103,3	100,9	104,9	4%
Other operational costs	406,7	361,1	385,9	276,6	319,9	285,0	304,2	268,0	238,2	275,6	272,4	301,6	11%
Total production costs	2.884,6	2.095,2	2.664,0	2.232,5	2.387,3	2.242,4	2.187,5	2.165,4	2.593,2	2.544,4	2.488,8	2.583,0	4%
Capital Costs (million €)													
Depreciation of capital	45,5	60,5	69,1	61,5	65,6	49,3	49,1	53,4		50,4	45,7	52,6	15%
Financial costs, net	51,7	28,5	19,4	27,1	31,3	27,8	30,4	26,1		17,9	16,8	16,2	-4%
Capital Value (million €)													
Total value of assets	2.164,8	2.166,0	2.607,2	2.118,4	2.247,8	1.976,5	1.811,8	1.724,3	1.284,2	1.905,1	1.914,4	1.990,3	4%
Net Investments	225,9	-96,2	183,7	121,7	-7,2	-19,6	55,0	55,9	44,9	52,4	55,1	74,5	35%
Subsidies on investments									0,0	0,0	18,0	38,8	115%
Debt	1.485,4	1.425,6	1.597,9	1.444,7	1.569,0	1.373,0	1.245,8	1.174,3	951,5	1.278,8	1.290,1	1.301,3	1%
Economic performance (million €)													
Gross Value Added	254,3	311,7	197,1	253,8	392,7	263,9	255,2	283,5	235,4	316,5	328,4	356,2	8%
Operating Cash Flow	27,0	110,7	-35,8	66,3	193,5	50,8	51,4	83,9	6,8	93,6	105,8	120,9	14%
Earning before interest and tax	-18,5	50,2	-104,9	4,9	127,9	1,5	2,2	30,5	6,8	43,2	60,1	68,4	14%
Net Profit	-70,2	21,7	-124,3	-22,2	96,6	-26,4	-28,2	4,4	6,8	25,3	43,3	52,2	20%
Productivity and performance Indicators													
Labour productivity (thousand €)	55,6	70,0	39,3	49,3	75,2	48,6	57,7	59,3	51,5	69,3	67,6	74,2	10%
Capital productivity (%)	11,7	14,4	7,6	12,0	17,5	13,4	14,1	16,4	18,3	16,6	17,2	17,9	
GVA margin (%)	8,7	14,2	7,5	11,1	15,4	11,5	11,4	12,6	9,1	12,0	12,7	13,2	
EBIT margin (%)	-0,6	2,3	-4,0	0,2	5,0	0,1	0,1	1,4	0,3	1,6	2,3	2,5	
Net profit margin (%)	-2,4	1,0	-4,7	-1,0	3,7	-1,2	-1,3	0,2	0,3	1,0	1,7	1,9	
Return on Investment (%)	-0,9	2,3	-4,0	0,2	5,7	0,1	0,1	1,8	0,5	2,3	3,1	3,4	
Financial position (%)	31,4	34,2	38,7	31,8	30,2	30,5	31,2	31,9	25,9	32,9	32,6	34,6	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Labour productivity stands at the value of €74 thousand and is up by 10% compared to 2019, while compared to 2008 it increased by + 25%. Among the performance indicators, in 2019 the ROI, equal to 3.5%, is increasing but not enough to attract capital and investments towards the sector if the inflation trend is also taken into account. Nevertheless, the sector records a small growth in net profit margin, from 1.7% to 1.9%.

5.14.3 Breakdown by company size

The analysis of the sector by size classes highlights, for 2019, the presence of the segment of organizations with workers over 250 units. In previous years, for confidentiality reasons, companies with more than 250 employees, were aggregated to the previous segment. It is interesting, then, to look at the performance of the segment 50-249 and of the segment with

more than 250 employees in their entirety but also highlight, for the first time, the performance of the biggest industries. Industries with more than 50 employees (up to over 250) represent the only macro-aggregate registering a growth in all the economic performance indicators, starting with +25% of total income and VA, notwithstanding an increase of +24% in total production costs; operating cash flow increasing of +35% and net profit of +15% In the two smaller sectors (<=10 and 11-49) all 2019 performances decreased compared to the previous year. A need to resize the organizational and managerial structure is emerging, indeed, in the sector, in order to easily generate economies of scale.

Table 5.14.3: Economic performance by size, Italy, 2013-2019

Variable	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
less than or equal to 10 employees								
Total Income	455.7	347.9	369.3	286.6	294.1	255.5	231.9	-9%
Total production costs	444.2	349.8	351.7	284.6	286.5	250.2	226.1	-10%
Gross Value Added	58.3	31.0	50.9	33.6	38.3	33.3	31.5	-6%
Operating Cash Flow	11.4	-1.9	17.5	2.1	7.6	5.4	5.8	9%
Earning before interest and tax	-2.7	-13.0	5.2	-6.0	-0.6	-1.3	-0.1	-90%
Net Profit	-11.6	-20.2	-1.6	-7.5	-3.9	-3.6	-2.1	-43%
between 11 and 49 employees								
Total Income	1,042.9	905.0	857.5	925.2	1,183.8	1,266.7	1,136.7	-10%
Total production costs	1,011.3	886.9	843.9	904.3	1,147.0	1,220.9	1,095.2	-10%
Gross Value Added	127.6	99.4	86.1	94.5	122.2	134.4	123.7	-8%
Operating Cash Flow	31.6	18.1	13.6	21.0	36.8	45.8	41.5	-9%
Earning before interest and tax	14.4	-0.9	0.0	21.0	18.5	24.3	24.8	2%
Net Profit	3.6	-12.5	-8.1	21.0	8.9	15.4	18.1	17%
between 50 and 249 employees (+ greater than or equal to 250 employees)								
Total Income		986.0	1,022.5		1,160.1	1,072.4	1,335.4	25%
Total production costs		950.9	969.7		1,111.0	1,017.8	1,261.7	24%
Gross Value Added		124.8	146.4		156.0	160.6	201.0	25%
Operating Cash Flow		35.1	52.8		49.2	54.6	73.7	35%
Earning before interest and tax		16.1	25.4		25.3	37.1	43.7	18%
Net Profit		4.4	14.1		20.2	31.5	36.2	15%
greater than or equal to 250 employees (alone)								
Total Income							522.3	
Total production costs							507.6	
Gross Value Added							57.5	
Operating Cash Flow							14.7	
Earning before interest and tax							7.8	
Net Profit							5.8	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The most worrying situation is for companies with less than 10 employees, for which it is difficult to increase net profit and generate attractiveness to remain in the sector in a competitive manner. Against a contraction of -9% of total income (around € 232 million in 2019), a net profit of €-2.1 million, contracting of over -168% was recorded. The smallest companies were the sole recording losses, rather than generate profits. The 11-49 employees segment also performed poorly, but still able to generate net profits for € 18.1 million, anyway decreasing if compared to 2018 (-8%). Total income and total expenditure had the same proportionate percentage of decrease (-10% both items).

5.14.4 Socio-demographic structure

In 2019, over 6,000 employees were estimated to be employed, with a prevalence of men (53%). The fish processing industry, more than others in the agri-food sector, is very much influenced by Italian heritage, mainly in coastal areas. The most populous band is that with employees between 40-54 years old. An important aspect since the band is the one in the full maturity of experience and work awareness. About 86% are of Italian nationality with a large prevalence (70%) of the medium level of education.

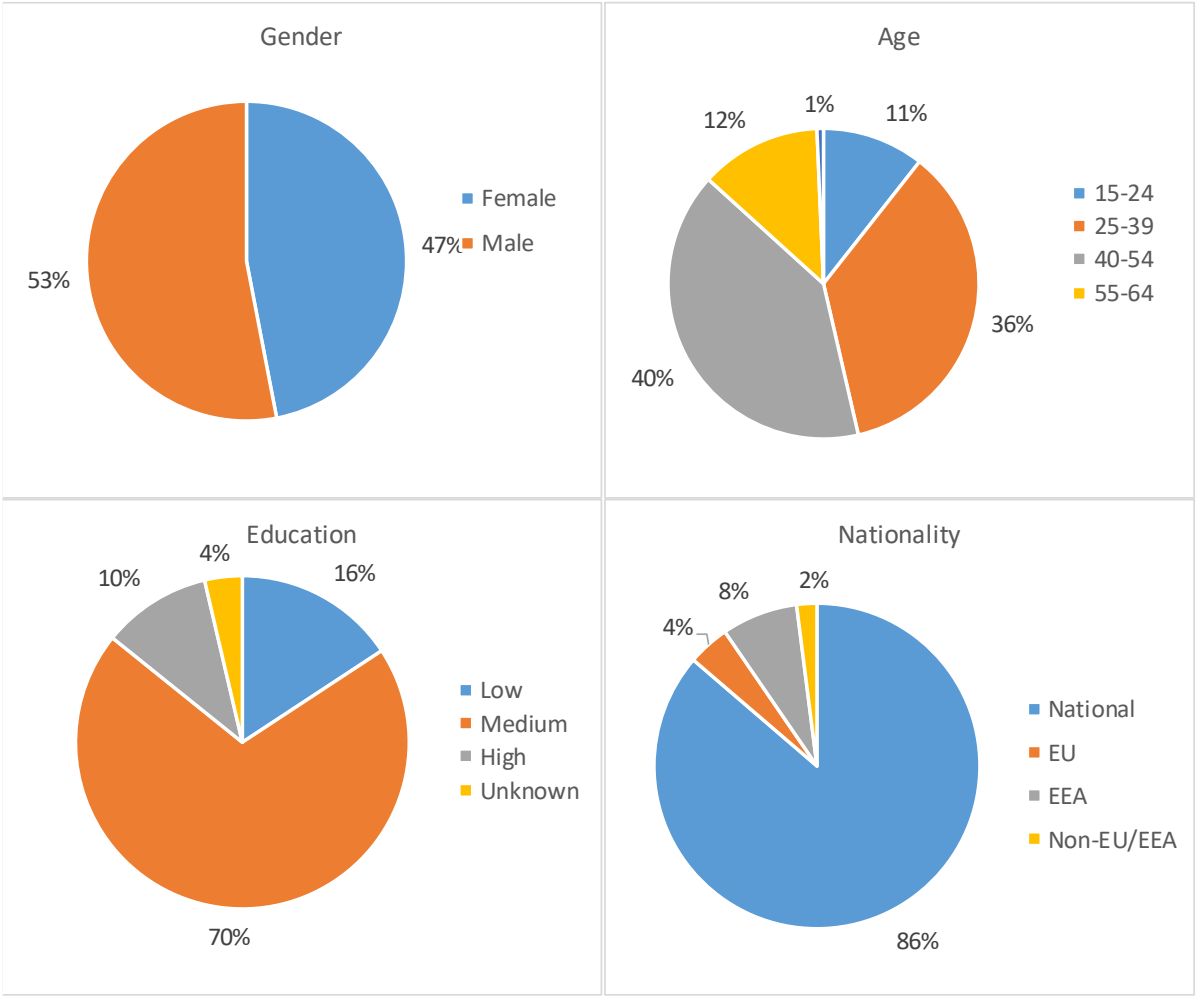

Figure 5.14.1: Socio-demographic characteristics, Italy, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

On the other hand, it is interesting to see how the employees are distributed according to the segmentation by number of employees.

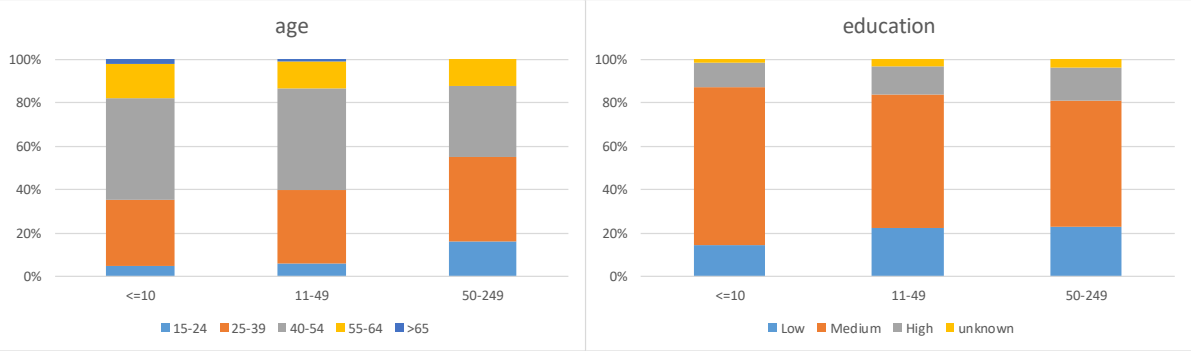

Figure 5.14.2: Distribution of the employees by enterprise size and education, Italy, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The distribution of the total number of employees over the age and education categories is reported in figure 5.9.2 the three industry dimensional segments (<or equal to 10: 11-49; 50-249;). The two age groups (15-24; 25-39) grow in proportion to the size of the class of employees in which the organizations are allocated. The incidence of younger employees increases in companies that are more structured and that have also produced better economic performance. In organizations with> 250 employees, the presence of personnel over 65 is reduced almost to zero, due to legislative reforms and cycles of incentives for early retirement (for men the period is reduced, and the threshold can drop below 65 years; for women, too, the age at which they can retire from work has been further reduced). In small businesses, the kinship relationship with the owner is evident, in fact even by age it is possible to find older employees directly involved, precisely because they are part of the family of the fish processing company. On the training side, low training is inversely proportional to the size class of the processing firms. This is linked to the greater presence of workers allocated on the processing line and to more manual jobs in larger companies, for which it is not essential to require high schooling. It is also clear from the graphs that in the class with less than or equal to 10 employees, there are higher levels of employed with a medium level of education. This is symptomatic of how in small businesses value is given to the training aspect of the staff. In these smaller companies, the staff is often involved in the entire production process, but also in aspects of quality control, labelling and sales. On the other hand, the percentage of high specialization and education is higher in medium and large companies, where the corporate functions are more defined and for each of them there is a manager and there is also the presence of more subjects who have a degree even if they occupy non-executive levels. The lower presence of high-level staff in small companies is linked to the tendency, in these small sized companies, of not having structured highly specialised staff members such as the veterinarian, the biologist, the administrative accountant, usually figures who are paid as external expert consultants.

5.14.5 Raw materials

During 2019, the quantities produced by national fish processing companies totalled about 300,000 tons and of these over 1/3 is represented by preparations and preserves of tuna and anchovies (Eurostat Prodcom data). Turning to the volume of fishes introduced into the production cycle, tuna and anchovies (TUN and ENR) represent, indeed, 27% of the volume of raw material. Tuna alone, (whole or in loins) represent 24% (in volume around 177 thousand tons) of the raw materials, due to the large importance of the tuna canning industry at national level.

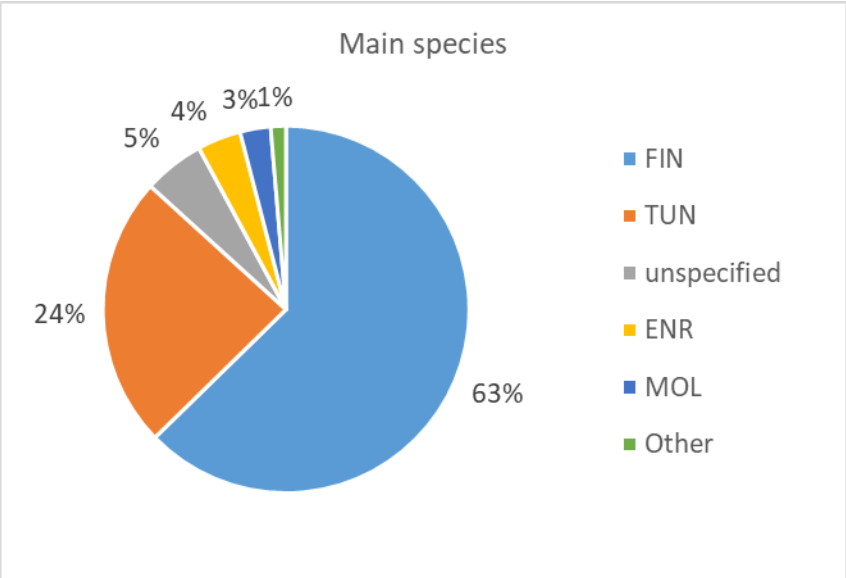

Figure 5.14.3: Raw materials species, Italy, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Over 63% of the raw materials processed fall within the category of finfish, FIN, different from salmon, herring, anchovies and sardines (more than 462 thousand tons), processed in various forms and combined with different foods (food compositions). The large volume of finfish used as raw material, in comparison to tuna and anchovies, largely depends on the type of production carried out: finfishes are mainly used for fillet production (chilled or frozen), a typology of process characterised by less waste, if compared to products of the canning sector.

Although with significantly lower percentages, it deserves to list the other aggregates of raw materials used: molluscs (MOL, around 20 thousand tons), sardines (PIL, 2,534 tons) and salmon (SLZ, tons 2.240), the latest two under the aggregate "other" in the graph.

5.14.6 Trends, drivers and outlook (including Covid-19 impact)

The aim of this section is to highlight the main drivers acting in the post-2019 period, trying to foresee the main trends affecting the Italian fish processing industry, with a special focus on the Covid impact.

During 2020, the crisis involved all the productive sectors, with relatively different intensities. The added value decreased by 11.1% for the industry in the *strict sense*, by 8.1% in services, by 6.3% in construction and by 6% in agriculture. Data for 2020 indicate that the crisis had a heterogeneous impact also within the manufacturing sector that recorded a contraction of 11.4%. Among the less affected sectors was the agri-food sector, whose added value decreased in volume by about 2% (source ISTAT, 2021), a manufacturing segment that has also revealed a resilience at the pre-Covid levels after the first period of closures. The period was characterized by an increase in the demand for products for domestic consumption that partially offset the drop in demand from the Ho.Re.Ca channel, penalized by the restrictions on socializing and tourism. Household spending on food varied in 2020 compared to 2019 from +2.5% in the first two months of 2020 to more than +16.8% in March 2020 (compared to March 2019). Only in August 2020 the difference with the same month of the previous year, thinned, remaining however greater than +1.5%. In 2020, therefore, the average expenditure of Italians for food products has increased monthly. The positive trend of the fish sector (fresh, preserved and processed) recorded sales higher by almost +7% over the year 2019, in contrast to the negative trend (-4%) recorded in the pre-Covid-19 year (2019)[46]. Among the processed products consumed, in addition

[46] Source:ISMEA Consumi ittici a più di un anno dall'inizio dell'emergenza Covid19. I consumi domestici dei prodotti ittici. (2021).

to tuna, there is also salmon and, in general, smoked products. Following the slow and gradual post-Covid openings, Italians have tended to choose *gourmet* processed fish products. They have chosen those products that have represented the "compensation for deprivation" and have pushed purchases to consume fish products processed away from home. Fresh and smoked products have revealed a growing preference by consumers, with increases in the volumes purchased. For these processed and smoked fish products, 2020 recorded a +10% on the consumption side. Frozen/deep-frozen products represented the segment with an important growth in sales during 2020: they grew by + 14.5% compared to sales during 2019. In 2021, the growth of frozen/deep-frozen processed products stood at pre-Covid values, but in any case, up in volumes by about 2.7%. Furthermore, the persistence of quarantine states has recorded an increase in new purchasing paradigms, in particular home deliveries, online purchases, telephone purchases, orders collected directly from fishermen, etc.

Consumption have oriented the production which, in every case, had to address difficulties and challenges generated by the effects of the pandemic both in the national, European and extra-European areas. The biggest challenges involved:

- *management* of stock of raw materials, whether they have already arrived at the company or were still in transit to be cleared through customs;
- *management* of the production lines, both according to the flows of raw materials that arrived with very variable timing compared to ordinary times, and according to the allowed number of workers that can be used, after the restrictions to guarantee health safety (quota of employees, to ensure correct social distancing); moreover, difficulty in finding substitutive personnel to use in the event of infections among the structured employees;
- *management* of distribution and compliance with deliveries, generated by a block of road transport. As a result, the price of container transport, measured by the Word Container Index, grew by + 243% compared to 2020.
- *management* of post-production logistics, with over-dimensioning of the costs of using the storage services;
- increased costs of consumables for packaging and energy;
- increased costs of disposing of goods, raw materials, arriving at their destination in great delay, therefore no longer processable. On the latter aspect, an important clarification was necessary from the Ministry of Health[47] concerning "Extraordinary measures for the re-determination of the shelf-life of food products." This extraordinary intervention has allowed to consider still edible a huge volume of products that took longer times to arrive in Italy. The supply chain was, indeed, interrupted due to the accident of the cargo ship that blocked the Suez Canal[48].

Some of these aforementioned aspects have been very heavy and evident especially in the first pandemic phase (February-June 2020). In fact, during the first wave of Covid-19, Italian processing industry has suffered the effects of the phobia of consumers, who have rushed to oversize supplies. In this phase, the preference of consumers has shifted toward longer shelf-life fish products. For obvious storage reasons, canned processed products were generally preferred. The processing sector, between the end of February and the spring of 2020, strengthened production, to dispose of the stocks especially of imported product already delivered or of national product already negotiated awaiting capture and delivery. The sector did not slowdown in this first phase, as there were satisfactory quantities of raw materials to be processed. Afterwards, especially for problems deriving from international logistics, the following were registered:

- delays on deliveries of already traded raw materials;

[47] Rif.: General Directorate for hygiene and food safety and nutrition, Uff. 2 DGISAN - issued the note prot. 0002007 of 25/01/2022.

[48] Ever Given, a 220,000-ton, 400-meter-long cargo ship from China, which "got across" at the beginning of the canal, in the southern part of the country, effectively obstructing ship traffic.

- difficulty in finding cold storage-areas, for those processing companies not equipped with suitable storage spaces on their own.

On the side of personnel costs, the 2019 trend of increase of these costs (+ 6% in 2019 compared to the previous year) will presumably register a further increase. This increase will be likely determined by the coexistence of two new economic needs, such as:

- reorganize the layout of the maximum staff/employees allowed to work contextually in presence;
- costs of training and equipment to guarantee the implementation of anti-Covid safety protocols.

To this, problematics linked to the management of the large number of days of absence due to sick staff should be added: it has not been very easy for companies to manage and recruit "new employees" (as a temporary employees) to replace those in sickness. The incidence has been higher in small companies, where the number of employees is low (less than 10) and therefore it has been necessary to recruit unstructured personnel in order to continue to work.

As far as the most recent trend and drivers and with reference to the most representative sector of the Italian industry, the canning tuna sector, new challenges and difficulties have already begun to reveal themselves: it relates to a dizzying increase in direct and indirect energy costs which increase in consumables and packaging, such as plastic, paper, cardboard, glass , or those secondary packaging materials with respect to tinplate cans (source IlSole24Ore, 2022). The main items in significant increase starting from 2020 and also on the rise in 2021, were: energy and gas costs, to which is added the increase in tinplate, the main packaging for cans used for canned tuna. This material, estimated in 2021, accounts for 30% of the main production cost items of the canned industry. In the period 2021, average increases in energy-labelled commodities of + 54.8% in euro compared to the 2020 average have already been recorded.

5.14.7 Data coverage and quality

The last two-year submitted data are consistent with the previous data series. For the first time, in 2019, the category with more than 250 employees has been presented disaggregated. In previous years, indeed, the size class made up of companies with more than 250 employees was covered by confidentialiy issues, due the low number of companies (<=3) and, becaue of this, firms with more than 250 employees were aggregated in the immediately preceding segment.

5.15 Latvia

5.15.1 Overview

Fish processing is a well-developed old tradition in Latvia. The processing sector is based on the local natural resources and also on the imported raw materials for production from the neighbouring countries. The most of fish processing enterprises are located in Riga and Roja cities. Large amount of the enterprises is also situated along the Latvian coast and in the Kurzeme region territory. Some of them are in Tukums, Engure, Carnikava and Kekava cities.

The small enterprises with less than 10 employees have dominated in the sector with the share around 60% in 2019. These enterprises usually are situated near the fishers' settlements. Some of the fishers have smokehouses and sell the smoked, salted and brine fish to the tourists. Very often small fish processing enterprises are a family business.

All fish processing enterprises operate according to European Union standards. The enterprises that export its production are certificated in accordance with the standards of the buyer's country. The most common certifications are:

- IFS (International Food Standard);
- MSC Chain of Custody Standard is a traceability and segregation standard that is applicable to the full supply chain from a certified fishery or farm to final sale;
- GOST standard is a system of certification maintained by the Euro-Asian Council for Standardization, Metrology and Certification (EASC), a regional standard operating under the auspices of the Commonwealth of Independent States (CIS).

The fish processing sector production has important share in total Latvian export and supplies domestic market. The total volume and value of exported production were 89.2 tonnes and EUR 191.3 million respectively in 2019. The exported fish products take a share of 92% from all sold fish products in 2019 in Latvia. The fish products were exported to 67 countries and imported from 41 countries in 2019. Total export volume decreased by 8% or 7.7 thousand tonnes in it turns the export value increased by 5% from 2018 to 2019. The export values to EU decreased by 18% from 2018 to 2019, in its turns export values to non-EU countries increase by 30% from 2018 to 2019. The most important countries for the production export in 2019 were Ukraine, Lithuania, Denmark and Estonia contributing 23%, 17%, 8% and 8% respectively to the total export volume and in turns of exported value were Lithuania, Denmark, Estonia and United Kingdom contributing 34%, 31%, 21% and 16% respectively.

The main countries for the production import were Lithuania, Poland, Estonia, Sweden and Norway. These countries contributed 72% and 66% respectively to the total import volume and value in 2019. The main type of the production imports by volume were "Frozen fish, excluding fish fillets and other fish meat" and "Fresh or chilled fish, excluding fish fillets and other fish meat". These types of products have share of 44% and 30% respectively from the total imports volume in 2019. "Prepared or canned fish" was the main product type for the export with the share of 34% and 47% respectively from the total export volume and income in 2019.

The raw materials for the exporting production are mainly being made Baltic Sea and the Atlantic Ocean catches obtained by the Latvian fishing vessels or imported from the neighbouring countries Lithuania and Estonia. The fish species range in catches of the Latvian vessels is not very wide. The main species are sprat, herring and cod. North Sea and Northeast Atlantic herring and scomber imported from Norway also were used as the raw material for the production of canned fish. The biggest fish markets are concentrated in the Riga, Daugavpils, Liepaja and Jelgava cities.

Table 5.15.1: Overview, Latvia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	95	91	104	101	101	116	106	114	114	113	108	105	-3%
≤10 employees	27	33	44	44	48	56	56	59	59	66	63	63	0%
11-49 employees	26	37	36	34	29	36	30	36	38	28	30	28	-7%
50-249 employees	37	16	18	16	18	17	12	15	16	17	13	12	-8%
≥250 employees	5	5	6	7	6	7	8	4	1	2	2	2	0%
Employment (number)													
Total employees	5,792	4,684	5,015	5,399	5,781	6,223	5,558	4,169	3,783	3,522	3,252	2,907	-11%
FTE	5,592	4,174	4,681	4,992	5,357	5,285	5,132	3,580	3,273	3,125	2,911	2,521	-13%
Indicators													
Turnover (million €)	215	153	154	171	227	255	222	172	153	183	198	209	5%
FTE per enterprise	58.9	45.9	45.0	49.4	53.0	45.6	48.4	31.4	28.7	27.7	27.0	24.0	-11%
Average wage (thousand €)	5.7	4.3	4.9	5.5	6.1	6.9	6.9	7.6	7.8	8.9	10.2	11.3	11%
Unpaid work (%)	0.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises	4	4	2	2	2	2	2	2	2	2	2	2	0%
Turnover attributed to fish processing (million €)													

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.15.2 Economic performance

From 2017 the fish processing sector start to recover from negative influence caused by Russian embargo in 2014. The total turnover increase by 27% from 2017 to 2019 due to the sector reorientation to the new export markets, as well as an increase in the volume of deliveries to European Union countries. From 2014 to 2019, the export to France, Belgium, Austria and Germany has sharp increase by 97%, 96%, 88% and 60% respectively. The export to the United Kingdom increased by 82% during the same time. From non-EU countries, the important increase from 2014 to 2019 was observed for Ukraine, Canada and Japan by 51%, 26% and 15% respectively. The other stable partners for fish products export are Georgia, Israel and Moldova. All these countries contributed share of 30% to total non-EU Latvian export in 2019. The export to Russian Federation was restarted from 2018 and the main type of exported product was "Frozen fish, excluding fish fillets and other fish meat". In 2015, China opened its market to Latvian fishery products and included the first 11 Latvian fish processing companies in the list of companies eligible for export. However, the volume of fish products export to China is still not large and was around 1% from total non-EU export from 2015 to 2019. Latvian companies try to find a new markets also in African countries, but the supply volumes are not significant, and the export is not homogenous from year to year.

The total production costs share was 90% of total fish processing sector income. The share of purchase of raw material for production increase by 2% from 2018 to 2019 and made up of 59% of the total income in 2019. The decrease by 16%, 9% and 4% respectively was observed for depreciation costs, energy costs and wages and salaries of staff. Furthermore, the value of total production costs demonstrated increase by 1% from 2018 to 2019.

It can be observed that Gross Value Added increased by 37% from 2018 to 2019. In its turns and Operating Cash Flow has increase by 158% during the same period. The profit increase by 9 times due to increase of turnover and other income by 5% and 213% respectively. The Net profit in 2019 exceed it level during the analysed period from 2008 to 2018 and reached an all-time high EUR 17.3 million in 2019.

All the productivity and performance indicators have improved from 2018 to 2019. The positive ROI value 13.1% in 2019 indicate that extraordinary profit is being generated and positive return of investments ensures the segment profitability in the long-term.

In general, the fish processing sector from 2018 to 2019 performing better and show full recovery after the difficulties from embargo in 2014.

Table 5.15.2: Economic performance indicators, Latvia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	214.9	152.8	153.8	170.8	226.7	255.1	221.6	172.3	153.2	183.2	198.2	208.9	5%
Other income	9.1	5.2	6.7	6.5	9.5	5.7	6.3	3.9	4.2	3.5	2.9	9.0	213%
Operating subsidies	0.1	1.5	2.3	1.0	1.7	2.2	2.7	3.6	4.5	3.0	2.3	1.4	-37%
Total Income	224.0	159.5	162.8	178.2	238.0	263.0	230.5	179.8	161.8	189.7	203.4	219.3	8%
Expenditure (million €)													
Purchase of fish and other raw material for production	120.2	96.0	93.3	103.2	128.1	141.7	125.5	96.0	88.2	111.0	119.9	122.7	2%
Wages and salaries of staff	31.5	17.7	23.0	27.6	32.9	36.5	35.3	27.2	25.5	27.8	29.8	28.6	-4%
Imputed value of unpaid labour	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	9.4	7.6	7.6	8.3	9.5	13.8	10.2	6.2	4.6	4.6	4.8	4.4	-9%
Other operational costs	40.1	32.0	31.1	34.4	42.7	47.2	41.8	32.0	29.4	37.0	40.0	40.9	2%
Total production costs	201.3	153.4	154.9	173.5	213.2	239.2	212.8	161.3	147.7	180.4	194.6	196.6	1%
Capital Costs (million €)													
Depreciation of capital	8.4	6.0	4.5	4.3	6.2	9.9	10.5	9.1	8.4	1.0	6.1	5.2	-16%
Financial costs, net	1.9	1.9	2.0	2.1	2.2	2.1	2.0	2.9	0.0	1.6	0.9	0.2	-73%
Capital Value (million €)													
Total value of assets	111.9	100.6	101.3	114.8	143.4	163.9	163.4	152.8	157.6	147.7	139.5	133.5	-4%
Net Investments	6.7	5.3	3.5	13.2	20.6	17.1	9.8	8.4	4.6	3.0	9.9	9.7	-2%
Subsidies on investments									0.0	0.0	0.0	0.0	0%
Debt	83.6	82.5	79.9	90.4	104.3	123.7	125.1	114.9	121.4	122.5	98.2	85.5	-13%
Economic performance (million €)													
Gross Value Added	54.2	22.5	28.6	31.4	55.9	58.1	50.4	42.0	35.2	34.2	36.3	49.9	37%
Operating Cash Flow	22.7	6.1	7.9	4.7	24.7	23.8	17.7	18.4	14.1	9.3	8.8	22.7	158%
Earning before interest and tax	14.3	0.1	3.5	0.4	18.6	13.9	7.1	9.4	5.8	8.3	2.7	17.6	561%
Net Profit	12.4	-1.8	1.4	-1.7	16.3	11.8	5.1	6.5	5.8	6.7	1.8	17.3	868%
Productivity and performance Indicators													
Labour productivity (thousand €)	9.7	5.4	6.1	6.3	10.4	11.0	9.8	11.7	10.7	10.9	12.5	19.8	59%
Capital productivity (%)	48.5	22.3	28.3	27.3	39.0	35.4	30.8	27.5	22.3	23.1	26.0	37.4	
GVA margin (%)	24.2	14.2	17.8	17.7	23.7	22.3	22.1	23.8	22.3	18.3	18.1	22.9	
EBIT margin (%)	6.4	0.1	2.1	0.3	7.8	5.3	3.1	5.2	3.6	4.4	1.3	8.0	
Net profit margin (%)	5.5	-1.1	0.9	-0.9	6.9	4.5	2.2	3.6	3.6	3.6	0.9	7.9	
Return on Investment (%)	12.8	0.1	3.4	0.4	12.9	8.5	4.4	6.1	3.7	5.6	1.9	13.1	
Financial position (%)	25.3	18.0	21.1	21.3	27.3	24.5	23.5	24.8	23.0	17.1	29.6	35.9	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.15.3 Breakdown by company size

The number of fish processing enterprises decrease by 3% from 2018 to 2019 and was 105 enterprises in 2019. The economic situation in the fish processing sector was very dependent on the enterprise size and its strategy at the market.

There were only 2 big enterprises which have more than 250 employees in 2019. For the data confidentiality protection, the data for the two segments cannot be published - for the enterprises which have more than 250 employees and for the segment with less than 10 employees. There were 28 enterprises included in the segment 11-49 employees and the segment 50-249 employees had consisted of 12 enterprises in 2019.

The segments 11-49 employees and 50-249 employees show the positive performance in 2019. The most profitable segment in 2019 was the segment with 50-249 employees contributing with the share of 65% in total income or EUR 141.8 million. The segment contributes EUR 9.2 million to the total fish processing sector Net profit in 2019. The segment with the 11-49 employees predominantly supports local markets and is important for the employment in the coastal cities. It has the total income EUR 49.7 million in 2019 contributed 23% to the total income in fish processing sector and Net profit of EUR 4.8 million.

Table 5.15.3: Economic performance by size, Latvia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	2,2	2,5	3,6	3,0	6,2	4,3	3,8	3,9					
Total production costs	2,1	2,7	3,2	2,6	4,9	4,1	3,3	3,5					
Gross Value Added	0,5	0,2	0,8	0,6	1,7	0,6	1,0	0,8					
Operating Cash Flow	0,1	-0,2	0,5	0,4	1,3	0,2	0,5	0,4					
Earning before interest and tax	-0,3	-0,6	0,1	-0,3	0,9	-0,2	0,3	0,1					
Net Profit	-0,3	-0,6	0,1	-0,4	0,8	-0,2	0,3	0,1					
between 11 and 49 employees													
Total Income	35,0	37,5	35,5	23,4	38,5	46,1	47,8	49,9	51,2	43,0	48,0	49,7	3%
Total production costs	31,4	34,1	32,2	19,8	33,0	37,8	41,8	42,4	42,8	35,9	43,4	43,3	0%
Gross Value Added	8,5	6,2	5,6	7,1	9,2	11,5	9,4	11,4	11,8	10,6	9,8	11,5	17%
Operating Cash Flow	3,6	3,4	3,3	3,6	5,5	8,2	6,0	7,4	8,4	7,2	4,6	6,4	38%
Earning before interest and tax	1,7	1,0	2,1	3,3	4,4	6,3	3,9	4,9	6,2	6,7	2,9	4,9	69%
Net Profit	1,0	0,3	1,4	2,5	3,9	5,6	3,2	3,5	6,2	6,3	2,6	4,8	81%
between 50 and 249 employees													
Total Income	108,5	70,3	60,1	70,2	98,0	87,1	47,3	86,2	95,7	121,9	123,8	141,8	14%
Total production costs	102,3	70,5	57,5	67,3	91,0	82,5	48,0	78,8	89,3	117,8	120,5	129,4	7%
Gross Value Added	20,9	7,0	10,8	12,2	19,0	16,0	6,3	18,7	21,5	20,2	20,0	27,5	38%
Operating Cash Flow	6,2	-0,1	2,7	2,9	7,0	4,6	-0,8	7,4	6,3	4,1	3,4	12,4	267%
Earning before interest and tax	2,6	-1,7	1,1	0,9	3,7	-0,2	-5,7	2,9	1,7	4,0	0,3	9,8	3142%
Net Profit	1,6	-2,3	0,3	0,2	2,7	-0,9	-6,3	1,7	1,7	2,9	-0,2	9,2	
greater than or equal to 250 employees													
Total Income	78,4	49,2	63,5	81,6	95,3	125,5	131,7	39,8					
Total production costs	65,5	46,1	62,1	83,7	84,3	114,7	119,8	36,5					
Gross Value Added	24,3	9,1	11,4	11,4	26,0	30,0	33,7	11,0					
Operating Cash Flow	12,9	3,1	1,5	-2,1	11,0	10,8	12,0	3,3					
Earning before interest and tax	10,3	1,4	0,2	-3,5	9,5	8,0	8,6	1,4					
Net Profit	10,1	0,9	-0,3	-4,0	8,9	7,3	7,9	1,2					

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.15.4 Socio-demographic structure

Fish processing as a type of economic activity is very important for Latvian agriculture and for employment especially in the coastal areas. The 96% of employee are the local Latvian inhabitants. The majority of employees or 79% are older than 40 years old. Total number of employees was 2,907 in 2020 consisting of 2,521 FTE. The number of males take a share of 72% from the total number of employees in 2020 and was 2,083 employees. Number of employees and FTEs decreased by 11% and 13% respectively from 2018 to 2019 and was in average 24 FTE per enterprise in 2019.

Compared to other MS, Latvia has a low wage per employee. The average salary in fish processing sector increase by 11% from 2018 to 2019, however, it was still by 12% lover then average salary in Latvia in 2019. Only 7% of employees have a high education and 81% have secondary or vocational secondary education. The most popular areas for the 35% of employees with the high education were business, economic, administration and finance in turns 25% of employees choose the education in agriculture, forestry and fisheries. The 40% of employees have education in other areas outside fishery. The 84% of employees have indefinite type of contract and 48% employed in the fish processing sector more than 6 years.

Potentially, if the production volumes will increase the lack of employees at the sector could be observed. In recent years, companies are faced with the problem to find qualitative employees for the work at the conveyer, engineers, and electricians. Some of the employees are coming to work from the outermost regions in Latvia. The main reason is the low average wage in the fish processing sector which does not exceed the national level of the average wage.

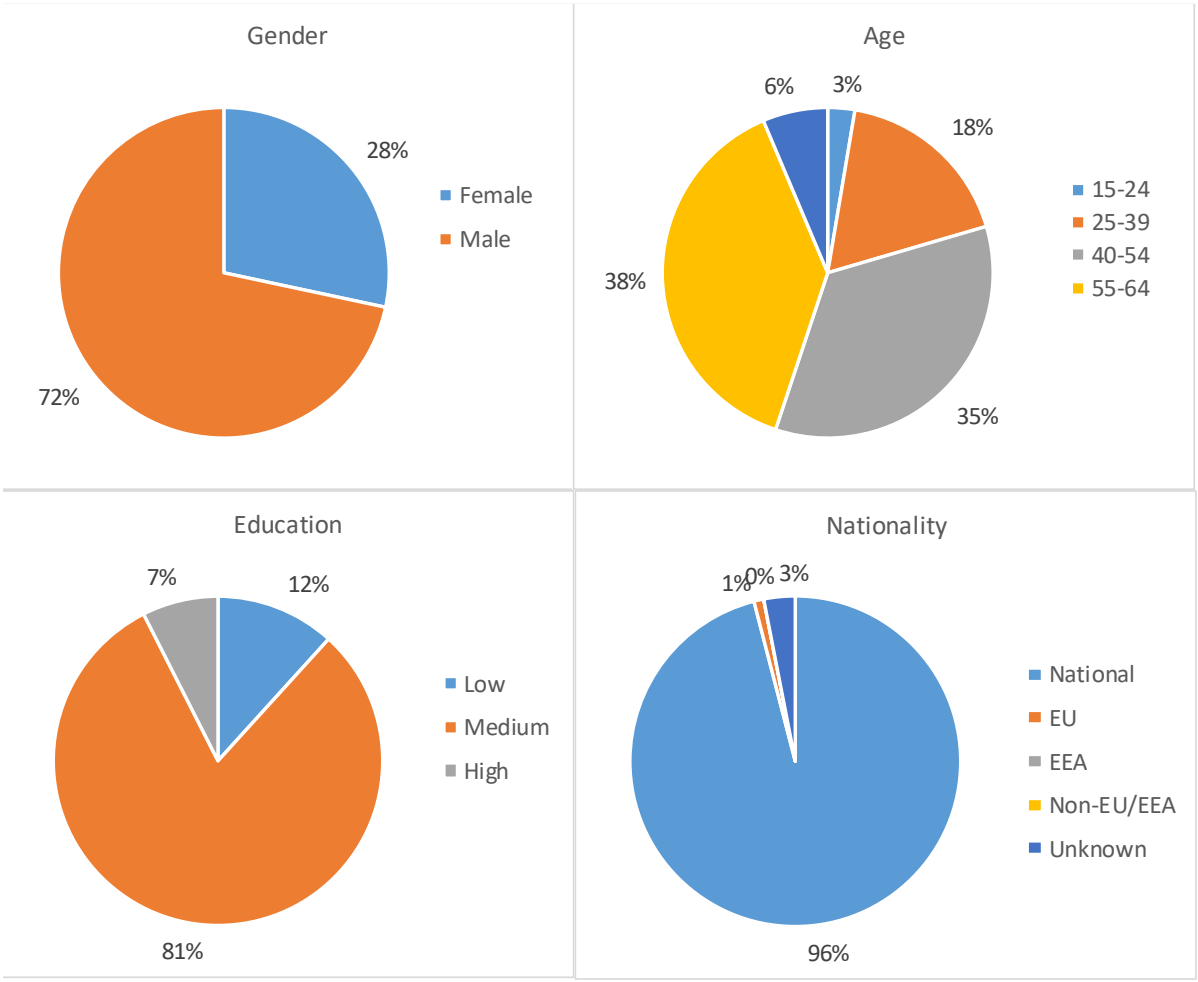

Figure 5.15.1: Socio-demographic characteristics, Latvia, 2020

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.15.5 Trends, drivers and outlook (including Covid-19 impact)

The fish processing sector continue to develop and several fish processing companies due to availability of the EMFF, had a benefited from the good investment possibilities that have been used for modernization and obtaining of new processing equipment to diversify products, improve quality of the production and increase productivity.

The seven biggest Latvian enterprises are members of "Company *RĪGAS ŠPROTES*". The association is the owners of the trademark canned „Riga Sprats in Oil" and control the quality of the products produced by the members of the association. Latvian fish production is focused on quality and it has a high achievement at the international level. The fish processing enterprises take part in different multinational exhibitions where their production received rewards for the exclusive canned fish production in the different nominations. The canned fish has a different designs and volumes for the packing. The produced production of the canned fish annually is export around 60 countries all over the world. The products have high demand at the markets of neighbouring countries. The main regions for the sales are the former CIS (Commonwealth of Independent States) and neighbour European Union countries where canned fish "Rigas Sprats in Oil" has a high demand from country inhabitants.

Due to the fact that the sector directly depends on the volume of exported products the fish production was presented in multinational exhibitions and trade shows in China, Belgium, the Netherlands, Japan and others. The new sales markets for the Latvian production from 2019 to 2021 were found in Malaysia, Tunis, Uganda, Sri Lanka, Kuwait and Uruguay. The export was restarted in 2021 to the Saud Arabia, Lebanon and Uzbekistan. Nonetheless, the amount of

export to these countries is low and it is still premature to predict how long the cooperation will last.

Therefore, fish processing companies has to look for raw material imports to ensure the demand for fish products. However, it results in higher prices for the consumers. Another negative side effect is the export of frozen sprat, which also negatively influences the availability of raw materials for local processing of canned fish. Therefore, Latvia faces the challenge how to motivate the producers for production of high value products in Latvia not to export the useful raw material abroad.

The preliminary data for Latvian fish production export for 2020 and 2021 show that the volume of export stay relatively stable between 2019 and 2020 and was 89.6 tonnes in 2020. However, the total production income increased by 6% from 2019 to 2020 and were EUR 203.6 million. The slight decrease in total export volume by 4% and increase in total export value by 1% was observed from 2020 to 2021. The exported fish products continue to take a share of around 90% from all sold fish products in 2020 in Latvia. The fish products were exported to 67 countries and imported from 51 countries in 2020. The export value to EU countries decreased by 8% from 2019 to 2020, in its turns export values to non-EU countries increase by 12% during the same period. The most important countries for the production export in 2020 were Ukraine, Lithuania, Estonia and Germany contributing 23%, 15%, 8% and 6% respectively to the total export volume and in turns of exported value were Lithuania, Denmark, Estonia and Germany contributing 31%, 26%, 18% and 17% respectively. The main type of the production export by volume were "Frozen fish, excluding fish fillets and other fish meat" and "Prepared or canned fish". These types of products have share of 43% and 39% respectively from the total export volume in 2020. The main countries for the production import were Lithuania, Sweden, Estonia and Norway. These countries contributed 64% and 58% respectively to the total import volume and value in 2020.

Based on preliminary economic data for 2020 and export data for 2020 and 2021 possible to observed that the Covid-19 does not have a direct impact to the fish processing sector profitability. The turnover increase by 7% from 2019 to 2020 due to the increase in average price for produced production. In the same period the sharp drop by 22% was observed for the energy costs, in its turn raw material costs and personal costs increased by 7 and 5% respectively. The total production costs share was 93% of total fish processing sector income.

The estimated Gross Value Added show a slight increase by 1%, in its turn the Operating Cash flow and Net profit show a decrease by 2% and 8% respectively from 2019 to 2020. However, it should be taking into consideration that Net profit in 2019 exceeded it level during the analysed period from 2008 to 2018 and reached an all-time high EUR 17.3 million in 2019.

A decrease in the number of enterprises and employees by 15 companies and 9% respectively from 2019 to 2020 can be explained by a decrease in active companies in a small segment less than 10 employee because the segment is focused on selling products on the local market, which was affected by the lockdown due to covid, but the segment turnover does not affect the overall economic efficiency in the fish processing sector. The number of enterprises in the other segments stay relatively stable.

5.15.6 Data coverage and quality

Statistical Bureau of Latvia (CSB). CSB collects economic data basing on the questionnaires/statistical forms and administrative sources. Questionnaires/statistical forms are distributed by CSB to the owners of processing enterprises. All economic active enterprises are involved in the survey. The participation in the survey for the enterprises with more than 10 employees is obligatory according to the Latvian national legislation. The data for small segment with less than 10 employees were requested from Latvian Revenue Service. Some variables are obtained from the government databases or registers.
The data for the segment "greater than or equal to 250 employees" was considered confidential for 2016-2019 due to only two active companies operating in the segment. Their values included in total values and presented in Table 5.15.2: Economic performance indicators, Latvia, 2008-2019. Due to segment "greater than or equal to 250 employees" data confidentiality protection also the segment "less than or equal to 10 employees" also was not reported separately but

included in total values presented in Table 5.15.2. The who other segments "between 50 and 249 employees" and "between 11 and 49 employees" have only its own data.
The social data for fish processing was collected by the survey for 2017 and 2020. The aim of the survey was to obtain information which characterise employment in the fishing industry by gender, age, education level, employment status and nationality. The type of data collection was census or 100% for the coverage rate with achieved sample rate 23% and 76% respectively. The results were raised from sample to the population based on the total number of employees in the sector. The collected social data could be used for the overall analysis in the fish processing sector. Furthermore, the received social data could be included into a subsequent forecast for the development of Latvian fisheries. The optimal frequency for the survey could be once in three years due to the absence of significant changes in the social area of the fisheries.

5.16 Lithuania

5.16.1 Overview

In 2019, Lithuanian fish processing industry consisted of 40 enterprises with main activity of fish processing. Number of enterprises in the sector remained stable with 5% decrease compared to 2018. In 2019, the total income from Lithuanian processing industry, consisting of turnover from processing and other income, was EUR 603.4 million corresponding to 7% annual increase compared to 2018. Turnover from fish processing increased by 11% in 2019, whereas other income declined by 37%. In comparison to 2019, turnover from fish processing decreased by 1.6% to EUR 560.8 million in 2020. Decline of turnover was observed first time since 2013 and was related to significant drop in value of sales in the internal market.

In 2019, number of fish processing companies with non-main activity remained unchanged from 2018 corresponding to 33 units, whereas in 2020 it increased by 30% to 43 units. Turnover, attributed to non-main activity fish processing enterprises in 2019 increased to EUR 9.2 million with 91% increase from 2018 and further improved by 18% in 2020, mostly from the aquaculture enterprises that have fish processing facilities.

Lithuanian processing industry is highly dependent from imported raw material. In 2019, around 97% (93.4 thousand tonnes) of total quantity of raw material was imported. Around 97% of processed raw material was supplied from marine fisheries whereas only 3% from freshwater sector, mainly aquaculture. In 2019, Lithuanian companies with main activity of fish processing produced 151 thousand tonnes of production (including products not intended for human consumption) and compare to 2018 it increased by 5.4% but declined by 10% in 2020. The largest commodities in terms of volume, produced by Lithuanian fish processing industry were surimi and smoked fish including smoked fillets, contributing to the total weight of production by 27% and 26% respectively. However, value of production was significantly higher for smoked fish and smoked fillets, contributing by 54% of total production value, compare to 14% coming from surimi production. Concerning production structure by species in 2019, the most important was Atlantic salmon which contributed by 60% of total production value and 38% of total production weight. Around 11% of total production weight was from processed Atlantic herring (mostly salted in brine) and 7% from Atlantic cod (mostly frozen fillets).

Table 5.16.1: Overview, Lithuania, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	37	33	32	32	31	30	34	51	42	39	42	40	-5%
≤ 10 employees	6	3	3	3	0	0	3	20	14	12	17	13	-24%
11-49 employees	12	13	13	14	14	14	14	12	11	11	10	11	10%
50-249 employees	12	13	12	10	12	11	11	12	11	10	9	10	11%
≥ 250 employees	7	4	4	5	5	5	6	7	6	6	6	6	0%
Employment (number)													
Total employees	5,013	4,489	4,351	4,445	4,451	4,471	5,165	5,373	4,743	4,855	4,815	5,115	6%
FTE	2,912	2,948	3,240	3,615	3,536	3,502	3,868	4,132	3,673	3,744	3,870	3,706	-4%
Indicators													
Turnover (million €)	195	231	283	305	291	319	419	443	457	504	512	570	11%
FTE per enterprise	78.7	89.3	101.3	113.0	114.1	116.7	113.8	81.0	87.5	96.0	92.1	92.6	1%
Average wage (thousand €)	7.9	10.1	8.4	7.9	8.5	10.4	10.7	9.0	13.1	14.0	15.1	17.4	15%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	-18%
Enterprises doing fish processing not as main activity													
Number of entreprises	2	2	2	3	3	6	6	21	31	23	33	33	0%
Turnover attributed to fish processing (million €)				3.7	3.1	5.3	7.2	9.7	10.7	3.9	4.8	9.2	91%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In 2019, value of sales in the internal market increased by 22% to EUR 337 million, compare to EUR 275 million in 2018, but dropped by 40% to EUR 203.9 million in 2020. In 2019, following the rise of sales in the internal market, exports decreased by 5.5% to EUR 218.6 million but recovered by 46% in 2020. Around 86% of exported production was sold in EU countries showing a successful transformation of market for Lithuanian production, when decade ago a considerable part of trade was carried out in CIS market. Lithuanian processing industry employed 5 115 persons and compare to 2018 it increased by 6%. In terms of FTE, 2019 data shows 4% annual decline to 3 706. Average wage in fish processing industry has an increasing trend since 2008, however, the most intensive growth was observed in 2015-2019 period. In 2019 average annua wage improved by 15% compared to 2018 and was 66% higher compared to 2008-2018 average. In 2020 average wage in fish processing industry declined by 4.7%.

5.16.2 Economic performance

Total revenues, generated by Lithuanian fish processing industry increased by 7% in 2019 to record high EUR 603 million. Compared to 2018 turnover attributed to fish processing in 2019 it further increased by 11% to EUR 570 million and was 58% higher compared to 2008-2018 multiannual period. Compared to 2019, mostly due to the restrictions of COVID19 measures in the market, total turnover from fish processing in Lithuania decreased by 2% to EUR 594 million.

Table 5.16.2: Economic performance indicators, Lithuania, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	194.9	231.0	283.5	305.1	290.8	318.7	419.2	443.1	457.0	504.2	512.2	570.0	11%
Other income	28.2	26.3	14.6	9.8	56.8	44.2	66.3	78.2	35.7	44.0	52.6	33.2	-37%
Operating subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.1	0.1	0.2	186%
Total Income	223.0	257.3	298.1	314.9	347.6	362.9	485.5	522.1	492.8	548.3	564.9	603.4	7%
Expenditure (million €)													
Purchase of fish and other raw material for production	111.0	147.4	177.9	178.5	217.8	222.6	305.5	341.4	361.8	368.9	368.0	405.1	10%
Wages and salaries of staff	23.1	29.8	27.1	28.7	30.1	36.4	41.5	37.3	48.1	52.3	58.3	64.4	10%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	-9%
Energy costs	4.6	5.5	5.6	7.3	7.4	7.1	8.1	7.6	7.1	8.1	7.9	8.1	3%
Other operational costs	35.6	39.7	48.4	49.0	69.1	61.4	109.3	85.1	79.8	73.1	78.2	80.8	3%
Total production costs	174.3	222.4	259.1	263.5	324.5	327.6	464.4	471.4	496.8	502.4	512.5	558.4	9%
Capital Costs (million €)													
Depreciation of capital	6.9	5.6	5.3	5.9	6.7	22.6	8.5	10.1	9.0	8.8	9.7	10.9	13%
Financial costs, net	8.3	2.9	1.6	0.1	-1.0	1.9	1.7	3.1		3.0	0.1	-0.2	-538%
Capital Value (million €)													
Total value of assets	159.2	115.5	151.2	174.3	186.2	193.6	231.5	243.4	252.5	302.1	286.6	292.9	2%
Net Investments	23.6	9.2	9.4	9.9	9.1	19.3	17.5	4.7	7.1	6.5	11.9	18.0	52%
Subsidies on investments										0.1	0.8	0.3	-63%
Debt	107.6	95.3	85.7	93.6	112.9	135.5	148.5	161.2	174.3	166.1	173.2	166.0	-4%
Economic performance (million €)													
Gross Value Added	71.8	64.7	66.1	80.1	53.3	71.8	62.6	87.3	44.1	98.1	110.7	109.2	-1%
Operating Cash Flow	48.7	34.9	39.0	51.4	23.2	35.3	21.1	50.7	-4.1	46.0	52.4	45.0	-14%
Earning before interest and tax	41.9	29.2	33.7	45.5	16.5	12.7	12.6	40.6	-13.0	37.2	42.8	34.0	-20%
Net Profit	33.6	26.3	32.2	45.4	17.5	10.8	10.9	37.5	-13.0	34.1	42.7	34.3	-20%
Productivity and performance Indicators													
Labour productivity (thousand €)	24.7	21.9	20.4	22.2	15.1	20.5	16.2	21.1	12.0	26.2	28.6	29.5	3%
Capital productivity (%)	45.1	56.0	43.7	46.0	28.6	37.1	27.1	35.9	17.5	32.5	38.6	37.3	
GVA margin (%)	32.2	25.1	22.2	25.5	15.3	19.8	12.9	16.7	8.9	17.9	19.6	18.1	
EBIT margin (%)	18.8	11.4	11.3	14.4	4.7	3.5	2.6	7.8	-2.6	6.8	7.6	5.6	
Net profit margin (%)	15.1	10.2	10.8	14.4	5.0	3.0	2.2	7.2	-2.6	6.2	7.6	5.7	
Return on Investment (%)	26.3	25.3	22.3	26.1	8.9	6.6	5.4	16.7	-5.2	12.3	14.9	11.6	
Financial position (%)	32.4	17.5	43.3	46.3	39.4	30.0	35.8	33.7	30.9	45.0	39.6	43.3	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The production cost structure in processing industry remained almost unchanged during the years. In 2019, purchase of raw material was accounted for 73% of total production costs, 14% other operational costs, 12% wages and salaries of staff and 1% for energy costs. In 2019 increase in costs of raw material and personnel costs were the main drivers affecting the decline of sector profitability indicators. In 2020, cost of raw material decreased by 6% compared to

2019 resulting in recover of profitability taking into account a slight decline of revenues. In 2019, fish processing sector generated EUR 109.2 million of GVA and compare to 2018 it declined by 1%. In 2020, despite the COVID19 measure presence GVA increased by 6% to record high EUR 115.8 million. Labour productivity increased by 3% in 2019 to EUR 29.5 thousand GVA/FTE and further improved by 5% in 2020 to the highest value since 2008. Net profit generated by processing industry was EUR 34.3 million in 2019, but compare to 2018 it declined by 20%; however, it was 35% higher than multiannual 2008-2018 net profit average. In 2020 net profit improved by 9%. Net profit margin in 2019 was 5.7% and declined compared to 2018 when 7.6% was achieved. Decrease in 2019 the net profit margin was associated with growth of main operating costs as raw material and wages as well as high increase in the depreciation cost of capital. For instance, in 2019 investment in capital increased by 52% to EUR 18.0 million. Increased capital costs also had an impact to the 2020 net profitability resulting in 6% net profit margin, taking into account that gross profitability and GVA were sufficiently higher compared to 2019.

5.16.3 Breakdown by company size

Fish processing enterprises, employing more than 250 persons. National economic performance of Lithuanian fish processing sector is mostly represented by large-scale enterprises. For example, companies, employing more than 250 people in 2019 generated 81% of national turnover and 60% of total persons employed. Compared to 2018, total income increased by 7%. In 2019, this segment generated EUR 83.4 million GVA with EUR 36.1 thousand labour productivity expressed in GVA/FTE. Average annual wage increased by 12% to EUR 18.4 thousand in 2019. Compare to 2018 GVA decreased by 2%, whereas labour productivity improved by 4%. Net profit in 2019 was EUR 33.5 million with 7% net profit margin. Companies in this size category employed 3087 employees corresponding to 2309 FTE. Return on Investments in 2019 was 15%.

Fish processing enterprises, employing 50-249 persons. This segment contributed by 15% to the total turnover of the sector in 2019. Compared to 2018, total income improved by 8%. Companies in this size category generated EUR 21.6 million GVA with EUR 18.9 thousand GVA/FTE labour productivity. Average annual wage increased by 20% to EUR 16.5 thousand in 2019. Segment did not generate net profit in 2019, resulting in EUR -2 thousand net loss. Number of employees increased by 13.6% to 1659 persons corresponding to 1142 FTE in 2019. Return on Investments in 2019 was 1% and it declined from 6% in 2018.

Fish processing enterprises, employing 11-49 persons. Fish processing enterprises generated EUR 17.1 million total income with 3% decline from 2018. In 2019, GVA declined by 5% to EUR 3.6 million, corresponding to EUR 18.0 thousand GVA/FTE labour productivity. Average annual wage in companies employing 11-49 people increased by 30% to EUR 11.8 thousand in 2019. Net profit decreased to EUR 0.8 million, with 4% net profit margin in 2019. For the comparison, net profit margin in 2017 was 14%. Considerable decline of net profit margin was associated to the growth of labour costs during 2017-2019 period. Return on the Investment decreased to 9% in 2019 compared to 16% in 2018 and 30% in 2017. Companies in this size category employed 272 persons corresponding to 200 FTE. Number of employees increased by 3% compared to 2018.

Fish processing enterprises, employing less than 10 persons. The small-scale processing enterprises generated EUR 2.2 million total income in 2019 with 1% decrease compared to 2018. Segment generated EUR 0.6 million GVA with EUR 11.1 thousand GVA/FTE labour productivity in 2019. All profitability indicators declined considerably, compared to 2018. In 2019 net losses around EUR 9 thousand was generated. Impact on the profitability decline was from the increase of remuneration costs, which contributes by 25% to the total operation costs. Average annual wage in companies less than 10 employees increased by 37% to EUR 9.7 thousand in 2019. Number of employees in 2019 increased by 1% to 97 employees corresponding to 54.5 FTE.

Table 5.16.3: Economic performance by size, Lithuania, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
less than or equal to 10 employees													
Total Income	0.3	0.4	4.2	3.4	0.0	0.0	0.6	1.9	2.4	1.8	2.2	2.2	-1%
Total production costs	0.5	0.7	4.1	3.3	0.0	0.0	0.5	1.7	2.4	2.1	2.1	2.2	0%
Gross Value Added	-0.1	-0.2	0.3	0.2	0.0	0.0	0.1	0.4	0.3	0.0	0.5	0.6	12%
Operating Cash Flow	-0.2	-0.3	0.1	0.1	0.0	0.0	0.0	0.2	0.0	-0.3	0.1	0.0	-42%
Earning before interest and tax	-0.2	-0.3	0.0	0.0	0.0	0.0	0.0	0.2	-0.1	-0.3	0.0	0.0	-167%
Net Profit	-0.2	-0.3	0.0	0.0	0.0	0.0	0.0	0.2	-0.1	-0.6	0.0	0.0	-144%
between 11 and 49 employees													
Total Income	9.2	15.0	17.0	20.5	17.1	14.3	15.4	14.7	15.4	17.2	17.6	17.1	-3%
Total production costs	8.0	14.5	16.0	21.7	16.0	12.7	14.0	12.3	13.2	14.4	15.8	15.8	0%
Gross Value Added	2.0	2.8	3.0	2.0	4.2	4.5	4.5	3.8	3.9	4.5	3.8	3.6	-5%
Operating Cash Flow	1.2	0.5	0.9	-1.2	1.1	1.7	1.4	2.4	2.2	2.8	1.8	1.3	-28%
Earning before interest and tax	0.9	0.1	0.4	-1.8	0.5	1.1	1.1	2.0	1.8	2.4	1.4	0.8	-39%
Net Profit	0.3	-0.2	0.4	-1.9	0.5	1.1	1.0	2.0	1.8	2.3	1.3	0.8	-41%
between 50 and 249 employees													
Total Income	60.6	65.4	54.5	51.9	54.6	85.6	115.9	134.9	105.2	112.4	87.7	95.0	8%
Total production costs	49.1	59.0	47.1	46.7	54.6	57.3	93.9	111.2	112.5	109.4	81.8	92.2	13%
Gross Value Added	20.5	16.9	16.9	12.3	7.5	35.5	30.5	32.8	5.2	17.7	21.6	21.6	0%
Operating Cash Flow	11.4	6.4	7.4	5.3	0.0	28.3	22.1	23.7	-7.3	3.0	5.8	2.8	-52%
Earning before interest and tax	9.4	4.9	5.9	3.7	-2.0	11.0	19.5	20.5	-9.6	1.1	3.6	0.3	-91%
Net Profit	7.4	4.3	5.6	3.4	-2.2	9.9	19.0	19.4	-9.6	-0.4	3.1	0.0	-100%
greater than or equal to 250 employees													
Total Income	152.9	176.5	222.4	239.1	275.9	263.0	353.6	370.6	369.8	416.9	457.4	489.1	7%
Total production costs	116.6	148.2	191.9	191.8	253.8	257.7	356.0	346.2	368.7	376.5	412.7	448.2	9%
Gross Value Added	49.4	45.1	45.9	65.6	41.7	31.8	27.5	50.3	34.7	76.0	84.8	83.4	-2%
Operating Cash Flow	36.4	28.3	30.6	47.3	22.1	5.4	-2.4	24.3	1.1	40.4	44.7	40.8	-9%
Earning before interest and tax	31.8	24.5	27.4	43.6	17.9	0.6	-8.1	17.9	-5.1	34.1	37.8	32.9	-13%
Net Profit	26.1	22.5	26.2	43.9	19.3	-0.2	-9.1	15.9	-5.1	32.7	38.4	33.5	-13%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.16.4 Socio-demographic structure

According to the 2020 data, the majority employees involved in Lithuanian fish processing industry were female (68%) followed by 32% male. The distribution of employees by gender in different size categories were very similar. For example, in large companies (250< and 50-249) female workers were accounted for 69% of total employees, whereas in smaller units (11-50 and <10) was 60% of female and 40% of male employees.

The age groups used during the data collection were 15-24, 25-39, 40-64 and >= 65. In 2020 the dominant age class for the industry was 40-64 corresponding to 62%, second largest age class was 25-39 with 30% of total population. The distribution of age in different size categories were similar.

In Lithuanian fish processing sector, the medium education was dominant among employees with 56% of total employees, whereas labour with low and high education was with similar proportion – 24% and 20% respectively.

Around 99% of total employees had a Lithuanian nationality. Compare 2020 to 2017 social data, distribution of employees by gender, age, employment and nationality was very similar, without noticeable change.

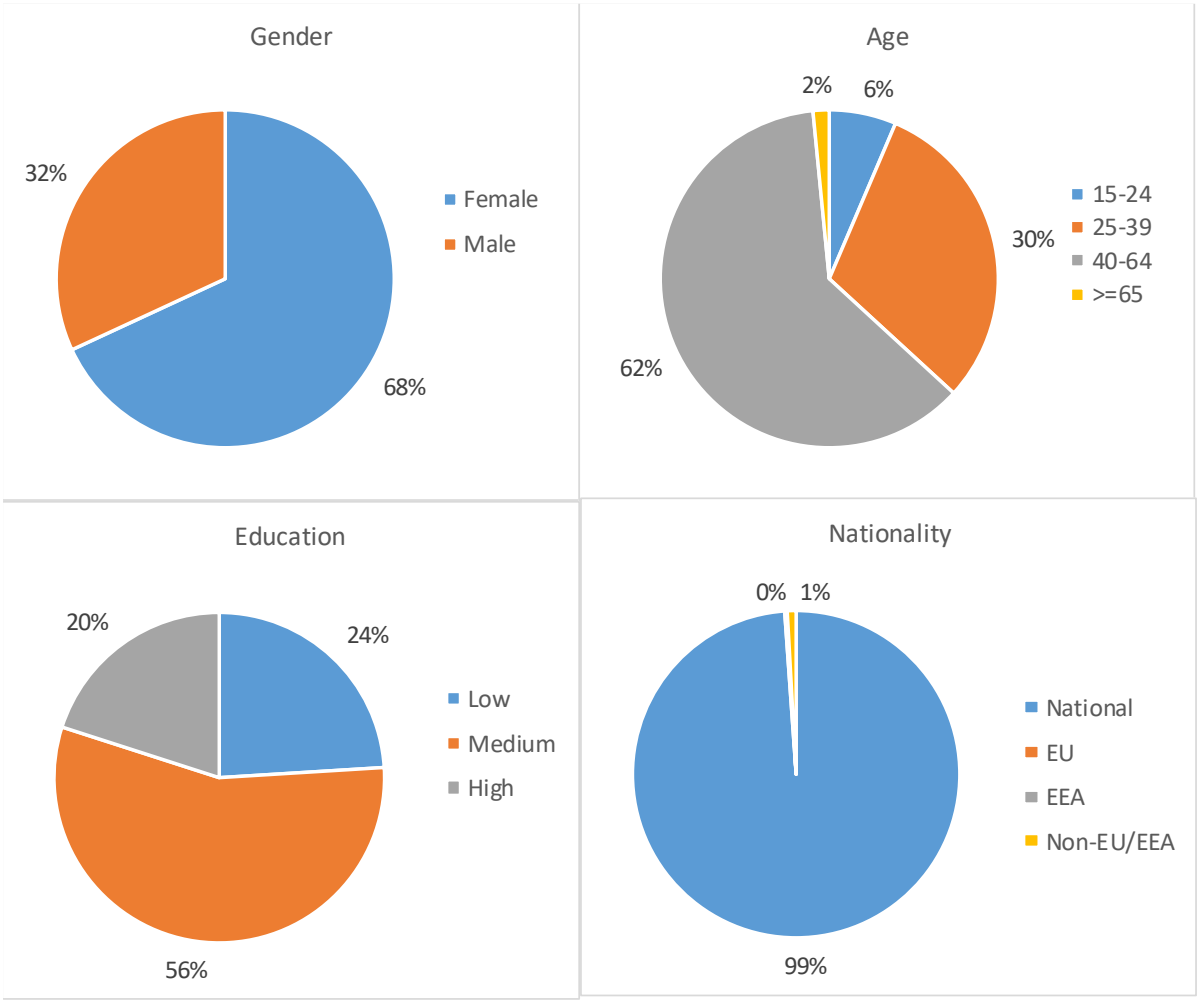

Figure 5.16.1: Socio-demographic characteristics, Lithuania, 2020

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.16.5 Trends, drivers and outlook (including Covid-19 impact)

The main drivers for processing industry at the cost level were supply and price of raw material, labour costs, whereas at the income level demand for exports of final production and increasing consumption of fishery products in the internal market. EU policy concerning trade with third countries plays less important role as according to 2019 data only 4% of total sales were exported to Third countries.

Based on Lithuanian Agricultural and Food Product Market Information System (LAFPMIS) data total weight and value of fish processing production of main activity enterprises in 2020 decreased by 10% to 135.5 thousand tonnes and EUR 611.7 million respectively. However, according to preliminary results in 2021, total production of processing industry with main activity increased by 11.9% to a record high 151.6 thousand tonnes and EUR 690 million value compared to 2020. Employment in 2020 for the enterprises with the main activity increased by 1.3% to around 3755 FTE but declined by 5% in 2021 to 3567 FTE. Increase in the production in 2021 to higher levels compare to pre-COVID period shows that industry overcame successfully COVID19 challenges, supply of raw materials was ensured despite the slight decline in FTE which calculated from working hours. Decline in working hours were due to the COVID19 control.

In 2019, industry processed around 1.8 thousand tonnes raw material from local aquaculture production. Processing of aquaculture production is increasing substantially. Compare to 2018 it surged by 40%. During 2020-2019 period increased another 64% whereas 2020-2021 by 19%. Aquaculture raw material is mostly processed by the companies which processing is not main activity, mostly aquaculture farms which has fish processing facilities. Increase of processing of

aquaculture production is related to significant growth of aquaculture production and market for fresh aquaculture products are limited. The biggest part of local raw material from aquaculture were carps - 993 tonnes, rainbow trout – 280 tonnes and African catfish - 240 tonnes.

The most important species in terms of value is Atlantic Salmon, which contributes by 60% of total value of processed production. Raw material is imported, mainly from Sweden (87% of total imports of fresh salmon). In 2019 industry imported 40 thousand tonnes of fresh salmon, 8% increase from 2018. Average price in 2019 decreased by 8.1% to 6.15 EUR/kg. In 2020 average import price of fresh salmon dropped by 14% following by 7.8% decline of import quantities. Based on preliminary data in 2021 average price recovered by 5.5% to 5.58 EUR/kg. Overall import of fish production in 2020 increased by 2.8% to 153 thousand tonnes, whereas value of imported production declined by 5.7%.

In terms of quantity, surimi products are the largest share of processed production exported by Lithuanian processing industry. Volume and value of surimi exports are continuously growing. For example, in 2019 exports of surimi increased by 17%. Total production of surimi in Lithuania was 41.9 thousand tonnes in 2019. Export of surimi in 2020 increased by 8.4% and was further growing in 2021. Export price of surimi products had a tendency to increase during 2018-2021 period. Export of salted and smoked salmon (CN 0305 41) increased by 16.3% in 2019 but declined significantly by 16% in 2020 and tended to decrease in 2021. Average export price for salted and smoked salmon declined from 14.57 EUR/kg in 2019 to 12.94 EUR/kg in 2021.

5.16.6 Data coverage and quality

Population of commercial fish processing units for data collection is derived from Lithuanian State Food and Veterinary Service, register of entities, producing food of animal origin, activity fish processing. Data collection scheme is census for all enterprises, which have a veterinary number and licence to produce fishery products. Based on production NACE code enterprises are divided to main activity (NACE code 10.20) and non-main activity of fish processing. Semi-annual production report contains information on used raw material by species, and origin, whereas production section disaggregated by type of product, species, weight and value as well as employment. For the main activity enterprises, layout of data allows to separate the income from fish processing and for other activities separately. From 2015 increase in size of sector was mainly due to the higher number of small fish processing units (size category less than 10 employees) included into Register of State Food and Veterinary Service according to new requirements to obtain veterinary number and permission to carry out fish processing activities. Social data for 2020 were collected by census survey. The population was chosen fixed date (December of 2020) according to the PGECON 2017 recommendation, whereas regular economic census survey asks for the average annual employment in the sector. The 2020 economic and production as well as preliminary 2021 production data is provided using LAFPMIS data source. The same data source is used for reporting data to STECF.

5.17 Malta

5.17.1 Overview

The Maltese fish processing industry is relatively small, whereby enterprises mainly partake in the preservation and processing of tuna, sardines, and other marine fish. Malta also has other enterprises, that do not treat fish processing as their main operation but still contribute to this industry. The number of firms and their contribution is significantly small. The industry is mainly composed (60%) of enterprises with ≤10 employees, the smallest enterprise segment.

In 2018 and 2019, the number of enterprises in the Maltese fish processing industry remained constant at 5. This number has been stable ever since 2015. Having said so, turnover has been relatively stable between 2015 and 2018, where the industry was generating between €23 million and €24 million euro, in fact between 2017 and 2018 there was little to no change in annual turnover generated. However, in 2019, turnover increased by 19% (€28 million).

FTE and employment have also been relatively stable between 2015 and 2019. Interestingly although employment in 2018 decreased by 12% over 2017, the FTE remained constant at 72, over the same period. Implying that the industry employs most of its labour force on a full-time basis. In 2019 both employment and FTE recorded 7% and 8% increases over 2018, showing further growth in labour for this industry. Although number of employees remained relatively stable, the average wage in the industry decreased by 23% from 2017. The fish processing industry in Malta continues to not engage any form of unpaid employment.

Post-2013, the industry has recorded net losses on a yearly basis up until 2018, where €1.7 million net loss was recorded, a 6% increase over 2017. However, a turnaround occurred in 2019, where the industry registered €1.3 million in net profits. This improvement contributed to the industry generated a GVA of €3.8 million in the same year.

Table 5.17.1: Overview, Malta, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Structure (number)													
Total enterprises	7	10	8	8	6	6	6	5	5	5	5	5	0%
≤10 employees	6	5	8	8	4	3	3	3	3	3	3	3	0%
11-49 employees	1	5	0	0	2	3	3	2	2	2	2	2	0%
50-249 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	56	131	19	32	56	114	114	82	85	85	74	80	8%
FTE	40	116	15	28	53	109	109	71	72	72	72	77	7%
Indicators													
Turnover (million €)	37	37	23	38	30	46	36	23	23	24	24	28	19%
FTE per enterprise	5.7	11.6	1.9	3.5	8.8	18.2	18.2	14.2	14.4	14.4	14.4	15.4	7%
Average wage (thousand €)	33.2	20.1	18.7	16.2	14.7	22.9	26.2	31.8	32.4	33.0	25.3	25.3	0%
Unpaid work (%)	9.5	11.9	19.8	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises	0	0	0	0	2	0	2	2	2	2	4		
Turnover attributed to fish processing (million €)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.17.2 Economic performance

Purchases of raw materials for production is the main cost component of the industry, as this variable consistently makes between 85% to 87% of the cost structure, followed by wages,

energy costs and other operational costs respectively. The industry's income is 100% composed of the turnover generated throughout the financial year. Although in 2018, turnover reduced slightly from figures recorded in 2017, from €24.1 million to €23.8 million the industry recovered this contraction in 2019, since turnover increased by 19% to €28.5 million. Similar fluctuations occurred to the other end of the industry as production costs decreased very slightly over 2017 in 2018 (-0.8%) and then increased by 6% in 2019 over 2018. Subsequently this caused a slight increase in net losses between 2017 and 2018 (6%) and a turnaround to net profits in 2019, where the industry recorded €1.3 million worth of net profits. A 179% improvement over the previous year.

Given the recorded net profit for 2019, other financial indicators such as OCF, EBIT and profit margins had a positive turnaround over 2017 as both recorded significant improvements respectively. The industry also shown improvement in performance indicators such as labor and capital productivity. The GVA recorded was €3.8 million, the highest value since 2014.

Although for 2019 net investments have slightly decreased since 2018 (-30%) and 2017, the investment made, and assets used has yielded significant returns. This, together with the positive turnaround in EBIT is reflected in the ROI indicator of the industry, which shows a very positive figure of 16.3% over the -19.4% recorded in 2018. Given that the level of debt has been decreasing since 2017, from €8.2 million in 2018 and €7.6 million in 2019 whilst the value of assets has increased, the financial position of the industry changed to a positive one since 2017 (4.8% and 8.4% respectively) shows that assets are being financed through retained earnings or other potential sources outside debt financing.

Table 5.17.2: Economic performance indicators, Malta, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	37.0	37.4	23.0	37.7	29.6	46.2	35.6	22.7	23.5	24.1	23.8	28.5	19%
Other income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Operating subsidies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Total Income	37.0	37.4	23.0	37.7	29.6	46.2	35.6	22.7	23.5	24.1	23.8	28.5	19%
Expenditure (million €)													
Purchase of fish and other raw material for production	21.8	39.4	0.0	31.7	17.9	27.1	31.2	20.3	21.1	21.6	21.8	23.3	7%
Wages and salaries of staff	1.2	2.1	0.2	0.5	0.7	2.5	2.9	2.3	2.3	2.4	1.8	1.9	7%
Imputed value of unpaid labour	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	0.3	0.4	0.3	0.6	0.6	0.3	0.3	0.2	0.4	0.4	0.4	0.4	12%
Other operational costs	8.5	11.6	0.7	1.0	1.9	2.1	1.6	0.9	1.0	1.0	1.1	1.0	-11%
Total production costs	31.9	53.8	1.4	33.8	21.2	32.0	35.9	23.7	24.7	25.3	25.1	26.6	6%
Capital Costs (million €)													
Depreciation of capital	1.8	3.8	0.5	0.5	0.3	0.4	0.5	0.3	0.3	0.4	0.4	0.5	11%
Financial costs, net	0.9	1.5	0.1	0.3	0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	24%
Capital Value (million €)													
Total value of assets	8.6	14.0	2.7	5.1	7.7	15.4	12.3	7.5	7.6	7.8	8.6	8.3	-4%
Net Investments	1.3	0.3	1.3	1.4	8.5	1.3	0.9	0.3	0.3	0.3	0.3	0.2	-30%
Subsidies on investments									0.0	0.0	0.0	0.0	0%
Debt	17.9	31.3	2.3	3.8	5.7	16.6	13.8	9.5	8.6	8.5	8.2	7.6	-7%
Economic performance (million €)													
Gross Value Added	6.4	-14.0	21.9	4.3	9.2	16.7	2.6	1.2	1.1	1.1	0.6	3.8	535%
Operating Cash Flow	5.1	-16.3	21.6	3.9	8.4	14.2	-0.3	-1.0	-1.2	-1.2	-1.2	1.8	-251%
Earning before interest and tax	3.3	-20.1	21.2	3.4	8.1	13.8	-0.8	-1.3	-1.5	-1.6	-1.7	1.4	-181%
Net Profit	2.4	-21.6	21.0	3.1	8.0	13.9	-0.7	-1.3	-1.6	-1.6	-1.7	1.3	-179%
Productivity and performance Indicators													
Labour productivity (thousand €)	160.3	-120.8	1,461.9	154.8	172.8	153.2	23.5	17.5	15.6	15.7	8.3	49.3	494%
Capital productivity (%)	74.5	-100.1	817.6	85.0	118.9	108.1	20.8	16.6	14.8	14.5	7.0	45.8	
GVA margin (%)	17.3	-37.5	95.3	11.5	31.0	36.2	7.2	5.5	4.8	4.7	2.5	13.3	
EBIT margin (%)	9.0	-53.7	92.0	8.9	27.4	29.8	-2.3	-5.8	-6.6	-6.7	-7.0	4.7	
Net profit margin (%)	6.5	-57.8	91.4	8.2	27.1	30.0	-2.1	-5.7	-6.7	-6.7	-7.1	4.7	
Return on Investment (%)	38.5	-143.7	789.1	66.0	105.3	89.1	-6.6	-17.6	-20.4	-20.6	-19.4	16.3	
Financial position (%)	-107.5	-123.4	13.9	25.6	26.0	-7.5	-12.5	-26.2	-13.8	-9.6	4.8	8.4	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.17.3 Breakdown by company size

The Maltese fish processing industry is constituted by two segments; with segment 1 being enterprises that employ less than or equal to 10 employees which has 3 enterprises operating

within it, and segment 2 being enterprises that employ between 11 to 49 people which has 2 enterprises operating within it. Segment 1 recorded €10.5 and €11.7 million in income in 2018 and 2019 respectively, these being 8% and 12% increases over the previous years. This substantiates an increasing trend in this segment since turnover has been increasing since 2016. In the case of segment two, income decreased by 7% in 2018 (€13.4 million) over 2017 (€14.4 million) but increase by 26% in 2019 (€16.8 million) over the previous year. Production costs followed a similar fluctuating trend both in segment 1 and 2, where segment 1 recorded 4% increases in 2018 and 2019 over the previous years and segment two recorded a 4% decrease in 2018 over 2017, and an 8% increase over 2018.

For segment 1, these changes in income and costs positively affected the segment since net profits were recorded for both 2018 (€0.1 million) and 2019 (€0.9 million). This segment has stopped the trend in net losses, which have been being recorded since 2015. Segment 2 recorded a net loss in 2018 (- €1.8 million), this 29% increase in net losses over 2017 was derived from a larger decrease in income than production cost. On the other hand, in in 2019, income increased at a much more significant rate than production cause, which subsequently led to a 220% improvement in net profit (€0.4 million).

Employment in segment 1 and 2 has decreased by 13% respectively in 2018 from 2017, though the subsequent year the number of employees in the segments increased by 4% and 11% respectively. Conversely, even if employment decreased for segment 1, FTE increased by 4% in 2018 over 2017, and remained constant in 2019 over the previous year. This shows that the segment's fluctuations in employment may mainly be in part-time employees. FTEs for segment 2 decreased by 2% in 2018 over 2017 and increased by 11% in 2019.

Labour Productivity in 2018 and 2019 increased for both years over the previous one, by 98% and 93% respectively for segment 1. Similarly, capital productivity also increased over the same periods by 69% and 95% respectively. This increase derives from the fact that GVA has been increasing gradually for this segment. The segment employing between 11-49 to employees in 2018, recorded a decrease of 142% and 138% in Labour and Capital productivity respectively, though the subsequent year these indicators recorded a positive turnaround where both substantially increased due to the significant improvements in GVA.

Table 5.17.3: Economic performance by size, Malta, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	21.4	24.4	23.0	37.7	21.5	11.6	10.1	8.8	9.2	9.7	10.5	11.7	12%
Total production costs	16.6	28.5	1.4	33.8	15.6	7.7	10.0	8.9	9.4	9.8	10.2	10.6	4%
Gross Value Added	5.4	-2.9	21.9	4.3	6.5	4.5	0.8	0.4	0.4	0.4	0.9	1.7	93%
Operating Cash Flow	4.8	-4.2	21.6	3.9	6.0	3.9	0.2	-0.1	-0.2	-0.2	0.3	1.0	300%
Earning before interest and tax	4.4	-5.5	21.2	3.4	5.7	3.8	0.1	-0.2	-0.2	-0.3	0.1	0.9	510%
Net Profit	4.3	-6.1	21.0	3.1	5.7	3.8	0.1	-0.2	-0.2	-0.3	0.1	0.9	519%
between 11 and 49 employees													
Total Income	15.6	13.1			8.0	34.6	25.5	13.9	14.3	14.4	13.4	16.8	26%
Total production costs	15.3	25.2			5.6	24.2	26.0	14.8	15.3	15.5	14.9	16.0	8%
Gross Value Added	1.0	-11.1			2.6	12.3	1.7	0.8	0.7	0.7	-0.3	2.1	-833%
Operating Cash Flow	0.4	-12.2			2.4	10.3	-0.5	-0.9	-1.0	-1.1	-1.5	0.8	-156%
Earning before interest and tax	-1.1	-14.6			2.4	10.0	-0.9	-1.1	-1.3	-1.3	-1.8	0.5	-125%
Net Profit	-1.9	-15.6			2.4	10.1	-0.8	-1.1	-1.3	-1.4	-1.8	0.4	-123%

Source: MS data submissions under the 2019 Fish processing data call and elaboration by the EWG

In terms of capital and capital expenditure, segment one recorded increases of 22% (€1.58 million) and 28% (€0.13 million) respectively over 2017 in terms of total value of assets and net investments. The following year these two variables both saw decreases of 1% and 4% respectively. Nevertheless, due to improvements in income and net profits for both years being

reviewed, the ROI for both these years was positive at 9% and 58% respectively. At the same time FEI decreased to 1% and -3% in 2018 and 2019, which derives from increases in the consumption of fixed capital in both years and also the decline in net investment in 2019. A negative FEI gives a possible indication that enterprises within this segment have no willingness to expand their production capacity. This could signal that this segment requires further investment with particular focus to innovation in terms of capital.

Segment two saw minimal change in net investment from 2017 in 2018, since investment decreased from €0.18 million to €0.17 over this period and an 8% increase in the total value of assets. In 2019, these two variables both saw 9% and 4% decreases respectively of 2018. Due to these fluctuations and an increasing trend in depreciation, the FEI for 2018 and 2019 was -2% and -4%. Nevertheless, indicators such as ROI and the financial position show a more positive picture of the segment since FEI segment has continued an increasing trend due to debt gradually decreasing since 2017, and ROI has increased significantly in 2019 over 2018 due to the earnings made.

5.17.4 Trends, drivers and outlook (including Covid-19 impact)

Seafood Trade

Malta exports to both intra-EU and extra-EU countries, though in general, as it has been observed over the last ten years, Malta always tends to export more to Extra-EU countries (80% in 2021) than Intra-EU. In fact, the highest quantities of exports are made to Japan and the Republic of Korea. In 2021 Malta exported most of the processed seafood, in terms of quantities, to Japan (48%), Italy (14%) and the Republic of Korea (12%). In terms of value, largest turnover is obtained through exports to Japan (62%), Republic of Korea (21%) and Italy (5%). Malta mainly exports bluefin tuna and gilthead seabream to these countries, whereby such seafood is exported as frozen amongst them.

In terms of imports, Malta generally tends to import mostly from Intra-EU countries, though interestingly, one can notice that the increase imports which has been on an increasing trend since 2015 has been mainly contributed from increases in Extra-EU imports. Imports from Extra EU countries has increased by 140% since 2014, and in 2020 and 2021 imports from extra-Eu countries have become more prevalent as they made up 58% and 56% of the total imported seafood respectively. In 2021 Malta imported its largest quantities from Morocco (40%), the Netherlands (22%), Italy (8%) and Spain (6%). Malta imports mostly bluefin tuna, herring and sardines.

Energy Costs

Although, energy costs have remained rather stable since 2016, only decreasing by 2% in 2018 from 2017, and increasing by 12% in 2019 over 2018. Since Malta has been adopting hedging policies for gas prices in 2021 and 2022, it would be expected that these enterprises will not suffer greatly from the record-breaking increases in such prices in the EU, since energy costs should not suffer increases due to increases in the price of utilities.

Innovation

An interesting outlook in the Maltese fish processing industry shall be results and initiative taken following Project Bythos, an Interreg V-A Italia-Malta 2014-2020 cooperation project approved for funding in 2018 which aimed at achieving zero waste when extracting fish waste, marine collagen and omega fatty acids, which are components of interest to the cosmetics, pharmaceutical and nutraceutical industries.

Covid-19

In Malta covid-19 most drastic measures started being imposed in Q2 of 2021, where during this quarter boarders where closed and interrupting any exportations and importations that generally occurred during that time, though it is important to mention that these measures did not stay in place for a significant amount of time to drastically impact the industry. Trade data shows drops in export, both in terms of value and weight, from pre-covid numbers though it may not necessarily be contributed to the global pandemic. From a qualitative and logical perspective, the fish processing industry may have instead also gained from certain measures imposed to control

the Covid-19 pandemic, such as border closing, as the local market demand, would need to be sustained by the local enterprises instead. This would be beneficial to as subsequently it may increase the operations of the industry, and potentially generate further revenues and earnings.

5.17.5 Data coverage and quality

Data for 2018 and 2019 was sampled, even though the population of the fish processing industry only involved 5 enterprises in those years, due to the fact that it was not possible to collect data from the population. Sampling small data sets may create problems with issues such as over-fitting and noise within data, which may cause outliers or unexpected change in trends and variables. Consequently, this may result in over or under estimation of these respective variables. Also, no social data was provided which couldn't allow for the analysis of social factors of the industry.

5.18 Netherlands

The Netherlands is renown as one of the main ports and logistic linchpin for the other EU MS. By the smart geographically located harbor of Rotterdam and the airport Schiphol of Amsterdam, the Netherlands has an excellent infrastructure for trade in goods like frozen and fresh fish products. This ideal infrastructure has been established in the past by the Dutch flower and horticulture. Therefore, also the Dutch fish processing and wholesaling industry, as a whole, has an important function as trading hub for other EU countries as its hinterland. The Dutch seafood companies have a major role in the food security (SDG2) within the EU, as on average 80% of the Dutch export value of fish products is generated within the EU market[4950]. The growing diversity of fish products on the EU market, have resulted in growing imports of fish products. In particular, in the last three years (2017-2019) there was a scarcity for raw materials to meet the demand from the market. The importance of sourcing to have sufficient raw materials for fish processing and circular re-use into high value-added products is increasing. Almost 2/3 of the total Dutch seafood production volume is imported however still 1/3 comes from landings from the North Sea fisheries fleet. Many Dutch fish processor are specialized from origin in North Sea species like Common sole, plaice, turbot etcetera. However, due to decreasing landing volumes at Dutch auctions since 2016, more and more fish processors have implemented a diversified range of species. In particular the introduction of farmed Atlantic salmon and cod were successful for many enterprises. The Netherlands has grown to one of the major processors of Norwegian salmon within Europe last five years.

The demand for seafood products is evidently larger than the supply by landings at Dutch harbors. The landings of fish (e.g. flatfish like plaice and sole), Brown shrimps and mussels next to pelagic species (e.g. herring and mackerel) from the North Sea are still crucial for the profitability of many fish processors reliant on these species. In particular, fish processors with large capital investments in specialized processing machineries and production lines, are hardly able in the short term to shift towards other species to process. For instance, flatfish fileting machines could not (easily) be utilized to process species like salmon. With all the challenges for the fisheries at the North Sea (Brexit, pulse ban, closing fishing areas and landing obligation) there is a high need for more opportunities to import (autonomous tariff quotas = ATQs) and innovation for circular processing in aim to efficient (re)use the scarce raw materials.

According to Eurostat data, in 2019, there were 154 enterprises in the fish processing industry of the Netherlands (table 5.18.1). According to national database more than 400 enterprises in the Netherlands were registered at the Netherlands Food and Consumer Product Safety Authority for processing fish or fish products[51]. The size of the industry, in terms of number of the enterprises with fish processing as main activity, is dependent on the selection criteria. In the past (until 2014), the data collection on the Dutch seafood companies referred to around 80-90 fish processing enterprises. More and more seafood companies integrate fish processing and wholesale activities. Therefore, the distinction between either a fish processing, trader and fish wholesale company is not always that clear. Another reason that complicates the distinction between processing and wholesale or trading is the trend of consolidation which means joint ventures as well as vertical integration upstream and downstream the value chain. The total turnover was estimated at EUR 975 million in 2019. This was an increase of 13% compared to the previous two years (2017-2018). In general, there is a trend of upscaling in terms of production volumes last five years. Production volumes of many North Sea species locally landed decreased however for imported species for instance farmed salmon, tropical shrimps, farmed seabass and seabream there were upscaling production and sales volumes. The total production value increased with 12% from 2017-2019 to a total of EUR 1 003 million (2019).

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[49] Hoekstra, G. (2019). Visverwerkende industrie en visgroothandel in Nederland. Wageningen Economic Research. Rapport 2019-079f.

[50] Wageningen Economic Research, national social economic fish statistics of production and trade: https://agrimatie.nl/PublicatiePage.aspx?subpubID=2526&sectorID=2860&themaID=2276&indicatorID=2872

[51] Netherlands Food and Consumer Product Safety Authority for processing fish or fish products. https://www.openbare-inspectieresultaten.nvwa.nl/bedrijfsinspecties/visverwerkende-bedrijven. Consulted at 23-2-2022.

Table 5.18.1: Overview, Netherlands, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	115	121	126	122	134	147	141	144	150	153	151	154	2%
Total employees	3,757	3,256	3,150	3,145	3,116	3,172	3,109	3,072	3,123	3,182	2,976	2,985	0%
Unpaid labour	67	79	91	94	94	90	88	90	87	94	91	83	-9%
FTE	2,630	2,312	2,237	2,202	2,181	2,126	2,114	2,181	2,186	2,227	2,083	2,119	2%
Income, expenditure and investments (million €)													
Production value		627.6	719.6	781.4	684.1	758.7	840.1	813.1	869.9	896.7	947.9	1,002.6	6%
Turnover		585.5	665.1	733.6	638.9	707.8	797.5	764.3	823.8	864.9	920.1	974.5	6%
Total income		677.4	798.3	856.7	827.1	879.7	935.4	915.2	965.4	977.8	983.8	1,039.2	6%
Total purchases of goods and services		551.9	642.1	673.8	690.7	734.7	779.3	747.0	809.8	834.4	833.3	893.5	7%
Personnel costs		82.6	98.2	100.3	95.9	98.9	113.2	106.9	102.9	101.6	99.1	101.1	2%
Net investment in tangible goods	32.2		13.1	22.0	12.1	13.4	15.8	15.4	22.6	21.9	20.3	33.0	63%
Economic performance (million €)													
Gross Value Added		138.5	154.5	154.7	143.4	151.2	174.2	170.1	167.1	155.4	153.1	148.7	-3%
Gross profit		55.9	56.3	54.4	47.4	52.4	61.0	63.2	64.2	53.8	54.0	47.6	-12%

Source: Eurostat, 2022.

Several fish processors had economically spoken challenging years by scarcity in resources (raw materials). Landings for important flatfish species (e.g. plaice) decreased in volume which resulted in higher purchasing prices for processors since 2017. The total costs of purchasing fish and other raw material for production has increased by 7% to a total of EUR 894 million in 2019 compared with the two years before. To a certain extent processors could pass on increased purchasing costs to customers as turnover increase more (+13%) compared to purchasing costs (+7%).

For unknown (ecological) reasons, there was a decrease of landing volumes for certain species (in particular flatfish) from the North Sea[52]. On the contrary, there are historical large stocks for many fish species in the North Sea like plaice and sole according to the scientific stock assessments by ICES[53]. Personnel costs remained stable more or less relatively to previous years (2017-2019). Net investments in intangible goods increased strongly with 66% in 2017-2019. This could be explained by the upscaling trend of increasing production volumes. Many processors purchased fish fileting machines like salmon processing machines. Moreover, processors invested into renovation or expansion of their cold stores by new buildings. Costs for purchasing the raw materials (e.g. landed or imported fish etc.) dominated with 87% of the total costs in 2019. Personnel costs counted for 10% with rounded EUR 101 million of the total expenditures and costs. The other 3% of total costs were made by net investments in tangible goods.

Despite one more enterprise in 2019 compared to 2017 and three more enterprises relatively to 2018, the number of employees decreased (-6%) to a total of 2 985 persons (2 119 FTE) in 2019. Many processing enterprises did try to recruit new employees however similar to many other sectors it is difficult to hire sufficient personnel. Due to labor shortage, multiple fish processors are discovering ways to automate by investing into new techniques such as packaging robotics or fileting machines. Due to a trend of higher customization requested for the product by customers (often retailers or wholesales) this means more additional working tasks for the similar production volumes.

[52] Scientific, Technical and Economic Committee for Fisheries (STECF) - The 2021 Annual Economic Report on the EU Fishing Fleet (STECF 21-08), EUR 28359 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-40959-5, doi:10.2760/60996, JRC126139

[53] ICES. 2021. Plaice (Pleuronectes platessa) in Subarea 4 (North Sea) and Subdivision 20 (Skagerrak). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, ple.27.420. https://doi.org/10.17895/ices.advice.7819.
ICES. 2021. Sole (Solea solea) in Subarea 4 (North Sea). In Report of the ICES Advisory Committee, 2021. ICES Advice 2021, sol.27.4. https://doi.org/10.17895/ices.advice.7859.

Regarding the economic performance the Gross Value Added (GVA) decreased with 4% in 2017-2019 to a total of EUR 149 million in 2019. The gross profit decreased (-12%) from estimated EUR 54 million (in 2017 and 2018) to EUR 48 million in 2019. The lower economic performance in 2019 compared to the previous years could be mainly declared by higher production costs for purchasing fish as raw material due higher landing prices and by increased net investments in tangible goods. The scarcity in resources (unprocessed fish as raw materials) resulted into underutilization of production capacity. Especially for the upscaling processing companies in terms of increasing number of labor workers and investments in larger production assets (e.g. storage, cooling techniques, machines etc.), unpredictable flows in supplies of landings are challenging. With more imports this effect could be stabilized to a certain extent. From Eurostat data the total value of imported seafood increased from EUR 2.5 billion (2013) to EUR 3.9 billion (2019) corresponding to 839 thousand tonnes and 1 013 thousand tonnes respectively. The exported value increased with 70%: from EUR 2.9 billion (2013) to EUR 5.0 billion (2019). The exports increased from 844 thousand tonnes to 1 341 thousand tonnes in these years.

Outlook

For the nearby future labour shortages and availability of raw materials are the main challenge for the Dutch fish processing industry. In particular the decrease of landed volumes by the North sea fisheries fleet is a concern for processors as production capacity is underutilized. Since the demand for seafood products is larger than the supply by landings the industry becomes more dependent on imports. This is in line with the trend for the entire EU as net importer. The importance of increasing autonomous tariff quotas (ATQs) is crucial for the Dutch fish processing enterprises. The COVID-19 pandemic emphasized the importance of logistics and transports within global supply chains. Shipping costs are expected to strongly increase by extreme competition of scarce available shipping containers. At the supply side by fisheries' landings there are many challenges that could limit the availability of raw materials. The first main challenge is Brexit. From the landing value by Dutch demersal fisheries 30% comes from British waters. For the Dutch pelagic fisheries this is even 60%. There is a Brexit deal till 2026. However, from 2026 annually negotiations will be needed to maintain access by EU fisheries to British waters. Furthermore, there is the challenge for sufficient raw from less fishing area due to the expansion of offshore windfarms and marine protected areas. Other challenges are expected in nearby future like increasing energy (electricity and fossil fuel) costs, expected taxes on CO2 emissions and increased transparency and reduction of the footprint required by retailers and non-governmental organisations (NGOs).

Data coverage and quality

No Dutch data were submitted in the 2021 fish processing sector data call. The Netherlands decided not to collect data on the fish processing industry under the DCF / EU-MAP from 2016-17. Thus, DCF data were only available until 2014, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

5.19 Poland

5.19.1 Overview

In 2019, there were 201 companies involved in fish processing in Poland. 163 of them defined the primary production under the NACE Code 10.20. In 2019, one of the large companies changed its NACE Code from 10.20. to others, which in turn translated into a decrease in the number of companies mainly involved in fish processing.

In the period 2008-2019, a downward trend can be observed in the number of enterprises dealing with fish processing, which is mainly a consequence of mergers and acquisitions, but also liquidation and bankruptcy. The share of enterprises for which fish processing was not the main activity represented 14-26% of the total number of processing firms.

In terms of the number of processing plants, the Polish processing industry with fish production as the main activity is dominated by small and medium-sized firms. In 2019, the largest number of plants (39% of the total) employed between 11 and 49 persons, then 31% between 50 and 249, 21% less or equal to 10, and 9% employed greater or equal to 250 persons.

The distribution of processing activity across Poland remained consistent with previous years. There is a continued dominance of processing activity in the coastal region in the Pomorskie and Zachodniopomorskie region where about almost 50% of the Polish fish processing industry was located in 2019.

The Polish fish processing industry was highly concentrated. In 2019, most of production (71% of value) was concentrated in large fish processing companies with more than 250 employees.

The turnover that remains at the same level (despite the exclusion of a large plant from the analysis) proves the stable position of the Polish fish processing industry. In the years 2008-2019, the value of turnover in Polish enterprises dealing mainly with fish processing increased by over 127%, which proves the continuous development of Polish processing.

In 2019, despite the decrease in the number of enterprises, the average number of employees increased to 19,850 by an increase of 2% compared with the previous year and an increase of 28% compared to 2008. Most employees worked full-time and FTE amounted to 19,180 FTE demonstrated an increasing tendency from 2012. The average size of the enterprises measured by FTE was 118 employees and increased by 2% FTE from the previous year and by 54% FTE from 2008. The average salary per employee (in FTE) per year reached EUR 15.1 thousand and increased last year by 3% from and almost 50% compared to 2008.

Table 5.19.1: Overview, Poland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Structure (number)													
Total enterprises	190	191	188	185	184	183	180	185	181	170	164	163	-1%
≤10 employees	57	53	49	46	49	49	51	52	35	31	35	35	0%
11-49 employees	68	75	76	82	73	78	65	68	77	72	63	63	0%
50-249 employees	49	47	48	44	46	43	50	53	57	53	51	51	0%
≥250 employees	16	16	15	13	16	13	14	12	12	14	15	14	-7%
Employment (number)													
Total employees	15,489	15,357	15,176	14,809	15,090	14,783	16,775	17,743	18,947	18,633	19,503	19,850	2%
FTE	14,509	14,359	14,392	13,848	13,940	13,974	16,042	16,937	17,873	17,578	18,845	19,180	2%
Indicators													
Turnover (million €)	1,462	1,439	1,634	1,749	1,883	2,128	2,252	2,503	2,514	2,760	3,346	3,326	-1%
FTE per enterprise	76.4	75.2	76.6	74.9	75.8	76.4	89.1	91.6	98.7	103.4	114.9	117.7	2%
Average wage (thousand €)	10.1	8.8	10.2	10.5	11.0	12.2	12.0	12.7	13.1	14.2	14.7	15.1	3%
Unpaid work (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	-8%
Enterprises doing fish processing not as main activity													
Number of entreprises	32	34	34	37	35	38	45	42	41	42	40	38	-5%
Turnover attributed to fish processing (million €)	52.2	62.6	64.8	72.5	82.1	100.5	93.4	70.3	66.3	80.8	60.5	142.8	136%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.19.2 Economic performance

In 2019, the economic performance of the fish processing industry in Poland was not very successful, especially for companies that have from 1 to 49 employees, because their income decreased by 17%. Turnover in large enterprises remained unchanged, even though one of the large enterprises changed its main NACE Code 10.20 and thus was not included in the group of enterprises dealing mainly with fish processing.

The total income decreased to EUR 3.32 billion in 2019, which means a decrease of 1%. Taking 2008 as the basis of comparisons, an increase of 127% can be noted. Turnover from the main activity created a significant part of the total income (98%).

Total production costs increased to EUR 2.3 billion, an increase of 4% compared to the previous year and 146% compared to 2008. The greatest amount of total production costs (74%) was represented by the purchase of raw materials and other products needed for the production. The second cost item was represented by other operational costs (15%). The third is by labour costs (9.3%), and the last is by energy costs (1.3%). Production costs currently account for 92% of total income.

Table 5.19.2: Economic performance indicators, Poland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	1,462.5	1,438.6	1,634.4	1,749.1	1,883.0	2,127.7	2,251.8	2,503.3	2,514.1	2,760.2	3,346.4	3,326.3	-1%
Other income	12.5	11.7	13.0	13.1	8.6	15.7	20.8	19.5	383.7	289.3	19.1	24.2	27%
Operating subsidies	5.7	7.0	7.3	9.6	9.7	8.8	9.4	10.5	11.1	9.4	15.9	15.6	-2%
Total Income	1,480.8	1,457.2	1,654.7	1,771.8	1,901.2	2,152.1	2,282.0	2,533.4	2,908.9	3,058.8	3,381.4	3,366.0	0%
Expenditure (million €)													
Purchase of fish and other raw material for production	936.6	953.9	1,125.9	1,217.6	1,309.7	1,567.1	1,602.5	1,768.5	2,166.3	1,964.6	2,216.5	2,302.1	4%
Wages and salaries of staff	146.8	126.4	146.7	146.0	153.7	169.8	192.8	214.3	234.1	249.2	275.8	289.3	5%
Imputed value of unpaid labour	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.3	0.3	0.3	-4%
Energy costs	17.4	22.0	22.6	24.8	22.6	26.2	26.4	27.7	28.2	29.4	37.8	39.7	5%
Other operational costs	251.7	234.1	275.2	275.2	323.8	298.1	309.7	361.6	382.3	361.8	450.3	465.7	3%
Total production costs	1,352.5	1,336.3	1,570.4	1,663.6	1,809.8	2,061.2	2,131.4	2,372.2	2,811.0	2,605.3	2,980.8	3,097.1	4%
Capital Costs (million €)													
Depreciation of capital	32.2	31.1	34.8	38.4	41.8	46.0	51.1	54.6	55.2	64.5	68.1	61.9	-9%
Financial costs, net	28.8	19.8	5.9	35.2	7.0	9.1	18.2	-17.2	-68.4	48.3	10.5	16.8	60%
Capital Value (million €)													
Total value of assets	1,017.9	881.4	1,120.5	1,169.6	1,194.2	1,307.3	1,321.8	1,420.7	1,669.4	1,896.9	1,750.1	1,746.3	0%
Net Investments	52.7	43.3	56.0	87.9	50.1	82.6	90.4	73.1	79.3	87.7	10.0	6.5	-35%
Subsidies on investments									0.0	0.0	5.5	9.9	79%
Debt	686.4	564.2	709.6	708.9	725.1	819.1	817.4	872.9	1,074.4	1,023.8	1,050.7	1,113.6	6%
Economic performance (million €)													
Gross Value Added	269.3	240.4	223.7	244.6	235.5	252.0	334.0	365.1	321.0	693.7	660.9	542.9	-18%
Operating Cash Flow	128.2	121.0	84.2	108.1	91.4	90.9	150.6	161.2	98.0	453.6	400.6	268.9	-33%
Earning before interest and tax	96.0	89.9	49.4	69.8	49.6	45.0	99.5	106.6	42.8	389.0	332.5	207.0	-38%
Net Profit	67.2	70.2	43.6	34.6	42.6	35.9	81.3	123.8	111.2	340.7	322.0	190.2	-41%
Productivity and performance Indicators													
Labour productivity (thousand €)	18.6	16.7	15.5	17.7	16.9	18.0	20.8	21.6	18.0	39.5	35.1	28.3	-19%
Capital productivity (%)	26.5	27.3	20.0	20.9	19.7	19.3	25.3	25.7	19.2	36.6	37.8	31.1	
GVA margin (%)	18.3	16.6	13.6	13.9	12.4	11.8	14.7	14.5	11.1	22.7	19.6	16.2	
EBIT margin (%)	6.5	6.2	3.0	3.9	2.6	2.1	4.4	4.2	1.5	12.7	9.8	6.2	
Net profit margin (%)	4.5	4.8	2.6	2.0	2.2	1.7	3.6	4.9	3.8	11.1	9.5	5.7	
Return on Investment (%)	9.4	10.2	4.4	6.0	4.2	3.4	7.5	7.5	2.6	20.5	19.0	11.9	
Financial position (%)	32.6	36.0	36.7	39.4	39.3	37.3	38.2	38.6	35.6	46.0	40.0	36.2	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The share of labour costs seems still lower in comparison to the other EU countries and explains why Danish, Germans or French companies located their fish processing in Poland. Currently, foreign companies already have over 50% of shares in the sector's sales. In the period 2008-2019 all production cost groups increased significantly.

The fastest rate of growth of production costs were costs of fish and other raw material, an increase of 146% compared to 2008 and 4% by 2018. The rising cost of raw materials for processing fish was determined mainly by increases in the prices of raw materials on world markets. And the supply of raw fish and complementary materials is mainly based on imports. The energy costs increased by 128% compared to 2008 and by 5% compared to 2018. The rate of growth of labour costs increased by 97% and 5%, respectively to 2008 and 2018. Other operational costs increased by 85% and 3%, respectively to 2008 and the previous year.

Costs growing faster than revenues translated into the deterioration of economic indicators. It can be observed that Gross Value Added decreased by 18% from 2018 to 2019 and Operating Cash Flow has decreased by 33% during the same period.

Also, EBIT and Net Profit decreased a lot. This translated into the value of the indicator like EBIT margin and Net profit margin to reach levels accordingly 6.2% and 5.7%.

The values of these indicators have decreased, but their level can still be considered satisfactory. The EBIT margin for the food industry in Poland in 2019 was 4.6%, which means that fish processing companies generate better profitability compared to the Polish food industry.

The labour productivity decreased compared to 2018 to 28.3%, as a result of rising FTE with low GVA. Still, the average salary and labour productivity seem lower in comparison to the old EU countries.

The other economic productivity indicators such as return on investment, indicating the sector's ability to innovate, reached 11.9%, one year earlier this indicator was at a level of 19%. This means a decrease, but investment in the Polish fish processing industry is still profitable, comparing it, for example, to the rates of inflation and interest rates on Polish treasury bonds.

The Financial position has decreased to a level of 36.2% in 2019, compared to 40.0% in 2018, but the Polish fish processing enterprises still have a stable financial situation.

Economic development indicators point to further stable development of Polish enterprises in the fish processing industry. The preliminary results for 2020 indicate that the reduction in economic performance in 2019 is only a temporary phenomenon.

5.19.3 Breakdown by company size

The economic performance of the Polish fish processing sector is mostly represented by large scale enterprises. The largest enterprises generated 72% of the total income (EUR 2.38 billion) in 2019. Fish processing enterprises with between 50 and 249 employees achieved 22.0% (EUR 731 million) of the national total income, and small-scale enterprises 6% of total turnover.

Micro-enterprises employing less than or equal to 10 employees had financial problems in both the 2018 and 2019 years. These are deficit enterprises, but the fact that the financial loss decreased in 2019 deserves a positive assessment.

Bigger size fish processing enterprises between 11 and 49 employees generated the greatest increase of net profit. The indicator reached the value of 10% in 2019 and it was the highest value at the turn of the analyzed period 2008-2019. Also, the GVA margin and EBIT margin for this kind of group increased reaching 22% and 10%.

Fish processing enterprises with between 50 and 249 employees achieved quite a satisfactory 21.6% (EUR 94.6 million) of net profit. Compared to 2018, total income and total production costs increased respectively by 2% and 1%. Companies in this size category generated EUR 177.9 million GVA with 119.4 million euro of operational CF. GVA margin was similar to the previous year 24%, Ebit margin 13% (compared to 12% in 2018) and Net Profit Margin 13% (compared to 12% in 2018).

In the group of large enterprises, such a negative position of financial results was caused by the decrease in the economic performance of operating results (deficit on basic activity) of one of the largest enterprises in the fish processing industry. This given enterprise has almost a 50% share in the revenues of large enterprises. However, only 2 out of 14 large-surveyed entities had negative financial results. This translated into a significant reduction of the results in the entire group. GVA has dropped to 322.2 million euro (29%), EBIT decreased to 88.7 million euro (67%).

In 2019, all enterprise groups were profitable instead of Micro-enterprises employing less than or equal to 10 employees.

Table 5.19.3: Economic performance by size, Poland, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	21.6	19.9	19.5	26.9	27.3	23.2	25.0	26.8	17.6	22.3	12.3	20.3	65%
Total production costs	20.1	19.1	18.8	25.9	25.7	21.4	22.1	23.6	14.1	13.4	16.7	21.8	31%
Gross Value Added	3.2	2.1	2.2	2.9	3.5	4.2	4.6	5.0	4.3	10.6	-3.0	-1.6	-49%
Operating Cash Flow	1.5	0.8	0.7	1.0	1.6	1.8	3.0	3.2	3.5	8.9	-4.4	-1.5	-65%
Earning before interest and tax	1.1	0.4	0.1	0.4	1.0	1.2	2.5	2.6	3.2	8.5	-8.8	-2.3	-74%
Net Profit	1.0	-0.9	0.0	0.2	0.8	1.1	2.4	2.8	3.2	8.4	-8.8	-2.5	-72%
between 11 and 49 employees													
Total Income	149.6	136.2	156.7	193.6	194.0	229.0	177.5	199.7	210.2	242.2	239.9	199.0	-17%
Total production costs	136.0	125.1	147.7	180.3	181.2	211.8	165.3	181.8	195.6	208.3	216.6	171.1	-21%
Gross Value Added	24.5	20.3	19.3	26.2	25.3	31.9	24.7	30.3	26.7	48.3	34.4	42.8	24%
Operating Cash Flow	13.6	11.1	9.0	13.2	12.8	17.2	12.1	17.9	14.6	34.0	23.3	27.9	20%
Earning before interest and tax	10.7	8.3	5.8	8.7	8.0	11.5	6.9	12.0	8.1	26.5	14.6	21.6	48%
Net Profit	10.1	7.5	6.0	6.9	7.2	9.6	5.7	10.9	8.3	28.6	15.7	20.4	30%
between 50 and 249 employees													
Total Income	384.5	340.4	423.0	475.2	442.4	487.4	578.8	728.9	797.7	823.5	726.8	742.5	2%
Total production costs	335.1	315.2	390.7	442.5	417.5	448.8	528.5	677.1	771.1	676.9	617.8	623.1	1%
Gross Value Added	92.3	59.0	72.6	72.9	64.3	81.4	100.0	114.5	89.7	211.6	172.8	179.5	4%
Operating Cash Flow	49.3	25.2	32.3	32.7	24.8	38.6	50.4	51.8	26.5	146.6	109.0	119.4	10%
Earning before interest and tax	38.8	16.8	21.8	20.8	13.9	23.5	32.9	34.4	9.0	124.4	90.4	99.0	9%
Net Profit	31.8	10.1	17.9	14.9	11.5	19.4	27.1	28.6	1.0	122.8	84.4	94.6	12%
greater than or equal to 250 employees													
Total Income	925.0	960.7	1,055.4	1,076.1	1,237.6	1,412.5	1,500.7	1,578.0	1,883.5	1,970.8	2,402.4	2,404.3	0%
Total production costs	861.3	876.9	1,013.2	1,014.9	1,185.4	1,379.2	1,415.6	1,489.6	1,830.1	1,706.8	2,129.6	2,281.2	7%
Gross Value Added	149.3	159.0	129.5	142.6	142.3	134.5	204.7	215.3	200.3	423.2	456.7	322.2	-29%
Operating Cash Flow	63.7	83.8	42.2	61.2	52.2	33.3	85.1	88.4	53.4	264.1	272.8	123.1	-55%
Earning before interest and tax	45.4	64.5	21.8	39.9	26.8	8.7	57.3	57.6	22.5	229.6	236.3	88.7	-62%
Net Profit	24.3	53.5	19.7	12.6	23.2	5.8	46.0	81.6	98.7	180.8	230.7	77.7	-66%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.19.4 Socio-demographic structure

Total employment increased to the level 19.850, despite the exclusion of one large entity from the group, which changed the NACE Code from 10.20 to 46.38.

The majority of employees involved in the processing sector in Poland in 2019 were female 63% followed by 37% male. The employment structure by gender practically did not change at the turn of the analyzed period.

In 2019, 56% of the total employed were in the age group 40-64, followed by 37% representing people between 25-39 years, 6% for the age group 15-24 and only 1% of employees were over 65.

In terms of education the most common answer was a medium education level (57% - 11,358 people), the basic level of education was indicated by 27%, while higher education in Polish enterprises dealing mainly with fish processing has 16% of employees.

The results showed that only 1 % of persons working in the processing industry are from the EU, 92% were Polish citizens, and only 2 employees are from EEA countries. 7% came from Non-EU/EEA and this is the group of employees whose share has grown fastest in recent years.

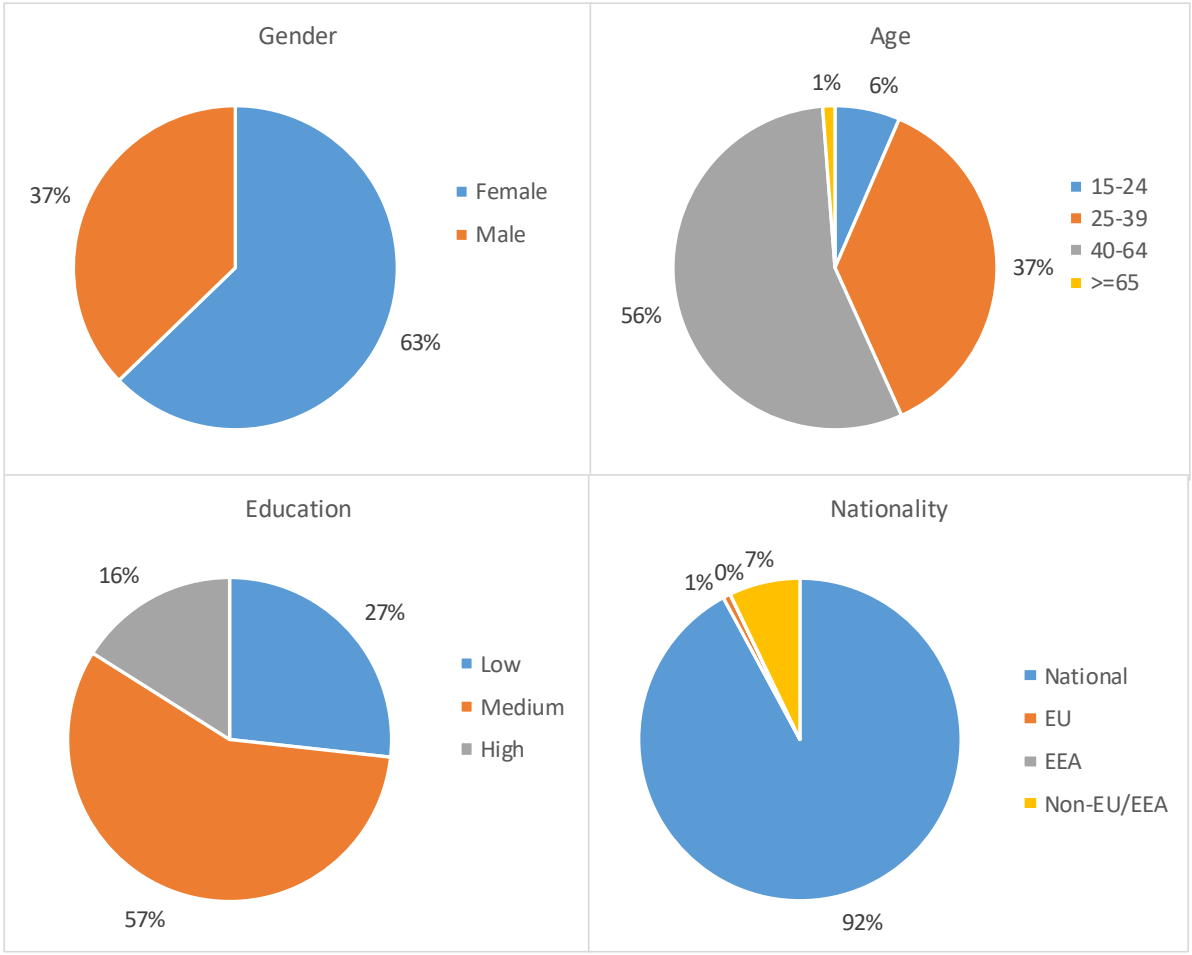

Figure 5.19.1: Socio-demographic characteristics, Poland, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

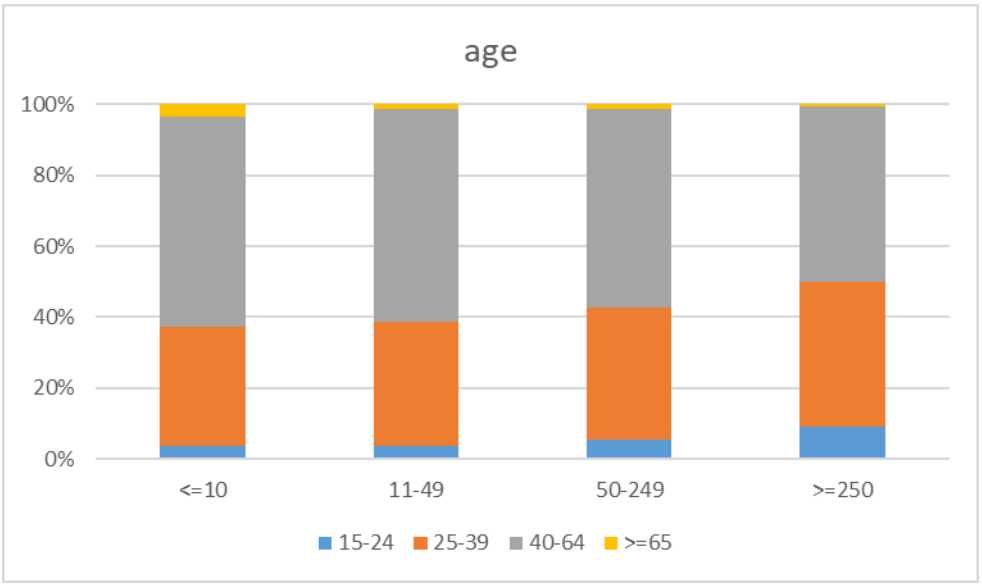

Figure 5.19.2: Socio-demographic characteristics: age by firm size, Poland, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.19.5 Raw materials

In terms of value, Atlantic salmon (49%) had the largest share in the total revenues of fish processing plants from own production and sales in 2019, followed by herring (12%), cod (6%) and mackerel (5%) and Pacific salmon (4%). Particularly noteworthy is the increase in revenues from the sale of Pacific salmon by 99% to EUR 106 million (PLN 456 million).

Imports of fish and fish products to Poland are mainly raw materials and result from the high demand of the domestic fish processing industry. The structure of the import volume is dominated by saltwater fish, which accounted for 88.3% of the total import volume in 2019[54]. In 2019, in terms of quantity, the following product groups had the largest share in the import of fish and fish products: fresh fish (36%), fish fillets (33% of imports) and frozen fish (18%), while preserves accounted for only 8% of imports. In terms of weight of products, products made of Atlantic salmon (27%) had the largest share in the structure of own production and sales of products and goods of fish processing plants in 2019, followed by herring (21%), other species (20%) and sprat (9%) and mackerel (8%).

To produce the given groups of products, it was necessary to import such a raw material group as salmon. Poland was the largest salmon export market for Norway in 2018 and 2019. 75% of imported salmon comes from Norway. It is mainly imported in the form of fresh fish, and then mostly re-exported from Poland after processing, but the consumption of salmon in Poland is also significant. In the commodity structure of herring imports, frozen fillets were of the greatest importance. The main countries supplying herring to Poland were Norway and Denmark. Cod and mackerel are mainly imported as frozen fish, while pollock is imported almost exclusively as frozen fillets. Cod is mainly imported from Norway and Russia, mackerel comes from the Netherlands, Iceland and the Faroe Islands, and pollock comes from China, the USA and Russia. The main supplier of fish and seafood to the Polish market is Norway. When it comes to domestic raw material supplies, it can be considered that the figures are significantly overestimated, mainly when we take into account salmon and halibut.

In Poland, the domestic supply of some kind of fish is highly developed, which means that some respondents, when buying raw material from a Polish intermediary, indicate the country of origin of a given raw material as domestic, which significantly increases, for example, the share of salmon in the structure of domestic supplies. The structure of domestic supplies of raw material is dominated by sprat, herring, trout and mackerel.

The export of fish and fish products from Poland is based on several basic export specialties. In 2019, the role of salmon products increased, especially smoked salmon and chilled salmon fillets, which belonged to the most important Polish fish export specialties. The export of other significant products - frozen salmon - has decreased. Herring products continue to play an important role - both chilled and canned products. Other important export products of the Polish fish processing industry are chilled and frozen cod fillets, smoked trout products and frozen surimi, and smoked mackerel.

[54] Rynek ryb- stan i perspektywy. Instytut Ekonomiki Rolnictwa i gospodarki żywnościowej, nr 31, Warsaw, November, 2020

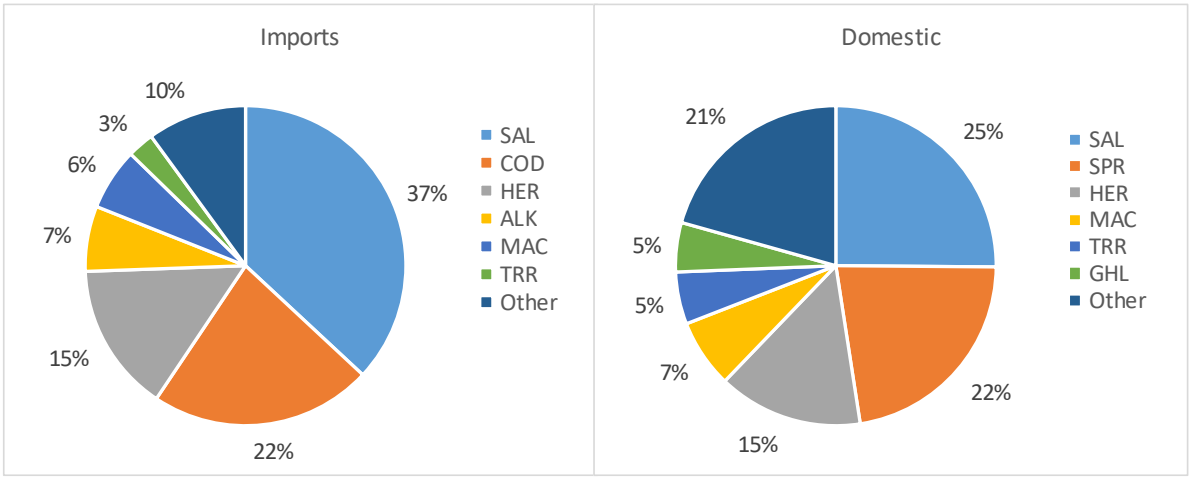

Figure 5.19.3: Main raw material used by species and origin, Poland, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.19.6 Trends, drivers and outlook (including Covid-19 impact)

The fish processing market in Poland is one of the most developed and rapidly growing sectors of the food industry. In recent years, fish processing has been characterized by the highest revenue dynamics in the food industry. This also translates into favourable financial results, and the ROE (Return On Equity) ensures that the industry is competitive against alternative low-risk capital investments. Such results were achieved despite low domestic consumption. The average consumption of fish and seafood in Poland in 2019 amounted to 13.1 kg of fish and fish products (in live weight of fish), which was an increase of 0.6% compared to 2018 but was definitely below the EU average. The situation in which revenues grow dynamically, despite low internal demand, indicates the significant role of exports in generating sales. This is also the case with fish processing in Poland. The main production assortment included smoked fish, frozen fillets, fresh and pickled fish and canned fish. About 60% of the revenues of domestic fish processing plants came from export sales. The processing industry also records very high productivity per employee (EUR 168,8 thousand of revenue per capita). Imports played a dominant role in the supply of raw materials because of the limited ability to harvest fish domestically from the Baltic Sea, and the limited production of Polish aquaculture. The large role of foreign trade in the fish processing industry means that its economic and financial results are largely dependent on the exchange rate of the Polish zloty against other currencies, and trends in prices on international markets.

Another characteristic feature of the Polish fish processing industry is the relatively large fragmentation of the market and the still high share of micro and small enterprises. Given this situation in the sector, further market consolidation should be expected, which will lead to a reduction in the number of small entities and an increase in concentration around large players. In recent years, mergers and acquisitions have already taken place leading to the consolidation of the industry.

The problems faced by Polish fish processing companies are the growing prices of energy, wages and the weakening of the Polish zloty, which, if the supply is based to a large extent on imported raw materials, ultimately increases production costs.

The data of the Institute of Agricultural and Food Economics show that Covid-19 did not adversely affect the fish processing industries in Poland. Growing dynamics were recorded in both the volume and value of production. Sales revenues increased by 8%. The share of direct exports in the revenues from the sale of products increased from 63.2 in 2019 to 64.6 in 2020.

In January and February 2020, there was a decrease in fish imports by about 10%, which was a consequence of disruptions in the supply of raw materials and auxiliary materials, due to the development of the pandemic, mainly from outside the EU. In March, imports increased slightly, which was most likely due to the addition of delayed contracts. The onset of the pandemic also significantly affects the intra-European countries (mainly in April). The shortage of raw material

was largely supplemented by larger deliveries starting from June 2020. A decrease in export sales was observed only in the period January-February 2020.

5.19.7 Data coverage and quality

Economic and social variables of the processing industry are based on the information provided with questionnaires. The study was a census and questionnaire with economic variables, it was sent to all fish processing companies approved by the General Veterinary Inspectorate:

- to intra-community trade according to Council Regulation (EC) no. 853/2004 of April 29, 2004, which sets forth detailed requirements regarding hygiene in foodstuffs of animal origin, Appendix IIII Section VIII Fishery Products.
- to make direct sales in accordance with the regulation of the Minister of Agriculture and Rural Development of December 29, 2006, regarding veterinarian requirements during the production of products of animal origin for direct sale (Journal of Laws of 2015 No. 0 pos. 1703).

Answering the questionnaire is mandatory but the response rate was 78 % in 2019 for companies that defined the primary production under the NACE Code 10.20.

Data on the nationality and educational level of employees should be treated as estimates, due to the very low response rate.

There is also a problem in the data on the origin of the raw material. Due to the highly developed internal trade, the respondents mistakenly enter their country of origin as Poland when buying raw material from a Polish intermediary. Therefore, the figures for salmon and halibut are significantly overstated.

5.20 Portugal

Portuguese domestic market is a large final consumer of fish and fish products. Household consumption of fresh fishery and aquaculture products has been growing since 2018, and in 2020, it reached EUR 540 million for 80.251 tonnes[55].

According to Eurostat data, in 2017 there were 168 fish processing enterprises in Portugal but 166 in 2018 and only 161 in 2019 with a total income of EUR 1.32 billion and EUR 1.35 billion accordingly (Table 5.20.1). After some years of a decreasing number of enterprises (203 in 2008, 153 in 2014) there was a small increase during the years 2015-2017 but then the decreasing trend continued, resulting in a reduction of fish processors with 4% less companies in 2019 compared to 2017 and 3 % less in 2019 towards 2018. Despite the decrease in the number of fish processing firms the last years, both the value of production and total income followed an increasing trend showing a 4% and 3% increase in 2019 compared to 2018 respectively.

Some important economic indicators, GVA and Gross Profit showing an increasing trend. Specifically, GVA increased by 7% in 2019 compared to 2018, reaching EUR 222.1 million and Gross Profit has gone up by 6% in comparison to 2018 reaching EUR 86.8 million.

Most enterprises are located in the north and in the centre of the country and around 15 in the outermost regions of Azores and Madeira. Traditionally, there are three main segments in fish processing in Portugal: frozen and fresh industry; cannery and preparation; salting and drying, each with their own national and international market and specificity.

Table 5.20.1: Overview, Portugal, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	203	192	180	169	166	154	153	157	160	168	166	161	-3%
Total employees	6,932	7,044	7,059	7,071	6,679	6,414	6,790	6,936	7,244	7,439	7,747	8,156	5%
Unpaid labour	64	53	317	376	488	312	278	212	208	229	354	352	-1%
FTE	6,918	7,040	7,037	7,065	6,666	6,380	6,774	6,913	7,221	7,415	7,725	8,110	5%
Income, expenditure and investments (million €)													
Production value	859.6	805.2	757.0	858.9	958.2	920.7	915.1	940.2	968.8	996.1	1,026.4	1,070.9	4%
Turnover													
Total income	1,158.5	1,064.6	1,075.2	1,145.0	1,132.8	1,129.3	1,130.5	1,167.6	1,230.1	1,285.8	1,316.6	1,353.5	3%
Total purchases of goods and services	1,029.4	879.4	908.7	996.3	988.7	999.1	918.4	1,032.2	1,058.5	1,133.6	1,141.0	1,164.0	2%
Personnel costs	96.9	98.8	101.1	103.4	94.8	95.2	98.6	103.3	109.8	116.0	126.3	135.4	7%
Net investment in tangible goods	45.9	50.2	31.6	30.1	40.8	19.1	42.1	74.0	15.1	39.5	58.0	50.4	-13%
Economic performance (million €)													
Gross Value Added	162.2	157.3	158.7	164.6	151.4	168.2	172.3	174.3	182.4	195.3	208.0	222.1	7%
Gross profit	65.3	58.5	57.6	61.2	56.6	73.0	73.7	71.0	72.5	79.3	81.7	86.8	6%

Source: Eurostat, 2022.

Data coverage and quality

No Portuguese data were submitted in the 2021 fish processing sector data call. Portugal decided not to collect data on the fish processing industry under the DCF / EU-MAP from 2017. Thus, DCF data were only available until 2015, as they were submitted in previous data calls.

Hence, the EWG prepared this section based on Eurostat's Structural Business Statistics data, which are publicly available.

[55] EUMOFA, 2021. The EU Fish market 2021

5.21 Romania

5.21.1 Overview

In 2019, the Romanian fish processing sector consisted of 13 enterprises, this is 28% decrease comparing with 2018. The structure based on the number of employees has changed by increase 200% in segment <10 employees, decrease by 44% in segment between 11-49 and decrease by half in segment having 50-249 employees.

Romanian fish processing plants are employing 1038 people corresponding to 1025 full time equivalent. The number of employees has fluctuated over the years independently in relation to the wavered number of enterprises.

The economic performance of Romanian fish processing industry has been fluctuating from 2009 to 2019. In 2019 the performance in economic terms has decreased; the turnover was EUR 88 million (-11% compared to 2018), average wage also decreased by 22% to EUR 6.5 thousand. Regarding employment indicators, FTE per enterprise has increased by 17% to 78.8 in 2019, but unpaid work has increased by 45% to 6.1%. As for enterprises doing fish processing not as main activity, number of enterprises has decreased by 8% to 12 companies and turnover attributed to fish processing by 30% to 5.3 million compared to data submitted for 2018.

The variety of products is not essential changed, the industry offering mainly smoked fish, fillets, marinated fish and fish eggs salads, as main categories. As raw material there is a dependency of imported fish, dominated by the fish form other marine origin and oceans, which are not available in the Black Sea where the national fleet is operating. The species imported mainly, are salmon, cod, mackerel, hake, and sea food – comprising sea-shells, squid, and shrimps, as well as some varieties of Asian cyprinids. From the local fish production, they use mainly trout, cyprinids, and fish-eggs and, as a new raw material Rapa whelk from Black Sea waters of Romania caught by national fleet.

Table 5.21.1: Overview, Romania, 2009-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises		13	18	22	14	7	10	8	19	17	18	13	-28%
≤10 employees		3	2	7	2	0	0	1	5	2	1	3	200%
11-49 employees		5	9	7	7	5	7	4	7	11	9	5	-44%
50-249 employees		5	5	8	5	2	3	3	7	4	8	4	-50%
≥250 employees		0	2	0	0	0	0	0	0	0	0	1	0%
Employment (number)													
Total employees		572	1,598	1,181	780	438	510	483	1,203	1,015	1,255	1,038	-17%
FTE		564	1,591	1,178	780	438	510	483	1,203	1,006	1,211	1,025	-15%
Indicators													
Turnover (million €)		32	817	45	30	20	16	15	32	99	99	88	-11%
FTE per enterprise		43.4	88.4	53.5	55.7	62.6	51.0	60.4	63.3	59.2	67.3	78.8	17%
Average wage (thousand €)		3.1	4.0	4.6	3.2	1.7	2.8	4.0	3.7	7.1	8.3	6.5	-22%
Unpaid work (%)		23.5	3.9	5.3	5.4	11.1	4.0	1.7	4.6	4.2	4.2	6.1	45%
Enterprises doing fish processing not as main activity													
Number of entreprises	30	30	43	29	24	24	14	18	12	15	13	12	-8%
Turnover attributed to fish processing (million €)	93.4	103.8	6.9	2.9	4.3	0.0	3.6	0.5	6.6	6.8	7.7	5.3	-30%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.21.2 Economic performance

Due the improved data collection, namely more accurate registration and compilation of data, achieved by member state, the analyses could be done are leading to a consolidation sign of the industry and more stability, in terms of turnover, employees and wages level.

In 2019, the total income for the Romanian fish processing industry reached EUR 88.6 million, which was a decrease of 15% compared to 2018. The total income consists of turnover, other income and subsidies of which turnover and other income make up for 99% and 1%, respectively. There are no registered subsidies in the Romanian fish processing industry.

The total cost of production reached EUR 56 million in 2019, which was a decrease of 38% compared to 2018. The most important cost component is the purchase of fish and other raw materials, which make up for 65% of the total cost. Other operational cost covers 20%, whereas wages and salaries cover 11%. Energy cost make up for 2% of the total production cost.

The depreciation of capital increased by 15% to EUR 3.6 million, whereas the net financial cost decreased to EUR 0.9 million. Total value of assets increased by 12%, however net investments and debt decreased by 2% and 5% respectively, underlining the aspect of exclusively private actions, from own money or from other sources, are allocated by the companies to improve the quality of the production, and of way to promote and to present the products for sale. The total missing of subsidies, excepting the amount of around EUR 0.1 million granted in 2016, probably for direct small investment, is totally insignificant. The inconsistency of policies to grant such kind of subsidies, is illustrated in Table 5.14.2. Subsidies on investment were the highest in 2018 EUR 0.8 million and decreased by 51% in 2019.

The Gross Value Added (GVA) is calculated as the total income deducted by energy cost, fish and other raw material cost and other operational cost. The GVA reached EUR 39.2 million in 2019, which was an increase of 63% from 2018, and the highest GVA generated over the period from 2011 to 2019.

Table 5.21.2: Economic performance indicators, Romania, 2009-2019

Variable	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)												
Turnover	31.9	816.6	44.5	30.4	19.6	15.8	14.7	31.9	98.8	98.8	87.6	-11%
Other income	0.3	60.2	23.3	13.0	0.0	0.2	9.4	0.7	2.0	5.8	1.0	-83%
Operating subsidies	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-100%
Total Income	32.3	876.9	67.9	43.4	19.6	16.1	24.1	32.6	100.8	104.6	88.6	-15%
Expenditure (million €)												
Purchase of fish and other raw material for production	6.4	18.5	12.2	13.2	9.7	7.4	1.9	22.7	45.3	49.0	36.5	-25%
Wages and salaries of staff	1.3	6.1	5.2	2.4	0.7	1.4	1.9	4.2	6.8	9.7	6.3	-35%
Imputed value of unpaid labour	0.4	0.2	0.3	0.1	0.1	0.1	0.0	0.2	0.3	0.4	0.4	-5%
Energy costs	0.3	2.3	0.7	0.4	0.1	0.3	0.3	0.3	0.9	1.2	1.4	10%
Other operational costs	1.4	72.9	0.5	0.7	0.1	0.1	0.2	3.1	24.3	30.2	11.4	-62%
Total production costs	9.7	99.9	18.8	16.7	10.6	9.3	4.3	30.5	77.7	90.5	56.0	-38%
Capital Costs (million €)												
Depreciation of capital	0.6	44.6	2.3	0.8	0.6	0.5	0.4	0.6	3.2	3.1	3.6	15%
Financial costs, net	7.0	161.6	0.0	0.0	0.2	0.2	0.3	3.5	1.2	-2.2	0.9	-140%
Capital Value (million €)												
Total value of assets	19.0	1,022.0	29.4	20.0	16.7	15.9	16.0	13.1	47.4	50.6	56.6	12%
Net Investments	3.4	15.3	1.0	1.1	0.2	0.5	0.6	0.5	3.8	7.9	7.7	-2%
Subsidies on investments								0.1	0.0	0.8	0.4	-51%
Debt	15.9	469.9	24.1	16.6	11.5	1.1	12.5	9.4	35.2	39.5	37.6	-5%
Economic performance (million €)												
Gross Value Added	24.3	783.2	54.5	29.1	9.8	8.2	21.7	6.5	30.2	24.2	39.2	63%
Operating Cash Flow	22.6	777.0	49.0	26.6	9.0	6.8	19.8	2.1	23.1	14.1	32.6	132%
Earning before interest and tax	21.9	732.4	46.7	25.8	8.4	6.3	19.4	1.4	19.9	10.9	29.0	165%
Net Profit	15.0	570.8	46.7	25.8	8.2	6.1	19.1	-2.0	18.7	13.1	28.1	114%
Productivity and performance Indicators												
Labour productivity (thousand €)	43.1	492.3	46.3	37.3	22.3	16.1	45.0	5.4	30.1	19.9	38.3	92%
Capital productivity (%)	128.2	76.6	185.3	146.0	58.5	51.8	135.4	49.6	63.8	47.7	69.3	
GVA margin (%)	75.3	89.3	80.3	67.1	49.8	51.3	90.3	19.9	30.0	23.1	44.3	
EBIT margin (%)	68.0	83.5	68.9	59.6	43.0	39.3	80.4	4.4	19.8	10.5	32.7	
Net profit margin (%)	46.4	65.1	68.9	59.5	41.8	37.9	79.3	-6.2	18.6	12.5	31.8	
Return on Investment (%)	115.8	71.7	158.9	129.5	50.6	39.6	120.7	11.0	42.0	21.6	51.2	
Financial position (%)	15.9	54.0	18.1	17.0	30.9	93.2	21.9	28.6	25.7	22.0	33.5	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In 2016, the Romanian fish processing industry experienced a negative net profit, but since then the net profit has been positive. From 2018 to 2019, the net profit increase to EUR 28.1 million, which was an increase of more than 114%. In line with this result, also the EBIT and the operating cash flow improved from 2018 to 2019.

All the productivity and performance parameters have improved from 2018 to 2019. The labour productivity increased by 92%, and capital productivity, EBIT, GVA, and net profit margin all reached high points. Ratio return on investment increased by 137% to 51.2% compared to 2018.

Overall, the sector has become more profitable and is performing better or the data is much better. All the productivity and performance indicators increased from 2008 to 2019. As a general view of the Romanian fish processing industry is under a trend to stabilise his position in the local economy, but still having a lot of opportunities to develop it, the total production having a low level.

5.21.3 Breakdown by company size

There are many fluctuations regarding number of enterprises regarding employment segments, so it is hard to analyse and explain some economic performance for Romanian fish processing industry.

Table 5.21.3: Economic performance by size, Romania, 2009-2019

Variable	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees												
Total Income	2.3	0.5	0.3	0.5			0.1	1.1	1.3	0.8	1.5	98%
Total production costs	1.5	0.1	0.1	0.6			0.0	0.8	0.3	0.5	0.8	55%
Gross Value Added	1.3	0.5	0.2	-0.1			0.0	0.4	1.1	0.3	1.0	229%
Operating Cash Flow	0.9	0.5	0.2	-0.1			0.0	0.3	1.0	0.3	0.7	180%
Earning before interest and tax	0.8	0.5	0.2	-0.2			0.0	0.1	1.0	0.3	0.7	154%
Net Profit	0.8	0.5	0.2	-0.2			0.0	-0.1	1.3	0.2	0.5	94%
between 11 and 49 employees												
Total Income	10.1	5.4	8.5	11.3	2.3	3.4	1.8	4.9	14.1	11.6	8.7	-25%
Total production costs	1.4	2.6	3.1	4.3	2.0	2.2	1.4	8.8	11.4	10.0	6.7	-34%
Gross Value Added	9.2	3.3	6.0	7.5	0.8	1.9	0.6	-3.1	4.1	3.0	3.4	15%
Operating Cash Flow	8.7	2.8	5.4	6.9	0.3	1.1	0.4	-3.9	2.7	1.5	2.0	32%
Earning before interest and tax	8.4	2.0	5.0	6.6	0.1	0.9	0.3	-4.0	2.0	1.3	1.9	42%
Net Profit	8.2	0.8	5.0	6.6	0.1	0.9	0.3	-7.2	0.1	1.6	1.7	9%
between 50 and 249 employees												
Total Income	19.8	48.3	59.1	31.6	17.3	12.7	22.3	26.7	85.4	92.3	58.3	-37%
Total production costs	6.8	17.1	15.7	11.8	8.6	7.0	2.9	21.0	66.0	80.0	34.1	-57%
Gross Value Added	13.8	34.7	48.3	21.6	9.0	6.4	21.0	9.2	25.1	20.9	26.8	28%
Operating Cash Flow	13.0	31.2	43.4	19.8	8.7	5.6	19.4	5.7	19.4	12.3	24.2	97%
Earning before interest and tax	12.8	29.5	41.6	19.4	8.4	5.4	19.1	5.3	16.9	9.4	22.7	143%
Net Profit	6.0	28.2	41.6	19.4	8.1	5.1	18.8	5.3	17.4	11.3	22.5	99%
greater than or equal to 250 employees												
Total Income		822.6									20.1	
Total production costs		80.1									14.4	
Gross Value Added		744.6									8.1	
Operating Cash Flow		742.5									5.6	
Earning before interest and tax		700.4									3.8	
Net Profit		541.3									3.4	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In 2019, segment with less than 10 employees showed a positive trend regarding economic variables compared to data showed in 2018. Total income increased by 98% to EUR 1.5 million with higher production costs by 55% net profit increased by 94% to EUR 0.5 million. This is probably the result of the increased number of enterprises in this segment.

The segment with 11 to 49 employees experienced a reduction in the total income and cost with 25% and 34%, respectively. However, the economic performance of this segment has improved. GVA increased with 15% from 2018 to 2019, operating cash flow and EBIT increased 32% and 42%, respectively. Finally, the net profit increased from EUR 1.6 thousand in 2018 to EUR 1.7 thousand in 2019, corresponding to an increase of 9%.

The segment of companies 50-249 employees showed a 50% decrease in units from 8 in 2018 to 4 fish processing entities in 2019. This is the biggest segment regarding total income despite decrease in 2019 by 37% to EUR 58.3 million, total production cost also decreased. However, the economic performance of this segment has improved. GVA increased with 28% from 2018 to 2019, operating cash flow and EBIT increased 97% and 143%, respectively. Finally, the net profit increased from EUR 11.3 thousand in 2018 to EUR 22.5 thousand in 2019, corresponding to an increase of 99%.

In 2019, a segment of over 250 employees with one enterprise appeared, covering 23% of the total income and 26% of the total cost. This segment shows a promise regarding economic indicators, with net profit EUR 3.4 thousand.

5.21.4 Socio-demographic structure

For the fiscal year 2019, most of the fish processing industry employees were female with a percentage of 51% followed by 49% male employees. The female employees were 1.907 and the male 1.603 and for 2018, the respective numbers were 2.026 and 1.705 demonstrating a 6% decrease of the total employees' number.

The sector's age classification categories were 15-24 with zero participants, 25-39 with 39% and 40-64 with a 61% percentage.

Regarding the educational status of the employees, 55% have a medium educational level (high school), 33% low educational level (primary school) and only 12% high educational level(university).

The issue of zero young employees and the low percentage (only 12%) of people with high education should be in the attention in the future for the national authorities to promote adequate public policies to encourage the young people to come in the sector ensuring the future development through bringing to the sector new strategies and fresh ideas.

As per the nationality of the people hired in processing industry, it could be observed that 93% is EU citizenship, more precise Romanian one, despite the just 7% recorded as unknown. This aspect is due to the high level of correctness of those who processed the data from the questionnaires, ensuring a high level of accuracy.

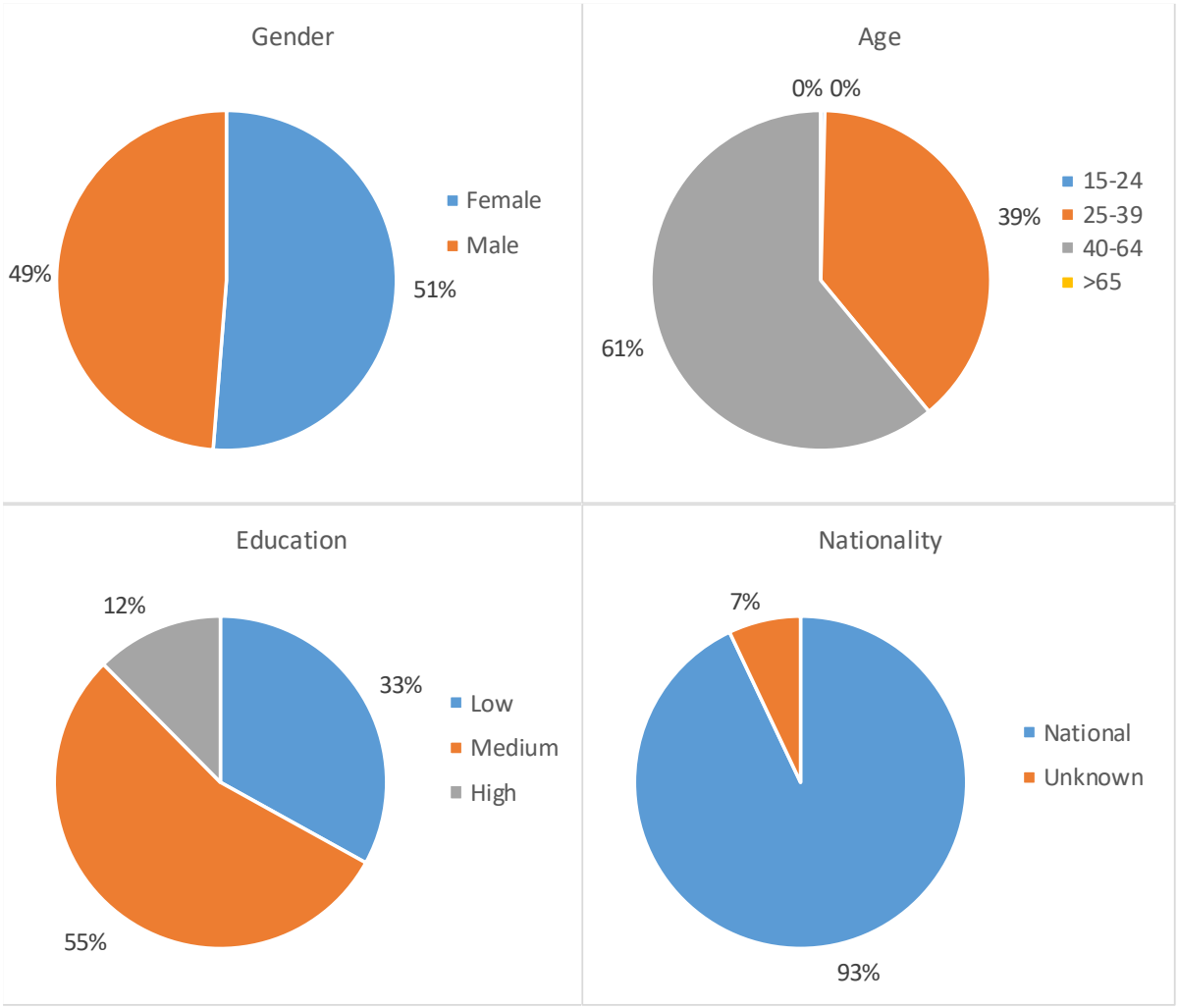

Figure 5.21.1: Socio-demographic characteristics, Romania, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.21.5 Raw materials

In Romania, for the fiscal year 2019, the fish processing industry acquired 10.535t of raw material and about 80% of it was imported. Fish processors are to a high degree dependent on the imported raw materials, especially species such as mackerel, herring, salmon, roe, European sprat and trout. These 6 species correspond to 82% of the total amount of imports and their origin is mostly from other EU Member States (70-80%, depends on the year). The Netherlands, Denmark, Spain, Italy and Bulgaria are the key suppliers for a major part of the imported volumes. Among the non-EU countries suppliers, the last years Turkey shows a significant role providing trout, sea-bass, sea bream and other aquaculture products at very affordable prices.

The remaining 20% of the raw material is indigenous products and the main species are shellfish, crayfish, Asian cyprinids and carp (almost 90% of the total volume of the domestic production).

Frozen fish and fillets are the largest product group with 30-40% share, though this share vary from year to year, canned products are the second largest group with a 20% share and fresh/chilled fillets and smoked products group is another big group which accounts for 15% of the total volume. A traditional appetizer dish «Salată de Icre» (salad made from carp, pike and herring roes) is a product with a big share in Romania's food market and a lot of companies include it every year in their production.

For the fiscal year 2019, the processing sector of Romania shows an exceptional decrease in terms of volume (-46% from 2018 and -60% from 2017) but in terms of turnover the decline is only 11%.

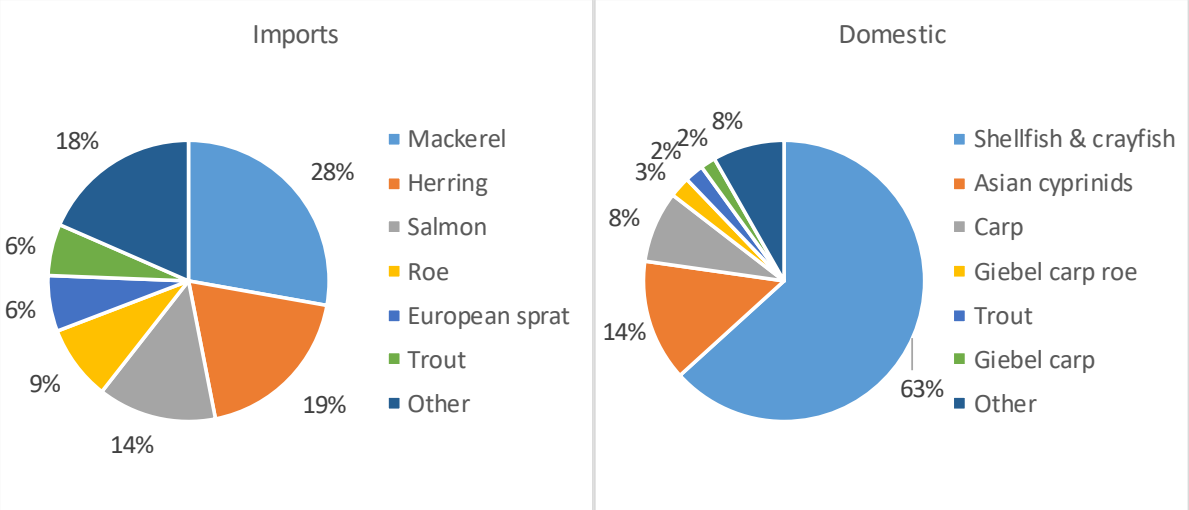

Figure 5.21.2: Main raw material used by species and origin, Romania, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.21.6 Trends, drivers and outlook (including Covid-19 impact)

The processing industry in Romania has to rely more to the domestic fishery production, to reduce the costs of purchase of fish, to use more products from aquaculture (this will contribute even more at the minimize of the raw material cost), as well as to have a consolidated professional organization representing the productive units in the dialog with national authorities and to the decision-making process.

The import of fish is still high, covering the needs of ocean/sea fish demand on the market, due to the fact the Romanian fishing fleet is acting only in the Black Sea waters of national jurisdiction, and catches are not exceeding 9 000 tonnes per year.

The personnel of the sector, mostly low and medium education level and the lack of young employees - mostly middle-aged staff leads to slow or even no development of the sector.

Considering the assortments of products offered for sale, despite the increase amount invested, could be observed the preference to product salads, smoked and marinated fish, which are very easy to be sold. Also, these products ensure a good profitability because the recipes are simple and the ingredients used, other than fish, are not high priced.

Covid-19 impact

The Romania fish and seafood market faced serious challenges due to COVID-19. The global pandemic caused shifts in the demand of imported fish and seafood and deletions in the supply of seafood from producing countries. Since March of 2020, COVID-19 has had a major impact that led to many businesses closed, food service shut down, travel became nearly impossible even in the same country and most importers stopped purchasing. The industry had a lot of obstacles to overcome, such as the low demand at the beginning, the shift to a new trend – high demand of packaged goods for safety reasons, the increase of personnel dedicated to cleaning and disinfecting all working surfaces - greatly improving internal hygiene and the lockdown of the enterprises who came across a contamination among the personnel.

The whole food service industry of Romania tried quickly to adapt to venue closures or limited capacity (30% the first months) by offering takeaway and delivery services, but this only represented a small part of pre-COVID status. In that period new challenges arose, and new opportunities were provided for the fish processing sector.

Out-of-home seafood consumption was almost impossible, so seafood products mainly found their way to the consumer via retail. A group of companies were able to adapt really quickly, and they offer new ranges of seafood retail products (value added) targeted at homebound consumers but

some of them came short on their sales goal for the year 2020. The following year, 2021, more companies were able to adapt to the situation and overcome the obstacles.

5.21.7 Data coverage and quality

The transmitted data for the last 3 years, 2017 to 2019, shows an improvement of data collection organization, ensuring a better analyse of the sector, in terms of coverage (census method was applied). Working on the quality of data is recommended to allow a most accurate picture of the industry and the connection with local activities, such as fishery (inland and marine) and aquaculture, mainly.

As a final remark, no significant data issues were encountered, so the analysis are sound and reflecting the evolution of the industry in the analysed period for 2009-2019 years.

5.22 Slovakia

5.22.1 Overview

Slovakia is a landlocked country with no marine fisheries or registered fleets of fishing vessels. Slovakia has a long tradition of commercial fish farming and recreational fishing. There are over 200 natural lakes, with only three dedicated to fisheries. There are 42 big and 194 small reservoirs – 80% of which is utilized for fishing.

Total production in 2017 was 4 516 tonnes of which 1 870 tonnes from inland capture fisheries and 2 646 tonnes from aquaculture. Carps accounted for 51%, rainbow trout for 24%. Most fish are marketed fresh with the large proportion, mainly carp, sold live[56]. In 2020, the consumption of fish increased after three years by 0.3 kg to 5.9 kg per person per year.

According to National Agricultural and Food Centre Slovakia – Research Institute of Agricultural and Food Economics in Bratislava, in 2019 Slovakia's fish processing industry consisted of 3 enterprises. In 2020 there were 4 companies processing fish and fish products including canned products. [57]

In 2019, the revenue of Slovakia's fish processing industry was EUR 217 million, with EUR 2,9 million profit. Ratio revenue to assets was 2,95 and profitability of income was 1.33%. In 2020 the profit was ever bigger by 3,2% to EUR 6.1 million, with revenue of about 243 EUR million. In 2020 profitability of income increased to 2.5% but the ratio of revenue to assets decreased to 2.31[58].

In 2019, the total amount of imported fish and fishery products was worth almost EUR 123.4 million, with Czechia (41%), Germany (13%), Poland (13%) and Spain (9%) as main suppliers. In 2019, exports of fish and fishery products were valued at EUR 74.8 million, with main buyers being Poland (28%) and Czechia (19%).

5.22.2 Raw materials

The main species used in Slovak fish processing are marine fish like herring and cod, it made up almost 7.3 thousand tonnes (68%) of the raw material used for processing in 2018. 32% raw material use for processing consists freshwater fish like trout, freshwater catfish and carp. Majority (71%) of the raw material used for fish processing in Slovakia is import form EU countries and 27% is own production from aquaculture.

According to Eurostat data, Slovakia imported 33.4 thousand tonnes of fish and fishery products in 2018, of which 13% was Alaska Pollock, followed by 11,8% of tuna miscellaneous. The biggest supplier is Czechia (33%), followed by Poland – 16%. Slovakia mainly imports prepared or preserved fish (47%) followed by frozen fish – 36%. Frozen fish accounted for 29% of imports, while fresh fish 19%. In 2019 Slovakia imported 34 868 thousand tonnes of fish products worth EUR 123.4 million. The structure of imports was similar to that in 2018.

[56] FAO 2022. Fishery and Aquaculture Country Profiles. Slovakia. Country Profile Fact Sheets. Fisheries and Aquaculture Division [online]. Rome. [Cited Tuesday, February 22nd 2022]. https://www.fao.org/fishery/en/facp/svk?lang=en

[57] Report on Agriculture and Food Sector in the Slovak Republic for 2020 – Green Report, ISBN 978-80-8058-651-5

[58] Processing and preservation of fish, crustaceans and molluscs, including production of plant and animal oils and fats.

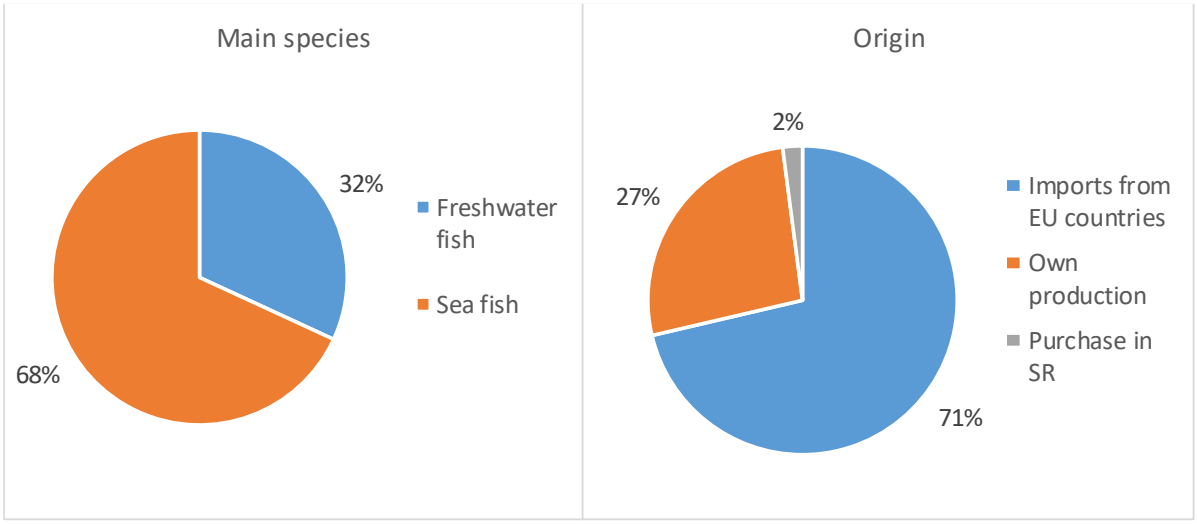

Figure 5.22.2: Raw materials species and origins, Slovakia, 2018

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.22.3 Data coverage and quality

Slovakia submitted only raw material data from 2008 to 2018. According to Work Plan, data collection of economic and social data for the processing industry was not scheduled, so Slovakia did not submit data for this call.

There is no data for fish processing from 2014 in Eurostat databases (SBS, PRODCOM).

5.23 Slovenia

5.23.1 Overview

In 2019, there were 15 companies in the Slovenian fish processing sector. According to the number of employees, that suggest 10 companies with less than 10 employees and four companies with 11-49 employees. Among them are 8 companies with fish processing as not main activity. These companies generate EUR 16.6 million of turnover from fish processing (an increase of 3% according to 2018), which representing almost 50% of the whole turnover from fish processing activities.

In 2019 the turnover was EUR 33.1 million. Between 2008 and 2019 the turnover of Slovenian fish processing industry increased by 14% (see Table 5.16.1), while a decrease of 2% is recorded in the period 2018-19.

The value of raw material decreased by 36% from 2008 to 2019 and amounted EUR 10.5 million in 2019 (increase of 1% from 2018 to 2019).

Table 5.23.1: Overview, Slovenia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	12	13	13	14	15	14	13	12	16	18	17	15	-12%
≤10 employees	7	9	8	8	10	9	7	7	11	14	13	11	-15%
11-49 employees	4	3	3	3	2	2	4	3	5	4	4	4	0%
50-249 employees	1	1	2	3	3	3	2	2	0	0	0	0	0%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	250	223	266	379	354	351	221	209	122	132	129	126	-2%
FTE	211	210	234	351	306	325	211	209	112	130	117	111	-5%
Indicators													
Turnover (million €)	29	26	29	35	32	30	24	26	31	33	34	33	-2%
FTE per enterprise	17.6	16.2	18.0	25.1	20.4	23.2	16.2	17.4	7.0	7.2	6.9	7.4	7%
Average wage (thousand €)	21.4	21.5	26.4	22.8	17.1	22.4	26.9	24.9	26.6	24.9	28.3	32.1	13%
Unpaid work (%)	4.2	3.6	1.1	0.7	0.4	0.3	0.5	0.5	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises	8	8	9	8	7	6	6	4	6	8	8	8	0%
Turnover attributed to fish processing (million €)	14.4	12.9	16.0	9.8	8.0	7.0	6.8	7.0	12.8	14.4	16.2	16.6	3%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In the Slovenian fish processing sector, there were 126 employees in 2019. According to the FTE there were 111 FTE employees in 2019. The level of employment decreased between 2008 and 2019, with total employed decreasing by 50% whiles the number of FTEs decreased by 47% over the period.

Mean wage per employee in the Slovenian fishing processing industry amounted EUR 32.1 thousand in 2019 and it was 44% higher from average wage in Slovenia in the same year, which was EUR 22.2 thousand. Mean wage in fish processing sector increased by 50% from 2008 to 2019, while an increase of 13% was recorded in last period 2018-2019.

Slovenian fish processing industry mainly depends on imports of raw materials. The raw material for fish processing industry is traded from all over the world, but most of the raw material comes from the EU (Spain, Italy and Croatia) and from Iceland and the Faroe Islands.

The main products in Slovenian fish processing industry are various fish cans, Tuna pate, dried cod spread, and products from cephalopods, Atlantic salmon and hake filet. Turnover from the

Fish cans and tuna pate represents more than 75% of all turnovers from Slovenian fish processing sector.

In the period 2010-2019, especially from 2010-2013, Slovenian fisheries processing sector underwent major structural changes. Small businesses are brought together in larger companies which have more impact on the market. Some of the larger companies that are dealing with different types of processing activities, separated fish processing from other activities formed a new smaller company which are exclusively engaged in the processing of fish and other marine organisms. Consequently, the share of other costs (packing costs, insurance costs etc.) in total costs has increased significantly in the period 2008-2019 (+230%). The structural changes made in Slovenian fish processing sector had impact also in Slovenian employment trends in period 2008-2019.

Most of the Slovenian fish processing companies were located on the Slovenian coast before structural changes was made in the period 2010-2013. Now we can notice even distribution of fish processing companies throughout the country.

5.23.2 Economic performance

The total amount of income generated by the Slovenian fish processing industry, in 2019, was EUR 214.2 million. This consists of EUR 33.1 million in turnover and EUR 181.1 million in other income.

Slovenia has just a few processing companies that are entirely committed to fishery products. Most companies do have different types of processing activities, of which fish may be one, but not necessarily the most important one. That is the reason for large share of other income in total income. Other income of companies with less than 50% activities in fish processing (8 companies) amounted EUR 179.7 million in 2019 which is 99% of all other income in 2019. Most of this share, EUR 157.4 million or 87% of all other income, contributed just one company which is, on the other hand, one of the largest fish processing companies and thus of great important for Slovenian fish processing industry.

In the period 2008 - 2019 Slovenian fisheries processing sector underwent major structural changes. Small businesses are brought together in larger companies which have more impact on the market. Some of the larger companies that are dealing with different types of processing activities, separated fish processing from other activities formed new smaller companies which are exclusively engaged in the processing of fish and other marine organisms. There was also a general tendency to reduce primary processing, so some enterprises also switched to resale.

Between 2008 and 2019 the turnover has increase by 14%, while the profit has increased by more than 400% in the same period and become positive. GVA and OCF have decreased for 28% and 48%, respectively, in the same period. We recorded also decreasing of EBIT by 70% in the period from 2008 to 2019.

The decreased value of performance indicators is mainly due a large increased value of other operational costs, as a result of structural changes made in Slovenian fish processing sector. Other operational costs increased significantly in the period 2008-2019 (+230%). However, the increase was not observed in all companies equally. In 2010, one middle size company, with very high operation costs (around 8 million euro) entered in fish processing. Furthermore, the significantly increase of other operational costs (+450% in the period 2008-2019) was recorded in another fish processing company. The reason for that increase is mainly due higher packing costs.

Total operating cost increased by 20% in the period 2008-2019 and amounted EUR 31.4 million in 2019. Other operational costs are the most important cost item covers 48% of the total operating cost (+230% from 2008-2019). The cost of raw material (fish) is the second most important input in the processing industry and covers 33% of the total running cost. Raw material costs decrease by 36% from 2008 to 2019. Two main species used in Slovenian fish processing sector are mackerel and tuna. Wages and salaries of staff cover 11% and energy costs 2% of total operating costs in 2019. Wages and salary cost decreased in the period 2008-2019 by 16%, while energy cost recorded an increase of 250% in the same period.

GVA per employee was EUR 42 thousand in 2019, which is below the Slovenian GVA per employee average of the same year – EUR 46.7 thousand.

The Slovenian fish processing industry had an estimated value of assets of EUR 34.3 million and a return on investment of +1.8%.

Table 5.23.2: Economic performance indicators, Slovenia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	29.0	26.1	28.6	35.4	32.3	30.0	24.4	25.7	30.9	32.9	33.6	33.1	-2%
Other income	209.6	176.6	178.6	186.8	217.5	216.7	211.3	222.3	178.0	187.2	177.2	181.0	2%
Operating subsidies	0.4	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0%
Total Income	239.1	202.8	207.4	222.3	249.8	246.7	235.7	248.3	208.8	220.2	210.8	214.2	2%
Expenditure (million €)													
Purchase of fish and other raw material for production	16.5	15.6	11.1	12.2	11.2	8.3	7.7	8.8	11.0	10.9	10.4	10.5	1%
Wages and salaries of staff	4.3	4.4	6.1	8.0	5.2	7.2	5.6	5.2	3.0	3.3	3.3	3.6	8%
Imputed value of unpaid labour	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	0.6	0.9	0.9	1.1	1.4	1.5	1.0	1.2	0.3	0.5	2.3	2.1	-5%
Other operational costs	4.6	2.4	6.6	15.2	12.5	14.5	11.1	13.1	14.8	21.1	15.9	15.2	-4%
Total production costs	26.2	23.5	24.7	36.5	30.3	31.5	25.5	28.4	29.0	35.7	31.8	31.4	-1%
Capital Costs (million €)													
Depreciation of capital	1.3	1.4	1.3	1.4	1.3	1.1	0.9	1.0	1.3	1.2	0.7	1.1	58%
Financial costs, net	2.4	0.4	0.4	0.7	0.7	0.6	0.3	0.2	0.0	-0.1	-0.4	-0.6	47%
Capital Value (million €)													
Total value of assets	53.0	28.0	22.5	32.2	27.7	32.1	22.2	25.7	34.3	37.9	34.5	34.3	-1%
Net Investments	0.8	0.5	0.3	0.3	0.4	0.3	0.5	4.1	1.0	0.6	5.7	0.5	-92%
Subsidies on investments									0.0	0.0	0.0	0.1	0%
Debt	41.2	12.8	11.4	14.0	17.5	20.2	11.1	11.8	15.0	17.5	13.9	12.7	-9%
Economic performance (million €)													
Gross Value Added	7.4	7.2	10.1	6.9	7.2	5.8	4.6	2.5	4.8	0.5	5.1	5.3	3%
Operating Cash Flow	3.3	2.7	4.0	-1.1	2.0	-1.5	-1.1	-2.3	1.8	-2.8	1.8	1.7	-5%
Earning before interest and tax	2.0	1.3	2.7	-2.5	0.7	-2.5	-2.0	-3.3	0.6	-3.9	1.1	0.6	-45%
Net Profit	-0.4	0.9	2.2	-3.2	0.0	-3.2	-2.2	-3.5	0.6	-3.8	1.5	1.2	-19%
Productivity and performance Indicators													
Labour productivity (thousand €)	34.9	34.2	43.1	19.7	23.5	17.9	21.7	12.1	42.9	3.8	43.7	47.6	9%
Capital productivity (%)	13.9	25.6	44.7	21.5	25.9	18.1	20.5	9.8	14.0	1.3	14.8	15.3	
GVA margin (%)	3.1	3.5	4.9	3.1	2.9	2.4	1.9	1.0	2.3	0.2	2.4	2.5	
EBIT margin (%)	0.8	0.6	1.3	-1.1	0.3	-1.0	-0.8	-1.3	0.3	-1.8	0.5	0.3	
Net profit margin (%)	-0.2	0.4	1.1	-1.4	0.0	-1.3	-1.0	-1.4	0.3	-1.7	0.7	0.6	
Return on Investment (%)	3.8	4.6	11.8	-7.8	2.5	-7.9	-8.9	-12.7	1.6	-10.4	3.2	1.8	
Financial position (%)	22.2	54.3	49.6	56.4	36.8	37.2	50.2	54.0	56.3	53.8	59.7	63.1	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In the table above all data regarding Other Income are presented, but for the calculation of economic performance indicators (GVA, OCF, labour productivity etc.) only other income from companies which fish processing is the main activity was used.

5.23.3 Breakdown by company size

In 2019, there were 15 companies in the Slovenian fish processing sector. Among them were 11 companies with less than 10 employees and four companies with 11-49 employees. In Slovenia there is no middle or large fish processing company with more than 50 employees.

- **Sector less or equal 10 employees**

The total amount of income generated by this sector, in 2019, was EUR 25.3 million. This consists of EUR 3.7 million in turnover and EUR 21.6 million in other income. Total income decreases for 25% over the period 2008-2019.

The value of Total production costs decreased by 18% from 2008 to 2019 and amounted EUR 3.5 million in 2019. A large increase of total production cost in 2017 is mainly due to the entry of one company, with high other operation costs, into this segment in 2017.

In the period between 2008 and 2019 the net profit has decreased by 80%. GVA followed relative stable trend over the period 2008-2019, while OCF and EBIT decreased for 60% in the same period.

High values of Total income and production costs in 2017 are related to the entry of a new company into this segment. Due to the reduced number of employees, the company moved from a segment ''11-49 employees'' to a segment ''10 or less employees''. In 2018, this company hired additional staff and thus returned to the segment ''11-49 employees''.

The main products in the present sector are various fish cans, dried cod spread and products from cephalopods.

- **Sector 11-49 employees**

The total amount of income generated by this sector, in 2019, was EUR 188.8 million. This consists of EUR 29.1 million in turnover and EUR 159.7 million in other income. Total income increases for more than 100% over the period 2008-2019.

The value of Total production costs increased by more than 100% from 2008 to 2019 and amounted EUR 27.9 million in 2019.

In the period between 2008 and 2019 the net profit has increased by 400%. GVA and OCF have also increased for 160% and more than 200% in the same period. We recorded also increasing of EBIT by 210% in the period from 2008 to 2019.

The main products in the present sector are tuna pate, various fish cans and products from Atlantic salmon and trout.

Table 5.23.3: Economic performance by size, Slovenia, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	25.5	26.1	23.2	13.4	32.5	56.2	54.0	49.7	21.7	37.9	24.9	25.3	2%
Total production costs	3.1	3.6	3.7	3.2	2.3	2.5	1.5	1.9	3.4	18.2	4.3	3.5	-19%
Gross Value Added	22.9	23.2	20.1	10.6	30.6	54.4	52.8	48.1	19.1	21.0	21.5	22.7	5%
Operating Cash Flow	22.4	22.5	19.5	10.2	30.2	53.7	52.5	47.9	18.4	19.7	20.6	21.8	6%
Earning before interest and tax	22.3	22.4	19.3	10.0	30.1	53.6	52.4	47.8	18.2	19.0	20.3	21.6	6%
Net Profit	22.3	22.3	19.3	10.0	30.1	53.6	52.4	47.7	18.2	19.0	20.3	21.6	6%
between 11 and 49 employees													
Total Income	201.9	162.7	20.6	20.4	15.1	3.3	4.6	4.8	187.1	182.3	185.9	188.8	2%
Total production costs	13.3	9.0	4.3	3.2	2.1	3.0	4.3	4.3	25.7	17.5	27.5	27.9	1%
Gross Value Added	190.8	155.4	17.1	17.9	13.5	0.8	1.2	1.1	163.7	166.7	160.8	163.6	2%
Operating Cash Flow	188.6	153.7	16.3	17.2	13.1	0.3	0.3	0.4	161.4	164.8	158.4	161.0	2%
Earning before interest and tax	188.1	153.2	16.2	17.2	12.9	0.2	0.1	0.3	160.3	164.3	157.9	160.0	1%
Net Profit	187.5	152.9	16.2	17.1	12.9	0.2	0.1	0.3	160.3	164.4	158.4	160.7	1%
between 50 and 249 employees													
Total Income	11.6	13.9	163.6	188.4	202.2	187.2	177.1	193.8					
Total production costs	9.8	10.9	16.8	30.1	25.9	26.0	19.7	22.2					
Gross Value Added	3.3	5.2	151.5	165.2	180.6	167.3	161.9	175.6					
Operating Cash Flow	1.8	3.1	146.8	158.3	176.2	161.2	157.5	171.7					
Earning before interest and tax	1.2	2.3	145.8	157.1	175.2	160.4	156.8	170.9					
Net Profit	-0.6	2.3	145.5	156.5	174.5	159.8	156.6	170.8					

Note: The total value of other income is taken into account in the total income.

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
less than or equal to 10 employees													
Total Income	3,4	4,5	4,2	3,8	2,7	2,5	1,6	2,3	3,8	19,2	4,6	3,7	-20%
Total production costs	3,1	3,6	3,7	3,2	2,3	2,5	1,5	1,9	3,4	18,2	4,3	3,5	-19%
Gross Value Added	0,7	1,6	1,1	1,0	0,8	0,7	0,4	0,7	1,1	2,4	1,2	1,1	-9%
Operating Cash Flow	0,3	0,9	0,5	0,6	0,4	0,0	0,0	0,5	0,4	1,0	0,3	0,2	-18%
Earning before interest and tax	0,2	0,8	0,3	0,4	0,3	-0,1	0,0	0,4	0,2	0,4	0,1	0,1	-16%
Net Profit	0,1	0,7	0,2	0,4	0,2	-0,1	0,0	0,3	0,2	0,4	0,02	0,04	91%
between 11 and 49 employees													
Total Income	15,4	10,4	3,8	3,2	2,6	3,3	4,6	4,8	30,4	17,1	30,0	30,7	2%
Total production costs	13,3	9,0	4,3	3,2	2,1	3,0	4,3	4,3	25,7	17,5	27,5	27,9	1%
Gross Value Added	4,2	3,0	0,3	0,6	0,9	0,8	1,2	1,1	7,0	1,5	4,9	5,5	12%
Operating Cash Flow	2,1	1,4	-0,4	0,0	0,5	0,3	0,3	0,4	4,8	-0,4	2,5	2,8	11%
Earning before interest and tax	1,6	0,9	-0,5	-0,1	0,4	0,2	0,1	0,3	3,7	-1,0	2,1	1,9	-8%
Net Profit	1,0	0,5	-0,5	-0,1	0,4	0,2	0,1	0,3	3,7	-0,9	2,5	2,5	0%
between 50 and 249 employees													
Total Income	11,6	13,9	163,6	188,4	202,2	187,2	177,1	193,8					
Total production costs	9,8	10,9	16,8	30,1	25,9	26,0	19,7	22,2					
Gross Value Added	3,3	5,2	151,5	165,2	180,6	167,3	161,9	175,6					
Operating Cash Flow	1,8	3,1	146,8	158,3	176,2	161,2	157,5	171,7					
Earning before interest and tax	1,2	2,3	145,8	157,1	175,2	160,4	156,8	170,9					
Net Profit	-0,6	2,3	145,5	156,5	174,5	159,8	156,6	170,8					

Note: In the table above just data regarding Other Income from companies which fish processing is main activity, are presented. For the calculation of economic performance indicators (GVA, OCF, labour productivity etc.) only other income from companies which fish processing is the main activity was used.

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.23.4 Socio-demographic structure

The collection of social indicators for the Slovenian processing sector started in 2017. The variables were included in the annual economic survey, which gave the opportunity of collecting Census data. All of the mandatory parameters - age distribution, nationality, education and employment status were collected at enterprise level, so they were available by size categories. Since collection of social data is planned on every three years, just data for 2017 are presented in this chapter. Next available data will be for year 2020.

The majority employees involved in the processing sector in Slovenia in 2017 were male, representing 52% off all employees. Employment by gender for each size category of enterprises is similar than for all sectors.

The age groups used during the data collection were 15-24, 25-39, 40-64 and >= 65.

72% of the of the total employed (95) were in the age group 40-64, followed by 26% representing people between 25-39 years and 2% for the age group below 24 years. No employees were in age group >=65 in 2017. The percentage distribution by age is similar to the total distribution in all size categories of Slovenian fish-processing companies.

In terms of education the most common answer was high school/specialized high school corresponding to medium education level (56% - 74 people), followed by university degree equally to High education level (27% - 36 people) and primary school which is Low education level (17% - 22 people). Also, in terms of education level by size category distribution is similar than for total population.

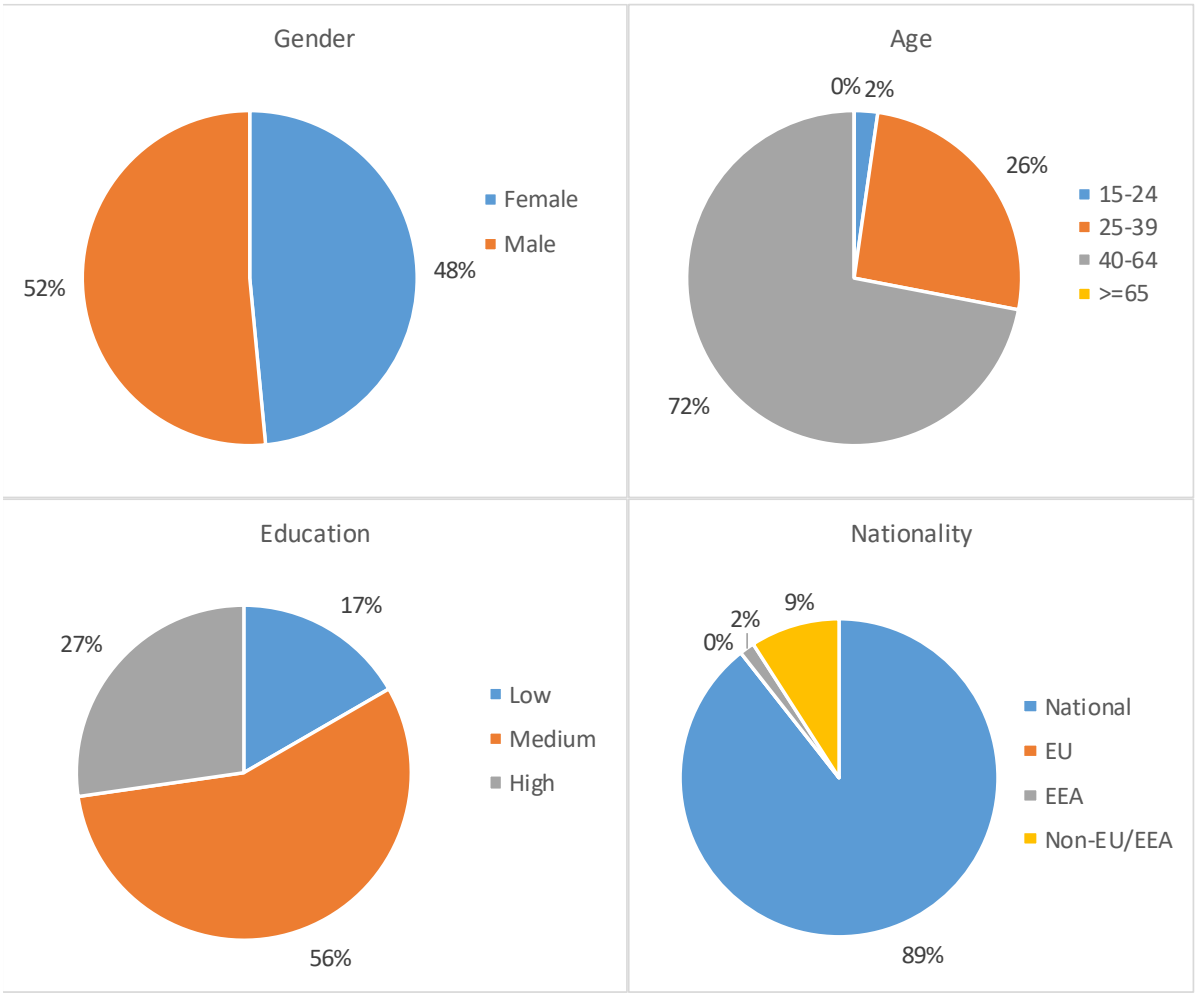

Figure 5.23.1: Socio-demographic characteristics, Slovenia, 2017

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.23.5 Trends, drivers and outlook (including Covid-19 impact)

Higher turnover, lower raw material costs and higher other operating costs, were the main driving forces behind the overall improved trend in Slovenian fish processing sector. The decreased value of performance indicators is mainly due a large increased value of other operational costs, as a result of structural changes made in Slovenian fish processing sector. Other operational costs increased significantly in the period 2008-2019 (+230%).

The Slovenian seafood trade balance is relatively stable over the years and it is significantly negative. Slovenia is a net importer of fish and fish products. In 2019, imports were approximately three times larger than export and amounted to 17 556 tonnes (EUR 97.4 million) of fish and other fish product. On the other hand, export amounted to 5 333 tonnes (EUR 33.8 million) in the same year. The majority of the imported fish and fish products come mainly from European Union. The largest Slovenian seafood import partners are Italy, Spain and Croatia. Concerning export, the largest partners are Austria, Croatia and Bosnia and Herzegovina.

In general, the Slovenian processing sector relies on a steady inflow of raw materials. For industries that are relying mainly on EU stocks a change in the availabilities of these materials can heavily affect the industry income, production and employment.

Slovenian market for marine products is fragmented and disorganized. A large number of producers and dealers are unorganized and acting individually. Most of the products are sold directly to known customers.

Slovenia consumes around 11 kg of fish per year per capita, which is well below the European average of around 25.5 kg. However, fish consumption per capita in Slovenia is growing due to

increasing awareness of healthy lifestyles. So in the future we can expect further development of the fisheries processing industry in Slovenia and therefore higher revenues from this sector. Because of the increased number of enterprises in the future and resulting increased competition we can expect a fall in prices of fish products and thus lower profits. High growth in energy costs, especially in 2021, will have an additional negative impact on the business results of companies engaged in the fishing processing industry in Slovenia.

Covid-19 impact

According to the financial statements from 2020 (data for 2021 are not yet available), COVID 19 did not have a negative impact on the fishing processing industry in Slovenia. Revenues of the largest companies even increased by approx. 10% compared to 2019. The initial contraction and large losses in the tourism sector (closure of restaurants, hotels, etc.) were offset by fish-processing companies selling to households, which greatly increased demand during this time. Sales in physical stores have largely shifted to online sales, which increase significantly, especially during first waves of pandemic.

There were a lot of problems, especially with supply chains. Problems include waiting times for trucks at border crossings and the fact that drivers are unable to enter countries because of the fear of not having to exit. Given that the agri-food supply chain is complex and multinational, any travel barriers disrupt business. To mitigate disruption, companies adjust their supply chains according to their specific circumstances.

Some problems were also caused by a number of infections in companies and related quarantines. Due to the lack of employees, some companies even had to stop or limit production for a while.

5.23.6 Data coverage and quality

Slovenia reported data also from companies with fish processing not as main activity to avoid confidentiality issues and because these companies are of great importance for Slovenian processing industry. In this case there is a high proportion of other income.

Because of the large differences between turnover and total income, mainly because of high value of other income, only other income from companies which fish processing is the main activity and turnover was used in calculating the economic performance indicators (GVA, OCF, labour productivity etc.).

Target populations in Slovenia for collecting economic data are all companies who have, according to the data from Veterinary Administration of the Republic of Slovenia (VURS), a license for the processing of maritime organisms and the processing involved in practice. The number of such enterprises in Slovenia in 2019 was 15. In June 2020, the questionnaires were sent to all enterprises.

In cases where a questionnaire, as the only source, was used the response rate was 84%. In cases where the data from annual accounts of business enterprises was used the response rate was 100%, because we have economic reports for all investigated companies.

Slovenia has a few processing companies that are entirely committed to fishery products. Most companies do have different types of processing activities, of which fish may be one, but not necessarily the most important one. This was taken into account when putting together the questionnaires and in the subsequent analysis of the data provided. Therefore, all the provided data refers just to fish processing part of all companies' activities.

5.24 Spain

5.24.1 Overview

The Spanish agri-food industry generated a turnover of EUR 130 796 million and employed 456 086 people in 2019. The most important production is the meat industry, which represents almost 25% of the total turnover, followed by the processing of fruits and vegetables (8.6%), the production of oils (8%), and dairy production (7.6%) (MAPAMA, 2021[59]).

The seafood processing industry is not one of the main activities in an industry as important as the Spanish agri-food industry, within which it contributed with 5.2% and 5.3% of employment and turnover in 2019, respectively (MAPAMA, 2021). However, the 584 enterprises in the Spanish seafood processing industry employed almost 24 000 people, and generated incomes of EUR 6 930 million in 2019.

This activity implies that the Spanish seafood processing industry is the most important within the EU sector. According to the latest available data for 2019, Spain is home to 18% of the EU seafood processing enterprises, which generate 21% of employment, and 24% of turnover.

Despite the reduction in the number of enterprises in 2019, the activity and performance of the Spanish seafood industry in 2019 has been over the European average. The Spanish industry has experienced a positive evolution in employment, incomes and GVA both in 2018 and 2019, which has further increased its weight and importance within the European industry.

Another vital aspect of the seafood processing industry in Spain is its importance as a socio-economic activity in coastal areas. It is a key economic activity, which acts as a driver for the entire seafood industry, both for fishing and aquaculture, and it is a step in the value chain that creates and sustain enterprises, industrial activity, employment and added value to seafood products. In addition, the processing industry has traditionally played a key role in the social and cultural organization of coastal regions, being a source of employment and incomes, particularly for women. Currently, the seafood processing industry represents a driver for the development of business innovations, the increase in the added value of seafood production and products, the creation of job opportunities for young people, and the setting of population in coastal regions.

In recent times, the industry has integrated technological process in order to increase production scale, productivity and efficiency. Nowadays enterprises can be allocated in three main profiles or firm strategies. There are SME´s producing high value-added products (the largest number in the industry). These companies base their competitive advantage in the use of high quality national (sometimes imported) raw materials. There are also examples of enterprises producing a differentiated product based on the quality and degree of processing, which makes them less dependent on the volatility of the national supply. Within these SME´s, there is a growing group of companies that have become international, that is, they have begun to export part of their production, looking for markets in which their products get a better price. Even, there are examples of medium size companies that are multinational, with production investments in third countries. Finally, there is a segment of large companies, most of them multinational companies, that have developed a diversification strategy, based on the production of different products in terms of species, quality and markets.

The Spanish fish processing industry comprised 584 enterprises in 2019, with a turnover of EUR 6.99 billion, 6% higher compared to 2018. Despite the fact that in 2019 the number of companies was the lowest since 2015, turnover was the highest since 2008. Recent data show the consolidation of this growing trend that began in 2014, promoted not only by the domestic market, but also by the positive evolution of exports. The distribution by size segments (number of employees as a proxy variable of size) shows a fragmented industry composed mainly by small firms. The 84% of the industry are companies below 50 workers, and companies under 10 employees represent 45%. The number of companies have decrease in 2019, but the evolution

[59] Informe Anual de la Industria Alimentaria Española. Periodo 2020-2021. Ministerio de Agricultura, Pesca, y Alimentación del Gobierno de España.

differs across size segments. Compared to 2018, the number of micro-companies (less than 10 employees) has decreased by 24%, while the rest of the segments, even companies over 250 employees, experimented a positive evolution.

Although small companies are still predominant, this recent data, together with the evolution in previous years and the positive production and economic results, suggest that the structure transformation of the sector is consolidated. Within the Spanish industry, two business models coexist depending on the company size. Small companies committed to differentiation through the quality of raw materials and processing. Medium and large companies that are committed to diversified productions, in terms of species, qualities and markets. In addition, another positive evolution of the industry is that factors such as internationalization, innovation and the use of technology are no longer exclusive to large companies. Nowadays these factors are increasingly present in medium-sized and small companies.

Table 5.24.1: Overview, Spain, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	572	585	552	513	487	640	542	598	600	606	648	584	-10%
≤10 employees	239	234	215	209	178	356	258	320	310	301	352	267	-24%
11-49 employees	247	267	253	218	229	203	201	196	202	219	206	221	7%
50-249 employees	75	75	76	77	71	72	74	71	76	75	79	82	4%
≥250 employees	11	9	8	9	9	9	9	11	12	11	11	14	27%
Employment (number)													
Total employees	19,737	19,331	18,581	18,390	18,324	18,448	18,340	19,033	20,497	20,367	21,984	23,781	8%
FTE	19,095	18,449	17,590	17,701	17,398	17,592	17,564	18,052	19,873	19,826	21,674	23,064	6%
Indicators													
Turnover (million €)	4,148	4,112	4,256	4,646	4,533	4,634	4,605	4,944	5,752	6,050	6,520	6,930	6%
FTE per enterprise	33.4	31.5	31.9	34.5	35.7	27.5	32.4	30.2	33.1	32.7	33.4	39.5	18%
Average wage (thousand €)	23.6	25.0	26.0	25.1	25.1	25.6	26.2	25.3	26.4	27.1	29.5	29.9	1%
Unpaid work (%)	0.7	6.5	6.1	0.9	0.8	2.8	5.3	1.0	1.5	2.1	3.5	1.6	-53%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

In spite of being a fragmented industry, main companies accumulate a large part of the activity. As an example, in 2019, the 14 largest companies accumulated more than EUR 3.8 billion in turnover. It is also necessary to highlight that these companies are diversified and vertically integrated and develop not only processing, but also production (fishing and aquaculture), distribution and marketing activities. These large companies can have their own fleet, particularly the freezer industry. Moreover, they started to be involved in aquaculture activities and also have fishery subsidiaries in those countries with the main fishing grounds for their targeted species (MAPAMA, 2018)[60].

If we consider the business structure based on the type of processing activity carried out, we can split the industry into four main groups. Firstly, freezer companies, where there is a small group of large companies vertically integrated to get access to raw materials through investments in third countries using subsidiaries (fishing fleets, aquaculture facilities and processing plants). In recent years, these companies have diversified their activities towards more processed products, ready to cook and ready to eat. These product innovations generate greater value added that increases their competitiveness. Also, in this segment, there is a large number of medium-sized companies that produce frozen products. Most of these companies are intermediaries or wholesalers not integrated with production activities (fisheries and aquaculture), that obtain the product from large freezers or through imports. Secondly, the canning industry, where there are representatives of the two business models commented above. On the one hand, there are large

[60] Diagnóstico sobre la situación de la mujer en la transformación de productos pesqueros y acuícolas. Ministerio de Agricultura, Pesca y Alimentación del Reino de España. Enero 2018.

canning companies vertically integrated backwards that have production subsidiaries in third countries. On the other hand, there is a significant number of small-medium canneries differentiated through high quality products and artisanal processing. Thirdly, there is a segment of small and medium size firms dedicated to the production of salted and smoked fish, producing traditional and high-quality products. Finally, there is an increasing number of companies producing fresh packed seafood with different degrees of processing. Traditionally in Spain, fresh seafood is marketed whole and in bulk at fishmongers and supermarkets. The processing, if any, is done at the time, by the fishmonger, at the request of the customer. Previous attempts to market fresh packaged fish were unsuccessful. However, in recent years, changes in society and in consumer habits have led to an increase in demand, and therefore in the supply of these packed products, especially in big retailers. This new trend is led by the large integrated and diversified companies in the sector, with the necessary scale to supply and negotiate with large retailers. The offer of packaged fresh fish varies from the whole product to fillets, slices, pieces, as well as other presentations, and different degrees of preparation, with sauces and various prepared dishes.

Employment increased 8% in number of employees and 6% in terms of FTE from 2018. This evolution continues the positive trend started in 2013. This evolution is a consequence and is in line with the increase in the production (MAPAMA, 2022[61]). The companies with less than 50 employees represent 84% of industry structure in 2019. However, this segment only employs 24% and 23% of total employees and FTEs respectively. On the other hand, only 16% of companies employs more than 50 persons, but creates 77% of employment. In the long term, employment in large companies has increased while in small companies has decreased. This evolution is consistent with a greater concentration of production volumes in large companies.

The Spanish fish processing industry provides, in general, full-time jobs as the number of employees in full time equivalent shows. Despite the increase in the number of employees and full-time work, the industry still suffers a high degree of temporary contracts. The most recent data shows an increase in contracting and workers-rotation. The number of contracts registered for the category "Fish industry workers" was 30 661 in 2019. This number of contracts was made to 13 177 people. The full-time contracts were 24 268 while part-time contracts were 5 932. However, only 1 573 contracts were of indefinite duration, compared to 29 088 temporary contracts. These data confirm the high degree of seasonality in the employment of this industry (SEPE, 2019)[62]

When analysing the relative FTE per enterprise there is a significant improvement in 2019 compared to 2018. After a period of volatility, when from 2008 to 2012 the indicator followed a positive trend (increase of 7%) followed by a negative evolution until 2015, and between 2016 and 2018 remained stable around 32 FTE. In a context of less small businesses, increasing large ones, and rising in employment, the natural consequence is that the number of FTEs per business has increased. This figure again indicates a greater concentration of activity in larger companies. In the case of the average salary, it seems that the positive evolution of the production and the incomes of the industry has also increased salaries since 2015. In 2018, the average salary was almost 9% higher compared to 2017, and then in 2019 remained stable.

5.24.2 Economic performance

The national seafood processing industry has addressed a transformation process during the last ten years. Productive efficiency and competitiveness have been improved thanks to innovations in technology, product quality, production diversification and product innovation. Likewise, it has been able to adapt to changes in value chains and take advantage of the opportunities that have arisen from globalization and the internationalization of value chains.

Large enterprises consolidate the new levels of production, and new management and marketing strategies, and they strongly increased their activity in foreign markets. In fact, the improvements in terms of total incomes have been clearly leaded by large companies. The

[61] Estadísticas Pesqueras. Productos de las Industrias de Procesado de Pescado.
[62] Informe Anual de Mercado de Trabajo por Ocupación 2019 / Observatorio de las Ocupaciones, SEPE. Ministerio de Trabajo y Economía Social.

augmented focus on foreign markets with high value-added products has reduced reliance on domestic demand.

More than 99% of the Spanish seafood processing industry's incomes come from turnover, what states that the total incomes clearly depend on the main activity. Turnover has followed a positive trend during the period analysed resulting in an increase of 67% between 2008 and 2019.This positive trend still maintains the strength, with 8% and 6% in 2018 and 2019, compared to previous year, respectively. This evolution shows a strong positive tendency in the economic results of the processing activities.

The increase in turnover has been caused in 2019 mainly by an increase in production volume. In 2018, production fell by 11% and its value was maintained compared to 2017, thanks to a higher average value per kilogram of product. However, in 2019, there was an increase in both production and its value, 7% and 5%, respectively (INE, 2018 and 2019[63]). The promotion of more processed and value-added products can also explain in part the improvement in industry incomes. According to the Spanish National Institute of Statistics, the Spanish industry produced 825 543 tons of processed seafood, with canned or prepared fish being the most important category (45.6% of the total), followed by frozen fish (20.5%), and frozen shellfish (12.7) (ANFACO, 2020[64]). In 2018, exports increased by 1.46% in volume and 4.59% in value, which may partly explain the increase in the value of production, despite the reduction in the quantities produced that year. However, in 2019, exports decreased, both in volume (4.29%) and in value (2.71%) (ANFACO, 2020). Direct subsidies account for 0.33% of total income and decreased from 2015. The low dependence of total incomes on subsidies and other incomes is an indicator of the competitiveness of the processing companies.

The main operational cost of the Spanish seafood processing industry is the purchases of raw materials, which in 2019 accounted 73% of the total production costs, followed by other operational cost (14%), wages and salaries (11%) and energy (2%). The cost of raw material purchases has remained stable in 2018 compared to 2017 and increased more than 5% in 2019. However, considering the evolution of the quantities produced, data suggest an increase in raw material prices in 2018, and a more stable context during 2019. Nevertheless, this interpretation must be used with caution given that the evolution of this cost depends on the evolution of the price of raw materials, but also on the changes that occur in the quantities produced of the different products within the industry, which use different raw materials.

Wages and salaries cost raised 10% in 2019 in line with the increase in employment in the industry. However, the average salary has remained stable after 9% increase in 2018. This evolution is consistent with an industry that increase its production, leaded by large companies, between with the increase in employment takes place. Although energy cost accounted less than 2% of the total cost in 2019, it increases 28% in 2019. Considering the reduction in the price of electricity for industrial use during this year (MINCOTUR, 2022[65]), the rise in the energy cost seems to be associated with the increase in the production activity. The greater weight of large companies in the industry production, which make a more intensive use of technology, may be another cause of the increase in energy costs.

Finally, other operating costs have followed the same positive trend as production and the other costs categories and have increased their importance within the cost structure. In the long term, the relevance of these other cost in the cost structure of these companies has also increased. Again, the growing importance of large companies can be one of the explanations, since they have a greater knowledge about economics and business management, and they designate resources to finance vital aspects of business activity such as marketing, promotion, logistics, access to international markets, etc.

The reduction in the net investment since 2011 can have several causes, and it does not necessarily mean a reduction in the modernization of the industry. In recent years, Spanish large fish processing enterprises developed several initiatives of relocation of production activities in

[63] Encuesta Industrial Anual de Productos. 2018. 2019. Elaboración y conservación de pescado y productos a base de pescado. Instituto Nacional de Estadística (INE).
[64] ANFACO. Datos sector 2020.
[65] Precio de la electricidad para uso domestico e industrial. Ministerio de Industria, Comercio y Turismo. Gobierno de España

third countries. This means also a relocation of a part of the enterprise investments not in the Spanish industry, but in the subsidiaries located at these countries. Apart from this general context for the period considered, it is necessary to highlight an increase of more than 50% in the net investment in 2017 and again in 2018. In 2019, net investment decreased compared to 2018, but it remained above the average for the entire period analysed. The positive evolution of the activity and the orientation to more processed products in large companies can be the reason for new purchase of assets. The great increase also can be explained in part by a change in the calculation of this variable in EUMAP. Depreciation of assets are not considered under EUMAP.

Table 5.24.2: Economic performance indicators, Spain, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
Income (million €)													
Turnover	4,148.2	4,112.1	4,256.1	4,646.4	4,533.2	4,633.7	4,604.9	4,944.4	5,751.9	6,050.4	6,520.0	6,930.5	6%
Other income	29.2	27.9	22.7	22.9	45.0	25.4	14.9	13.8	20.7	26.2	40.7	37.8	-7%
Operating subsidies	25.0	28.0	28.4	28.2	25.3	27.4	20.8	26.8	22.0	23.5	22.7	23.1	2%
Total Income	4,202.4	4,168.0	4,307.2	4,697.4	4,603.5	4,686.5	4,640.7	4,984.9	5,794.5	6,100.1	6,583.4	6,991.4	6%
Expenditure (million €)													
Purchase of fish and other raw material for production	2,433.1	2,282.7	2,503.1	2,744.5	2,727.3	2,707.6	2,754.1	3,449.1	3,990.9	4,212.4	4,222.4	4,453.3	5%
Wages and salaries of staff	446.6	430.6	430.1	441.0	432.7	438.0	435.8	451.6	517.8	527.0	616.8	677.9	10%
Imputed value of unpaid labour	3.3	29.9	27.9	3.9	3.6	12.4	24.4	4.5	7.8	11.1	22.4	11.3	-50%
Energy costs	69.4	68.5	70.7	83.2	81.7	78.2	76.3	76.4	69.4	73.8	80.7	103.4	28%
Other operational costs	476.8	487.6	470.0	508.2	492.7	506.4	511.3	555.3	620.1	640.2	757.5	844.2	11%
Total production costs	3,429.3	3,299.2	3,501.9	3,780.6	3,738.0	3,742.6	3,801.9	4,536.9	5,206.0	5,464.5	5,699.9	6,090.1	7%
Capital Costs (million €)													
Depreciation of capital													
Financial costs, net	107.4	94.7	50.9	84.5	53.8	74.5	66.3						
Capital Value (million €)													
Total value of assets													
Net Investments	204.6	125.6	112.9	80.5	88.5	81.4	94.1	76.7	71.9	109.1	170.8	118.9	-30%
Subsidies on investments													
Debt													
Economic performance (million €)													
Gross Value Added	1,198.1	1,301.3	1,234.9	1,333.5	1,276.5	1,366.9	1,278.1	877.3	1,092.1	1,150.1	1,500.1	1,567.4	4%
Operating Cash Flow	773.1	868.8	805.3	916.8	865.5	943.9	838.8	448.0	588.6	635.6	883.5	901.3	2%
Earning before interest and tax													
Net Profit													
Productivity and performance Indicators													
Labour productivity (thousand €)	62.7	70.5	70.2	75.3	73.4	77.7	72.8	48.6	55.0	58.0	69.2	68.0	-2%
Capital productivity (%)													
GVA margin (%)	28.7	31.4	28.9	28.6	27.9	29.3	27.7	17.7	18.9	18.9	22.9	22.5	
EBIT margin (%)													
Net profit margin (%)													
Return on Investment (%)													
Financial position (%)													

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The only available economic performance indicators to assess the evolution of the performance in the Spanish seafood processing industry are the gross value added and the operating cash flow. These indicators may not be enough to develop a detailed analysis of the profitability and performance. GVA evolution between 2008 and 2019 reflects fluctuations, but in general a stable trend, except 2015, when it felt 31%. However, in 2018 this indicator experimented an increase of 30% and remained stable during 2019. In the last two years considered, the GVA represented more than the 20% of the total income. Because data on capital depreciation is not available, it is not possible to calculate the missing indicators. Labour productivity has increased in 2018 by 20% compared to 2017 and during 2019 it remained stable. In the last two years analysed, labour productivity has returned to values above the average for the entire period analysed, after its negative evolution during the period 2015-2017.

5.24.3 Breakdown by company size

The analysis of the information by segments shows only a positive evolution of the income in companies between 11 and 49 employees and equal or more than 250 employees. However, the

different evolutions of incomes and costs in the different segments have caused a positive evolution in performance indicators.

Table 5.24.3: Economic performance by size, Spain, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
less than or equal to 10 employees													
Total Income	168.3	148.2	133.5	170.6	172.7	198.4	111.1	171.5	140.5	135.3	181.7	148.5	-18%
Total production costs	136.8	115.3	116.6	117.0	139.6	153.3	94.5	156.2	124.3	119.5	171.1	136.8	-20%
Gross Value Added	58.3	53.0	34.6	73.9	50.2	66.0	31.9	27.7	29.1	26.6	26.6	27.6	4%
Operating Cash Flow	31.5	32.9	16.9	53.6	33.0	45.1	16.7	15.3	16.2	15.8	10.5	11.6	11%
Earning before interest and tax													
Net Profit													
between 11 and 49 employees													
Total Income	1,033.6	983.1	995.8	1,016.5	893.8	821.7	1,017.1	1,052.9	964.9	1,051.9	954.9	989.2	4%
Total production costs	828.6	784.2	782.0	835.7	785.6	689.4	863.0	960.3	884.6	984.0	859.4	882.6	3%
Gross Value Added	328.3	324.7	336.7	284.1	218.8	242.4	265.4	197.0	184.9	188.0	208.6	223.2	7%
Operating Cash Flow	204.9	199.0	213.9	180.8	108.2	132.2	154.1	92.6	80.3	67.9	95.4	106.7	12%
Earning before interest and tax													
Net Profit													
between 50 and 249 employees													
Total Income	1,793.2	1,949.3	2,019.6	2,187.8	1,916.0	2,062.5	1,878.5	1,917.6	2,029.0	2,118.1	2,063.2	2,035.8	-1%
Total production costs	1,392.7	1,462.2	1,618.2	1,759.4	1,558.4	1,578.6	1,472.5	1,683.5	1,925.8	2,020.1	1,863.0	1,832.1	-2%
Gross Value Added	574.6	677.6	598.5	624.4	534.4	665.3	600.6	418.7	303.4	295.9	409.6	416.0	2%
Operating Cash Flow	400.5	487.1	401.4	428.4	357.7	483.9	406.0	234.2	103.2	98.0	200.2	203.6	2%
Earning before interest and tax													
Net Profit													
greater than or equal to 250 employees													
Total Income	1,207.3	1,087.4	1,158.2	1,322.5	1,621.0	1,603.9	1,633.9	1,842.9	2,660.1	2,794.9	3,383.7	3,817.9	13%
Total production costs	1,071.1	937.6	985.1	1,068.6	1,254.4	1,321.3	1,371.9	1,737.0	2,271.2	2,340.9	2,806.4	3,238.6	15%
Gross Value Added	236.9	246.0	265.0	351.0	473.2	393.2	380.1	233.9	574.8	639.6	855.2	900.6	5%
Operating Cash Flow	136.2	149.9	173.1	254.0	366.6	282.6	261.9	105.9	388.9	453.9	577.3	579.4	0%
Earning before interest and tax													
Net Profit													

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.24.4 Socio-demographic structure

Socio-demographic data collection was not planned in Spain. This means that there are not data available. Nevertheless, we have access to additional sources of information, both qualitative and quantitative, that help us to provide a general overview of the situation at the fish processing industry, particularly in the gender dimension[66].

Regarding gender distribution of labour, the Spanish seafood processing industry has been traditionally intensive in the use of female employees as a result of technical division of work in the coastal areas. Women constitute the operating base of the industry since manual tasks at processing of seafood products were traditionally carried out by women. The increasing use of technology in the processing processes did not imply a great change in the labour structure, which is rather the result of sociodemographic and cultural issues. Women participation in the fish processing industry was 14 124, representing 65% of total employment in 2018[67]. More recent

[66] Diagnóstico sobre la situación de la mujer en la transformación de productos pesqueros y acuícolas. Ministerio de Agricultura, Pesca y Alimentación del Reino de España. Enero 2018.

[67] Informe de seguimiento sobre la situación de la mujer en el sector pesquero y acuícola Red Española de Mujeres en el Sector Pesquero. Mayo 2020

data from indicates that female participation rate in paid staff was 61% both in 2018 and 2019 while for the Spanish industry as whole this indicator is around 26% for the same period[68]

Considering the Public Employment Services (SEPE, 2019[69]) data about contracting in the occupational group "Workers in the fish industries" in 2019 (30 661 contracts to 13 177 people), 20 198 contracts correspond to women, but the unemployment rate among women was much higher. Within the 1 969 unemployed in 2019 who demanded this occupation, 88% were women. By age, the highest number of contracts in this occupation (34%) was given to people over 44 years old; followed by workers between 30 and 39 old (25% of the contracts). However, the greatest number of unemployed people who apply for this occupation was among those over 44 years old (68% of total unemployed claimants). In terms of education, of the 30 661 contracts made in 2019, 11 538 people had low education level (*ESO con titulación*).

5.24.5 Trends, drivers and outlook

Some of the trends of recent years continue its consolidation, while new ones are emerging. The concentration of the activity towards large companies, freezer and canning companies, continues. To be more precise, the growth in the figures of the sector, production and employment, is led by medium and large companies. Between these large companies, vertical integration and internationalization have become a key part of their business strategy, as a solution to access and control the supply of raw material. This practice was more extended between freezer industries, owning their own fleets, but is a more relative new strategy for canning industries, accessing to aquaculture facilities and processing plants, mainly in third countries.

Recently there are also examples of medium companies accessing international markets not only for exporting their products, but also for the sourcing of raw materials, even between those that mainly base the business model in the quality of the domestic seafood production. This is a consequence of the increasing relevance of diversification as a business strategy, both in the supply of raw materials and in the range of products marketed. The diversification in the product portfolio has two main objectives, the reduction of risk generated by the dependency of production on one or few species, and on the other, to meet the new trends in consumption, which compared to traditional processing (frozen, salted, canned), demand products with a higher degree of processing, preparation, and a greater variety in terms of elaborations (cuts, sauces, packaging). Freezer and canning companies are increasing their activity in the market for ready to cook and ready to eat meals.

Differentiation by quality is still a fundamental strategic line in the Spanish industry. In the case of small and medium-sized companies, it is the fundamental bet in recent years, looking to better compete against large companies and large retailers. In the case of large companies, especially in the canning industry, they have developed product lines aimed at producing large volumes and being competitive in price. However, it is common for them to maintain a range of products based on the quality of both the raw material and the processing, often manual.

The drivers of the industry in recent years remain the same. The strong domestic market and demand. The changes in the value chain structure, such as the shortening of supply chains, new supply channels, or the concentration of supply in big retailers. The internationalization of companies with exports to more than 130 countries, where the large companies in the sector have become multinationals, with a productive and commercial presence in America, Asia, Africa and Europe. The use of certifications has also a relevant role, mainly associated with the origin of the raw material. In the case of large companies, certification in most cases occurs to meet the demand of retail customers. In the case of small businesses, as a tool to differentiate their product.

One of the most recent drivers and one that will be key in the development of the sector in the coming years is environmental and social sustainability, and how to integrate them into the supply, production and marketing of products. Companies have been working for years,

[68] Estadística estructural de Empresas. Sector Industrial. Instituto Nacional de Estadística de España.

[69] Informe Anual de Mercado de Trabajo por Ocupación 2019 / Observatorio de las Ocupaciones, SEPE. Ministerio de Trabajo y Economía Social.

innovating and introducing improvements in this direction, but today it has become a strategic priority for the industry and key to its future competitiveness.

According to ANFACO, a business organization that represents more than 65% of the turnover and employment of the industry in Spain, the key strategic lines are digitization, sustainable production, and competitiveness and social commitment. In the field of digitization, aspects such as traceability and the use of blockchain, advanced sensorisation in production plants and the use of tools to support decision-making based on big data and artificial intelligence stand out. Regarding sustainability, highlights the use of R&D&i to optimize the consumption of water, energy, reuse of by-products, or efficiency in production processes, with the aim of further enhancing the circular economy. The improvement and evolution in the materials used in packaging is another relevant aspect for companies.

Many of these measures require research, innovation, and high investment, which is why it is usually only reachable by large companies. Producer organizations and the administrations that support them are fundamental drivers for these changes to take place. In the Spanish case, ANFACO has a private technology and research centre that employs 107 highly qualified people. It provides technology and R&D services to companies in the sector, with an investment of EUR 22 million and more than EUR 7 million turnover in 2020, mainly to private companies. This type of initiative is a clear success story of private collaboration to develop the competitiveness of the sector.

The outlook is positive for the industry in Spain. Despite the scenario generated by COVID-19, the first data available for 2020 show an increase in the production in the Spanish seafood processing industry by 9% and a reduction in value of 1% (MAPAMA, 2022[70]). This evolution has been supported by the positive behaviour of the domestic market, where between 2019 and 2020 household consumption of seafood products has increased, growing the volume consumed, the value, per capita consumption and per capita spending (ANFACO, 2020[71]). The greatest increase in consumption and spending per capita took place during April and May, which coincide with the alarm period in Spain. In the international dimension, Spanish exports of seafood products in general felt almost 4%, although those corresponding to canning, preparations and dry and salted products increased by 15% (ANFACO, 2020).

At first, throughout 2020, the arrival of Covid-19 drastically reduced the extra-domestic consumption of seafood products and increased household consumption. The main marketing channel has been supermarkets and there was an increase in the activity of online channels. In the specific case of seafood processing, in the productive dimension, the Covid-19 initially stopped activity in some processing centres and later slowed down the activity due to raw material supply problems even causing the activity to stop. While the companies that sell their products in retail increased their turnover, the negative impact took place in those companies that supply in the extra-domestic channel (HORECA).

Currently, the return to social and economic activity with fewer or no restrictions has allowed consumers to resume their habits and companies to restore supply, logistics, production and marketing activities. The Covid-19 has maybe caused certain changes in business practices, for reducing the risk associated with the offshoring of the supply and part of the production activities, and among consumers, where social and environmental awareness continues to grow. However, medium and long-term impacts could be more related with macroeconomic factors such as the inflationary environment and the rise in the price of energy that is currently taking place, which may affect production cost, incomes and firms' economic performance.

5.24.6 Data coverage and quality

Fish processing industry data comes from the Spanish National Institute of Statistics (*Instituto Nacional de Estadística*). Depreciation of capital, total value of assets, subsidies on investments and debt are not available for all the periods. Financial income and financial expenditures are not available between 2015 and 2019. The explanation provided by the MS was that the data were

[70] Estadísticas pesqueras. Productos de las Industrias de Procesado de Pescado. MAPAMA.
[71] Informe Datos del Sector 2020. ANFACO-CECOPESCA.

not collected by the main survey source. This issue does not allow us to estimate beyond the GVA and the Operational Cash Flow indicators. Furthermore, socio-demographic and raw material data are not available since these data collection were not planned in Spain.

5.25 Sweden

5.25.1 Overview

The fish processing industry sector in Sweden is very heterogeneous with small family businesses processing their own landings as well as larger companies with large-scale industrial production. It is mainly located along the west and south coasts of Sweden, as are major parts of the fishing fleet. In the last years, many fish companies from third countries have bought processing companies in Sweden. Another development that can been noticed, it that consolidation is occurring and that companies are transferring their production sites to other countries. In practice, this has caused a situation where sales remain in Sweden but job opportunities are lost.

In 2019, there were 337 companies in total processing fish of which 206 had fish processing as their main activity and 131 processed fish but not as their main activity. The number of companies having fish processing as their main activity has also been quite stable from 2018 to 2019. However, over the last four years there has been a reduction in the number of companies by 8% (peaking at 2014 with 224 companies). This development is partly due to mergers and acquisitions.

The biggest proportion of companies in the fish processing industry are small companies with less than 10 employees. Many of them have strong links to the fishing sector as they are processing their own landings. In 2019, 80% of the companies had less than 10 employees. Companies with 50 employees or more has been stable during 2018 and 2019 and the segment consists of 6 companies, which account for 3% of the total number of companies.

The total number of employees decreased by 6% between 2018 and 2019 but have been fluctuating over time. However, the level of 1894 number of employees is at the lowest level since beginning to collect the data in 2008. The average wage level has been stable for a couple of years and increased by 1% in 2018 and 2019.

The number of companies having fish processing as non-main activity increased successively from 2008 to 2015 but has been stable since then. In 2013, one of the largest fish processing companies in Sweden merged and changed its activity from main to non-main. This event was explained further in previous reports.

The remaining part of this chapter concerns only companies that have fish processing as its main activity.

Table 5.25.1: Overview, Sweden, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Structure (number)													
Total enterprises	214	217	219	219	223	222	224	224	213	209	209	206	-1%
≤10 employees	181	186	183	186	190	185	188	183	177	171	168	163	-3%
11-49 employees	26	26	30	26	25	29	28	33	28	33	35	37	6%
50-249 employees	7	5	6	7	8	8	8	8	8	5	6	6	0%
≥250 employees	0	0	0	0	0	0	0	0	0	0	0	0	0%
Employment (number)													
Total employees	2,165	1,991	2,007	2,126	2,135	2,199	2,174	2,171	2,113	2,022	2,015	1,894	-6%
FTE	1,773	1,736	1,807	1,837	1,831	1,658	1,587	1,662	1,650	1,591	1,592	1,533	-4%
Indicators													
Turnover (million €)	520	467	568	599	613	542	500	512	565	590	566	517	-9%
FTE per enterprise	8.3	8.0	8.3	8.4	8.2	7.5	7.1	7.4	7.7	7.6	7.6	7.4	-2%
Average wage (thousand €)	43.9	39.3	45.4	48.3	50.2	48.5	45.8	45.0	44.9	47.2	47.9	48.4	1%
Unpaid work (%)	1.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Enterprises doing fish processing not as main activity													
Number of entreprises	87	98	95	108	120	125	126	132	132	134	133	131	-2%
Turnover attributed to fish processing (million €)	73.4	80.1	96.6	97.1	111.9	238.2	237.7	223.3	245.0	211.8	201.3	185.6	-8%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

5.25.2 Economic performance

The performance of the Swedish fish processing industry is highly dependent on the prices of raw material, which amounted to approximately 55-60% of total production costs during the period studied. The industry is dependent on raw material of the right quality and quantity. If such materials cannot be found within the EU, the industry has to import it from third countries. Large companies import approximately 75% of their total raw material use, mainly from Norway. In general, smaller companies are more dependent on local landings, awhile larger companies with industrial production use more imported raw material. Therefore, in addition to variations in the prices of raw material and tariff rates, the industry is also sensitive to fluctuations in exchange rates.

In addition, the industry's need for imported raw material varies between years. In the last years, imports of herring from Norway have increased and the reason is not yet clear.

Table 5.25.2: Economic performance indicators, Sweden, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ (2018-19)
Income (million €)													
Turnover	519.8	467.2	567.5	599.4	613.2	542.0	499.8	512.5	565.1	590.4	566.2	517.1	-9%
Other income	3.7	3.6	3.9	3.4	8.7	13.6	4.2	4.6	5.2	4.9	5.5	7.4	34%
Operating subsidies	0.3	0.3	0.5	0.5	0.8	1.0	0.5	0.3	0.7	1.5	1.4	0.6	-58%
Total Income	523.8	471.1	571.9	603.3	622.7	556.6	504.6	517.4	571.0	596.9	573.2	525.1	-8%
Expenditure (million €)													
Purchase of fish and other raw material for production	271.9	272.8	327.1	360.8	358.6	342.3	313.2	309.3	328.7	322.5	333.1	289.2	-13%
Wages and salaries of staff	76.8	66.4	82.0	88.8	92.0	80.4	72.6	74.8	74.0	75.1	76.2	74.2	-3%
Imputed value of unpaid labour	1.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%
Energy costs	7.4	6.5	8.5	7.6	6.4	7.9	7.0	6.3	6.6	7.0	7.7	5.6	-27%
Other operational costs	148.3	103.6	130.9	126.0	134.5	108.7	102.9	117.7	154.1	190.2	109.8	142.0	29%
Total production costs	505.4	451.1	548.6	583.2	591.5	539.3	495.7	508.1	563.4	594.9	526.8	511.1	-3%
Capital Costs (million €)													
Depreciation of capital	12.3	10.5	12.5	12.7	13.3	11.9	9.7	9.7	9.1	9.7	9.1	9.1	0%
Financial costs, net	0.8	-0.1	0.6	-1.7	5.3	2.3	48.7	5.6	-3.3	-1.8	0.8	9.9	1066%
Capital Value (million €)													
Total value of assets	401.3	344.5	355.8	441.8	409.7	394.9	335.1	289.8	317.7	311.2	284.5	268.0	-6%
Net Investments	9.5	9.8	11.4	12.4	8.9	7.8	15.1	9.6	16.3	4.6	7.7	-2.2	-129%
Subsidies on investments									0.2	0.3	0.1	0.1	102%
Debt	254.8	206.0	233.7	246.0	251.7	218.2	188.2	183.4	203.0	207.8	195.6	176.5	-10%
Economic performance (million €)													
Gross Value Added	96.0	88.0	104.8	108.4	122.4	96.7	81.0	83.8	80.9	75.5	121.2	87.6	-28%
Operating Cash Flow	18.4	19.9	23.3	20.1	31.3	17.3	8.9	9.3	7.6	2.0	46.4	14.0	-70%
Earning before interest and tax	6.1	9.5	10.8	7.4	18.0	5.3	-0.8	-0.4	-1.5	-7.6	37.3	4.9	-87%
Net Profit	5.3	9.6	10.2	9.0	12.8	3.0	-49.5	-5.9	1.8	-5.9	36.5	-5.0	-114%
Productivity and performance Indicators													
Labour productivity (thousand €)	54.1	50.7	58.0	59.0	66.9	58.3	51.0	50.4	49.0	47.5	76.1	57.2	-25%
Capital productivity (%)	23.9	25.5	29.5	24.5	29.9	24.5	24.2	28.9	25.5	24.3	42.6	32.7	
GVA margin (%)	18.3	18.7	18.3	18.0	19.7	17.4	16.1	16.2	14.2	12.7	21.2	16.7	
EBIT margin (%)	1.2	2.0	1.9	1.2	2.9	1.0	-0.2	-0.1	-0.3	-1.3	6.5	0.9	
Net profit margin (%)	1.0	2.0	1.8	1.5	2.0	0.5	-9.8	-1.1	0.3	-1.0	6.4	-0.9	
Return on Investment (%)	1.5	2.7	3.0	1.7	4.4	1.4	-0.2	-0.1	-0.5	-2.5	13.1	1.8	
Financial position (%)	36.5	40.2	34.3	44.3	38.6	44.8	43.8	36.7	36.1	33.2	31.2	34.2	

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The financial result for the sector declined between 2018 and 2019. During this period the total income of the sector decreased by EUR 48.1 million (-8%). Other operational costs fluctuate, but as a whole total production costs have decreased the last years. This is probably connected to a lower turnover in 2018 – 2019, after the closing of a large processing factory. The development of the economic performance expressed in Euros is affected by the exchange rate[72]. In the last years, the Swedish Krona has lost value compared to the Euro.

Operational subsidies are negligible in relation to the total turnover and is likely to have a only a marginal effect on competitiveness or net profits. When it comes to subsidies from the EMFF, the Swedish processing industry has mainly received subsidies under Article 69 (investments in processing of fisheries and aquaculture products), and to lesser extent support from articles 42 (investments that add value to fishery products) and 68 (marketing measures) during the period 2014-2019.

Net investment decreased significantly in 2019. One reason for this is that in the statistics, large companies with negative results have a large impact, as the industry as a whole is small in Sweden. In this case, the negative result of the net investments concerns a company that made a sale of real estate and land. However, the negative net investments for 2019 does not have to imply a general trend. Selling processing plants and other facilities and renting instead has become more common in the last years.

[72] The exchange rates used in this chapter are for €1: SEK 9.6055 in 2008, SEK 10.6213 in 2009, SEK 9.5413 in 2010, SEK 9.0355 in 2011, SEK 8.7053 in 2012, SEK 8.6494 in 2013, SEK 9.0968 in 2014, SEK 9.3562 in 2015, 9.4704 in 201, 9.6326 in 2017, 10.2567 in 2018 and 10.59 in 2019.

5.25.3 Breakdown by company size

The Swedish data covers three size segments. The data in the largest segment include firms with 50 employees and more. Data for companies with more than 250 employees cannot be presented separately for confidentiality reasons.

Table 5.25.3: Economic performance by size, Sweden, 2008-2019

Variable	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Δ(2018-19)
less than or equal to 10 employees													
Total Income	91.3	77.9	85.3	92.7	95.8	98.8	94.9	84.4	76.3	81.5	54.2	46.1	-15%
Total production costs	89.0	75.8	80.9	87.2	92.0	94.1	88.8	79.7	72.2	77.0	50.8	42.0	-17%
Gross Value Added	14.5	14.3	16.3	19.8	18.9	20.0	20.8	17.0	16.3	16.2	13.4	12.5	-6%
Operating Cash Flow	2.3	2.2	4.4	5.5	3.8	4.7	6.1	4.7	4.0	4.4	3.4	4.0	19%
Earning before interest and tax	-0.2	-0.2	2.3	2.9	1.4	1.9	3.9	2.6	2.2	2.6	2.0	2.8	37%
Net Profit	-1.8	-1.8	1.1	2.4	0.5	-1.7	-46.3	-4.6	6.8	7.4	1.9	3.1	63%
between 11 and 49 employees													
Total Income	173.1	164.0	199.9	198.1	176.8	196.9	178.5	194.8	209.6	268.9	249.7	219.8	-12%
Total production costs	172.6	159.5	193.3	192.4	172.6	191.4	175.6	189.4	204.3	268.1	241.0	214.8	-11%
Gross Value Added	22.3	25.5	33.0	29.8	27.7	30.7	25.5	31.9	30.6	34.0	40.6	37.6	-7%
Operating Cash Flow	0.5	4.5	6.5	5.7	4.2	5.5	2.9	5.4	5.3	0.8	8.6	4.9	-43%
Earning before interest and tax	-2.3	2.1	3.2	2.8	1.1	3.0	0.5	3.0	2.9	-3.1	4.6	0.9	-80%
Net Profit	-1.2	2.5	3.5	3.6	0.0	3.7	1.0	4.0	2.3	-5.4	4.8	0.2	-97%
between 50 and 249 employees													
Total Income	259.4	229.2	286.7	312.5	350.1	260.9	231.2	238.2	285.2	246.5	269.3	259.3	-4%
Total production costs	243.8	215.9	274.3	303.6	326.8	253.8	231.3	239.0	286.9	249.7	234.9	254.2	8%
Gross Value Added	59.1	48.1	55.6	58.7	75.8	46.1	34.7	34.9	34.0	25.3	67.2	37.6	-44%
Operating Cash Flow	15.6	13.3	12.3	8.9	23.3	7.1	-0.1	-0.8	-1.7	-3.3	34.4	5.1	-85%
Earning before interest and tax	8.6	7.6	5.3	1.7	15.6	0.4	-5.2	-5.9	-6.6	-7.1	30.7	1.2	-96%
Net Profit	8.2	8.9	5.5	3.0	12.2	1.0	-4.2	-5.3	-7.2	-7.9	29.9	-8.2	-127%

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

A majority of the Swedish fish processing companies have 0-10 employees (80%). This segment contributes with only a small part (9%) of the total turnover of the sector. Between 2018 and 2019 the economic performance in this size segment, expressed as net profit and earnings before interest and tax, increased.

Companies with 11-49 employees make up 17% of the total number but answer for 42% of the sectors total turnover. It is different to draw any conclusions since the figures on economic performance show a great variation in the last years.

The segment with more than 50 employees makes up only 3 % of companies but answer for 49% of the sector turnover. It is different to draw any conclusions since the figures on economic performance show a great variation in the last years. In this segment, net profit and earnings before interest and tax (EBIT) has been negative and decreasing gradually since 2014 (the year after the merger of the largest processing company and the change of its activity from main to non-main).

5.25.4 Socio-demographic structure

The total number of employees in the Swedish fish processing sector was 2022 in 2019. Most of them (88%) were Swedish citizens. 8% of the employees came from countries outside EU and EES-countries. A large part of the processing industry is located to the community of Sotenäs on the Swedish westcoast, about 100 km north of Gothenburg.

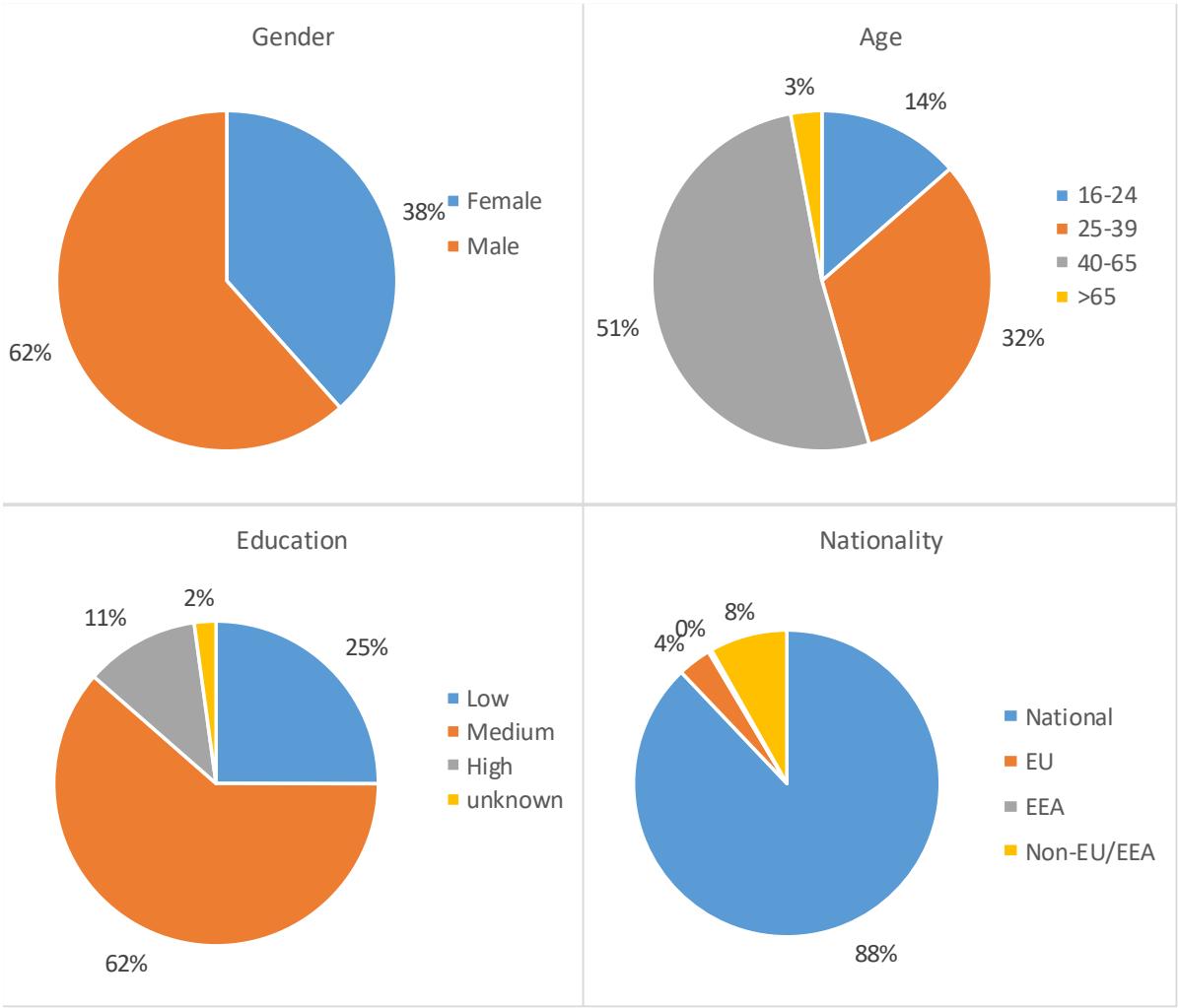

Figure 5.25.1: Socio-demographic characteristics, Sweden, 2019

Source: MS data submissions under the 2021 Fish processing data call and elaboration by the EWG.

The level of education among the employees within the fish processing industry is generally on a medium level (62%). Only 11% of the employees are classified as having a high education level. The average age of the employees is comparatively high with 51% in the age between 40-65 years, 32% between 25-39 years and 14% between 16-24 years.

5.25.5 Trends, drivers and outlook (including Covid-19 impact)

Swedish fish processing companies are acting on a global market and they are highly dependent on imported raw material. High demand within Sweden and other EU member states for the most important species drives up prices and affects the industry. In Sweden relatively few species are consumed which increases the vulnerability for price increase of the consumed species. In spite of Swedes having a conservative taste with traditional consumption behaviours, eating relatively few species, the industry is working actively to change Swedes eating patterns. The processing industry sees a long-term interest in working with new species, but it is a long journey to take new products to the market. Herring is a traditionally important product for Sweden. But, herring from the Baltic Sea is today not used to its full potential for human consumption.

Another much appreciated species regarded to have a great market potential is arctic char (salvelinus alpinus). It is caught wild but also produced in aquaculture in northern Sweden. In general, Swedish aquaculture and inland fishing are areas of interest and according to the Swedish strategy for development of sustainable fisheries and aquaculture, 2021-2026 the areas

should be further developed and promoted. Demand for seafood and aquaculture products is expected to increase. In aquaculture animal welfare is gaining importance.

Environmental and sustainability issues are important to consumers in Sweden. To meet consumers' demand for information related to sustainability certifications have become more or less a requirement for getting access to markets in big retailer chains.

Another trend that continues during the recent years is that the sector have been consolidated. It is mainly small and medium sized companies that have been acquired by larger ones. The trend is towards large business groups with many branches or towards smaller niche companies. It likely that this trend will continue.

A digital traceability system was introduced in 2019 to meet new legislative requirement in the EU. The system has had an impact on the sector by increasing costs. In 2020, the system was evaluated by the Swedish Agency for Public Management and possible modifications are being discussed.

Brexit is another factor that has had an impact on the fish processing industry, by influencing raw material supply for companies processing pelagic fish caught in British waters. Brexit has led to increased administrative costs for imports and exports to the UK. In addition, transport costs have increased and processing companies also meet costs for customs when exporting to the UK.

Effects on the fish processing industry due to the Covid-19 pandemic are not very evident in Sweden. However, events in close connection to the industry has caused effects on the whole food chain. This is specially the case for activities related to fresh fish consumption. In the pelagic segment, sales on herring for human consumption has been most affected. The largest buyers of fresh fish are hotels and restaurants. Their demand for fresh fish decreased due to reduction of business. This also affected other fishing segments.

The aquaculture sector in Sweden saw an effect on production sites. Companies producing char and trout found it difficult to deal with the loss of sales in hotel and restaurant operations. Consequently, fish remained in the pools, which became overcrowded. Swedish consumer's knowledge of handling fresh fish has largely been lost. Therefore, a transition towards selling aquaculture products in grocery stores proved more or less impossible. The industry are now seeking ways to reduce vulnerability for similar situations in the future. Industry representatives highlighted the possibility of connecting aquaculture closer to fish processing in Sweden.

5.25.6 Data coverage and quality

There are no major data issues in the Swedish DCF data. The Swedish data in this report was bought by the Swedish Board of Agriculture from Statistics Sweden and reported by the Swedish Board of Agriculture. The reported data are consistent with the data reported to Eurostat by Statistics Sweden. The calculations of indicators from the data collected under the data collection framework may however slightly differ from figures reported to Eurostat, due to different methods of calculation or different exchange rates.

6 DATA QUALITY AND COVERAGE

As foreseen in the Regulation No 2017/1004, the Commission asked Member States to provide aggregated scientific data from within their National Data Collection programs to support scientific advice.

The data requested refers to 2018 and 2019; while previous years (2008-2017) could be submitted or resubmitted in cases where the already submitted data are considered incomplete or require correction. Data requested for 2016 to 2019, in accordance with their National Data Collection programs, can be provided under the provisions of Regulation 2017/1004. Previous years' data can be provided under the provisions of Regulation 199/2008.

Under the provisions of Commission Decision 2010/93/EU (Appendix XII), there are requested the variables: Income (turnover, subsidies and other income), Personnel costs (Wages and salaries of staff and Imputed value of unpaid labour), Energy costs, Purchase of fish and other raw material for production, Other operational costs, Capital costs (depreciation of capital and financial costs), Extraordinary costs, Total value of assets, Net Investments, Debt, Employment (Number of persons employed, gender and FTE national) and number of enterprises pertaining to the EU fish processing sector. Moreover, for enterprises that carry out fish processing but not as a main activity, it is mandatory to collect the Number of enterprises and Turnover attributed to fish processing, in the first year of each programming period. Member States who have decided to follow the extended programme are invited to submit the previously mentioned data following the segmentation by size category set out in the Commission Decision 2010/93/EU. The segmentation is set out in the Appendix XII of the Commission Decision.

Under the provisions of Council Regulation 2017/1004, there are requested the economic variables for the aquaculture sector detailed in Table 11 of the Commission Decision (EU) 2016/1251. In particular, Income (gross total sales, operating subsidies and other income), Personnel costs (Personnel costs and Imputed value of unpaid labour, and optionally Payment for external agency workers), Energy costs, Purchase of fish and other raw material for production, Other operational costs, Capital costs (consumption of fixed capital), Financial income and Financial expenses, Total value of assets, Net Investments, Subsidies in investments, Debt, Employment (Number of persons employed their FTE national, number of unpaid labour and their FTE, and Number of hours worked by employees and unpaid labour) and number of enterprises pertaining to the EU fish processing sector. Moreover, for enterprises that carry out fish processing but not as a main activity, it is possible to report the Number of enterprises and Turnover attributed to fish processing. Member States who have decided to follow the extended programme are invited to submit the previously mentioned data following the segmentation by size category set out in the Commission Decision 2010/93/EU. Moreover, it is requested to report employment by gender, age, education level and nationality.

The Data Collection Framework (DCF) and EU-MAP requires data quality assurance by Member States. Data checks were performed by the JRC through the comprehensive analysis of the data submitted and by experts attending the meeting to elaborate this report. As a consequence of these data checks data have been resubmitted by some of the countries after the deadline and during the EWG meeting.

This was the seventh call for data on the EU fish processing sector. Although overall data quality was rather good, there are still issues that have to be improved by the Member States. Coverage has been similar to the last data call, but below previous data calls (see Table 7.1), as under the EU-MAP, the fish processing sector data collection is done on a voluntary basis.

All countries submitted the data before the deadline. Only minor data resubmissions took place afterwards, and before the deadline to correct the initial data sets. The dedicated STECF expert working group took place from 21 to 25 February 2022.

Coverage main economic data

The collection of fish processing data under the EU-MAP is voluntary. Cyprus, Estonia, Netherlands and Portugal decided not to collect these data.

France only reported 2018 data for the EU-MAP period covering the years 2016 to 2019, even if the data collection was planned.

In addition, Lithuania reported 2020 data on a voluntary basis.

Table 7.1: Coverage of the economic data for the companies doing fish processing as main activity (the numbers in the table show the number of variables reported), 2008-2019

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	22	22	22	22	22	22	22	22	16	21	21	21
Bulgaria	22	22	22	22	22	22	22	22	21	21	21	21
Croatia				22	22	22	22	22	21	21	21	21
Cyprus	22	22	22	22	22	22	22	22				
Denmark	22	22	22	22	22	22	22	22	21	21	21	21
Estonia	21	21	21	21	21	21	21	21				
Finland	22	22	22	22	22	22	22	22	20	20	21	21
France	22	22	22	22	22	22	22	22			17	
Germany	20	20	20	20	20	20	20	20	20	20	21	20
Greece				21	22	22	22	22	21	21	21	21
Ireland	22	22	22	22	22	22	22	22	21	21	21	21
Italy	22	22	22	22	22	22	22	22	16	21	21	21
Latvia	22	22	22	22	22	22	22	22	20	20	20	20
Lithuania	22	22	22	22	22	22	22	22	21	21	21	21
Malta	22	22	22	22	22	22	22	22	21	21	21	21
Netherlands	17	18	18	17	17	17	20					
Poland	21	21	21	21	22	22	22	22	20	20	20	20
Portugal	21	21	20	20	20	20	20	20				
Romania		22	22	22	22	22	22	22	21	21	21	21
Slovenia	22	22	22	22	22	22	22	22	21	21	21	21
Spain	19	19	19	19	19	22	22	22	14	14	14	14
Sweden	20	20	20	20	20	20	20	20	19	19	17	17
Hungary									20	20	20	

Please note that for the DCF period (2008-2015), 22 variables were collected; while there were collected 21 variables for the EU-MAP period (2016-2019). Numbers in the table below 22 between 2008 and 2015, and below 21 between 2016 and 2019 implies reporting less variables than what requested.

This underreporting of variables mainly happens in Belgium and Italy for 2016; the Netherlands during the DCF period, Sweden during the EU-MAP period, and Spain both during the DCF and EU-MAP periods.

Coverage main economic data by size category

Cyprus, Estonia and Germany never reported data by size category. The 4 variables reported in Table 7.2 just consist on the number of firms per size category.

France stopped reported data by size category in 2013, while the Netherlands and Portugal did it with the change to the EU-MAP.

In addition, Lithuania reported 2020 data on a voluntary basis.

Table 75.25.2: Coverage of the economic data for the companies doing fish processing as main activity by size category (the numbers in the table show the number of variables reported), 2008-2019

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	66	66	66	66	66	66	66	66	63	84	84	84
Bulgaria	88	88	88	88	88	88	88	88	84	84	84	84
Croatia				67	67	88	67	67	63	63	63	63
Cyprus												
Denmark	88	88	88	88	88	88	88	88	63	63	63	63
Estonia	4	4	4	4	4	4	4	4				
Finland	4	4	4	4	67	44	66	66	60	60	63	63
France	64	88	88	88	88	88	4	4			60	
Germany	4	4	4	4	4	4	4	4	4	4	4	4
Greece					88	88	88	88	63	63	84	84
Ireland	88	88	88	88	88	88	88	88	84	84	84	84
Italy	4	4	4	4	4	88	88	88	40	57	58	84
Latvia	88	88	88	88	88	88	88	88	50	50	52	52
Lithuania	88	88	87	88	88	88	88	88	84	84	84	84
Malta	88	88	88	88	88	88	88	88	84	84	84	83
Netherlands	68	72	72	60	60	70	85					
Poland	84	84	84	84	88	88	88	88	80	80	79	80
Portugal	84	84	80	80	80	80	80	80				
Romania		88	88	88	88	88	88	88	73	84	84	84
Slovenia	88	88	88	88	88	88	88	88	42	42	42	42
Spain	76	76	76	76	76	76	76	68	56	56	56	56
Sweden	51	51	51	51	51	58	54	55	57	57	51	51
Hungary									77	76	77	

As in the table above, numbers reported in Table 7.2 that are below multiples of 22 (e.g. 44, 66 and 88) between 2008 and 2015, and below multiples of 21 (e.g. 42, 63 and 84) between 2016 and 2019 implies MS reporting less variables than what requested.

These factors multiplying the number of variables represent the number of size categories reported; for example, when reporting 66 variables under the DCF implies that 3 size categories were reported (e.g. 3 times 22 variables).

Coverage data on enterprises that carry out fish processing but not as a main activity

For the enterprises that carry out fish processing but not as a main activity, it was requested to report the Number of enterprises and Turnover attributed to fish processing. They are to be reported at least once per programming period.

Belgium did not report Turnover of the enterprises that do fish processing but not as main activity for the whole period 2008-2019.

Of the countries reporting EU-MAP data, France and Germany did not report any data on the Number of companies and Turnover of the enterprises that do fish processing but not as main activity for the EU-MAP period 2016-2019.

In addition, Lithuania reported 2020 data on a voluntary basis.

Table 7.3: Coverage of the data on companies doing fish processing not as main activity (the numbers in the table show the number of variables reported), 2008-2019

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Belgium	1	1	1	1	1	1	1	1	1	1	1	1
Bulgaria	2	2	2	2	2	2	2	2	2	2	2	2
Cyprus	2	2	2	2	2	2	2	2				
Germany		2		2								
Denmark	2	2	2	2	2	2	2	2	2	2	2	2
Spain	2	2	2	2	2	2	2	2			2	2
Estonia	2	2	2	2	2	2	2	2				
Finland	2	2	2	2	2	2	2	2	2	2	2	2
France		2	2				2	2				
Greece					2	2	2	2	2	2	2	2
Croatia				2	2	2	2	2	2	2	2	2
Ireland		2	2	2	2	2	2	2	2	2	2	2
Italy	2	2	2	2	2	2	2	2	2	2	2	2
Lithuania	2	2	2	2	2	2	2	2	2	2	2	2
Latvia	2	2	2	2	2	2	2	2	2	2	2	2
Malta	2	2	2	2	2	2	2	2	2	2	2	
Netherlands		2	2	2	2	2	2					
Poland	2	2	2	2	2	2	2	2	2	2	2	2
Portugal	2		2					2				
Romania	2	2	2	2	2	1	2	2	2	2	2	2
Slovenia	2	2	2	2	2	2	2	2	2	2	2	2
Sweden	2	2	2	2	2	2	2	2	2	2	2	2

Spain, apart from reporting just one company in 2008, has reported that no companies were doing fish processing but not as main activity, which is not clear if there are really no companies or the data are missing.

Coverage social data

The reporting of the social data (employment by gender, age, education level and nationality) started under the EU-MAP. Social data is required every three years, starting with 2017 data. Therefore, next social data required will be for 2020.

Germany, Latvia and Lithuania already reported social data for 2020.

Belgium, Bulgaria, Denmark, Finland, Greece, Italy, Poland, Romania, Sweden and Hungary even reported social data for more than one year.

Romania submitted 2018 social data instead of 2017 data; but also submitted 2019 data.

Of all the countries that submitted EU-MAP data (for the period 2016-19), only France, Malta and Spain did not submit any year of social data.

Belgium only reported the employment by gender.

Table 7.4: Coverage of the social data (the numbers in the table show the disaggregation level at which variables are reported), 2016-2020

Country	2016	2017	2018	2019	2020
Belgium	24	24	24	24	
Bulgaria		52	52	52	
Croatia		47			
Denmark	48	48	48	48	
Finland	17	17	19	19	
Germany		23			28
Greece	64	64	64	64	
Ireland		48			
Italy	42	42		48	
Latvia		17			18
Lithuania		87			84
Poland	38	38	20	20	
Romania			36	44	
Slovenia		26			
Sweden		14	14	14	
Hungary	22	29	30		

Coverage data on raw materials

The reporting of the weight of raw material in kg per species and origin started under the EU-MAP and is optional.

Bulgaria, Croatia, Finland, Germany, Greece, Hungary, Italy, Poland, Romania, Slovakia and Slovenia reported data on raw materials (see Table 7.5). The numbers in Table 7.5 indicates the number of products reported each year.

Slovakia reported raw materials data from 2008 to 2019.

Table 7.5: Coverage of the raw materials data (the numbers show the number of raw materials reported), 2016-2019

Country	2016	2017	2018	2019
Bulgaria	4	4	4	190
Croatia	3	3	3	3
Finland	15	16		18
Germany				92
Greece	3	3	3	3
Italy				11
Poland	1	1	229	245
Romania	41	97	104	84
Slovenia	4	3	4	4
Hungary	29	37	40	
Slovakia	5	4	5	

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[1] - Information on EWG participant's affiliations is displayed for information only. In any case, Members of the STECF, invited experts, and JRC experts shall act independently. In the context of the STECF work, the committee members and other experts do not represent the institutions/bodies they are affiliated to in their daily jobs. STECF members and experts also declare at each meeting of the STECF and of its Expert Working Groups any specific interest which might be considered prejudicial to their independence in relation to specific items on the agenda. These declarations are displayed on the public meeting's website if experts explicitly authorized the JRC to do so in accordance with EU legislation on the protection of personnel data. For more information: http://stecf.jrc.ec.europa.eu/adm-declarations

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8
9 ANNEXES

9.1 Annex 1 – Data collected under DCF and EU-MAP

This report is the second report on the EU fish processing to contain data from the former DCF program for the period 2008 to 2015 and from the latest implemented EU-MAP program for the period 2016 to 2019. Below the requested variables for both programs are listed.

Main economic parameters requested under the DCF

The economic variables to be collected for the fish processing sector under the Data Collection are specified in section B of the Chapter IV and in Appendix XII of Commission Decision 2010/93/EC of the 18th of December 2010, on Adopting a multiannual Community programme pursuant to Council Regulation (EC) No 199/2008 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy.

Table 9.1.1: DCF data requirements, 2008-2015

Variable Group	Variable	Unit
Income	Turnover	Euro
	Subsidies	Euro
	Other Income	Euro
	Total Income	Euro
Personnel Costs	Wages and salaries	Euro
	Imputed value of unpaid labour	Euro
Operational Costs	Energy Costs	Euro
	Purchase of fish and other raw material for production	Euro
	Other operational costs	Euro
Capital Costs	Depreciation of capital	Euro
	Financial Costs, net	Euro
Extraordinary Costs	Extraordinary Costs, net	Euro
Capital Value	Total Value of Assets	Euro
Investments	Net Investments	Euro
Debt	Debt	Euro
Employment	Male employees	Number
	Female employees	Number
	Total employees	Number
	Male FTE	Number
	Female FTE	Number
	Total FTE	Number
Number of enterprises	Number of enterprises	Number

Following DCF the statistical unit for the fish processing sector data collection is defined as enterprise, which is the lowest legal entity for accounting purposes. The population refers to

enterprises whose primary activity is defined according to the EUROSTAT definition under NACE Code C.10.20: 'Processing and preserving of fish, crustaceans and molluscs'. More detailed definitions of parameters can be found in the glossary (section 10.3).

Main economic parameters requested under the EUMAP

Under the provisions of Council Regulation 2017/1004, there are requested the economic variables for the aquaculture sector detailed in Table 11 of the Commission Decision (EU) 2016/1251.

Table 9.1.2: EUMAP data requirements, 2016-2019

Variable Group	Variable	Unit
Income	Gross sales (total)	Euro
	Operating Subsidies	Euro
	Other Income	Euro
Personnel Costs	Wages and salaries	Euro
	Imputed value of unpaid labour	Euro
	Payment for external agency workers (optional)	Euro
Operational Costs	Energy Costs	Euro
	Purchase of fish and other raw material for production	Euro
	Other operational costs	Euro
Capital Costs	Consumption of fixed capital	Euro
	Financial Income	Euro
	Financial Expenditure	Euro
Capital Value	Total Value of Assets	Euro
Investments	Net Investments	Euro
	Subsidies in investments	Euro
Debt	Debt	Euro
Employment	Number of persons employed	Number
	FTE national	Number
	Number of hours worked by employees and unpaid labour	Number
	Unpaid labour	Number
Number of enterprises	Number of enterprises	Number

9.2 Annex 2 – Glossary of variables and indicators reported under the DCF and EUMAP

Parameters requested under the DCF

Turnover:

"Turnover" comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties.

Turnover includes all duties and taxes on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes directly linked to turnover.

It also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice. Reduction in prices, rebates and discounts as well as the value of returned packing must be deducted. Income classified as other operating income, financial income and extraordinary income in company accounts is excluded from turnover. Operating subsidies received from public authorities or the institutions of the European Union are also excluded (Structural Business Statistics (SBS) Code 12 11 0, Commission Regulation (EC) No 2700/98).

Subsidies:

"Subsidies" are the financial assistance received from public authorities or the institutions of the European Union which are excluded from turnover.

It includes direct payments, e.g. compensation for stopping trading, refunds of fuel duties or similar lump sum compensation payments; excludes social benefit payments and indirect subsidies, e.g. reduced duty on inputs such as fuel or investment subsidies.

Other income:

"Other income" refers to other operating income included in company accounts which are excluded from turnover; income coming from other activities than aquaculture, e.g. the licensing of ponds for recreational fishery purposes.

Wages and salaries:

"Wages and salaries" is equivalent to "Personnel costs" on the Structural Business Statistics.

"Personnel costs" are defined as the total remuneration, in cash or in kind, payable by an employer to an employee (regular and temporary employees as well as home workers) in return for work done by the latter during the reference period. Personnel costs also include taxes and employees' social security contributions retained by the unit as well as the employer's compulsory and voluntary social contributions.

Personnel costs are made up of:

- wages and salaries
- employers' social security costs

All remuneration paid during the reference period is included, regardless of whether it is paid on the basis of working time, output or piecework, and whether it is paid regularly or not. Included are all gratuities, workplace and performance bonuses, ex gratia payments, thirteenth month pay (and similar fixed bonuses), payments made to employees in consideration of dismissal, lodging, transport, cost of living and family allowances, commissions, attendance fees, overtime, night work etc. as well as taxes, social security contributions and other amounts owed by the employees and retained at source by the employers. Also included are the social security costs for the employer. These include employer's social security contributions to schemes for retirement pensions, sickness, maternity, disability, unemployment, occupational accidents and diseases, family allowances as well as other schemes. These costs are included regardless of whether they are statutory, collectively agreed, contractual or voluntary in nature. Payments for agency workers are not included in personnel costs. (Structural Business Statistics (SBS) Code 13 31 0, Commission Regulation (EC) No 2700/98).

Wages and salaries: Wages and salaries are defined as "the total remuneration, in cash or in kind, payable to all persons counted on the payroll (including homeworkers), in return for work done during the accounting period." regardless of whether it is paid on the basis of working time, output or piecework and whether it is paid regularly or not. Wages and salaries include the values of any social contributions, income taxes, etc. payable by the employee even if they are actually withheld by the employer and paid directly to social insurance schemes, tax authorities, etc. on behalf of the employee. Wages and salaries do not include social contributions payable by the employer. Wages and salaries include: all gratuities, bonuses, ex gratia payments, "thirteenth month payments", severance payments, lodging, transport, cost-of-living, and family allowances, tips, commission, attendance fees, etc. received by employees, as well as taxes, social security contributions and other amounts payable by employees and withheld at source by the employer. Wages and salaries which the employer continues to pay in the event of illness, occupational accident, maternity leave or short-time working may be recorded here or under social security costs, depending upon the unit's accounting practices. Payments for agency workers are not included in wages and salaries. (Structural Business Statistics (SBS) Code 13 32 0, Commission Regulation (EC) No 2700/98).

Social security costs: Employers' social security costs correspond to an amount equal to the value of the social contributions incurred by employers in order to secure for their employees the entitlement to social benefits. Social security costs for the employer include the employer's social security contributions to schemes for retirement pensions, sickness, maternity, disability, unemployment, occupational accidents and diseases, family allowances as well as other schemes. Included are the costs for all employees including homeworkers and apprentices. Charges are included for all schemes, regardless of whether they are statutory, collectively agreed, contractual or voluntary in nature. Wages and salaries which the employer continues to pay in the event of illness, occupational accident, maternity leave or short-time working may be recorded here or under wages and salaries, dependent upon the unit's accounting practices. (Structural Business Statistics (SBS) Code 13 33 0, Commission Regulation (EC) No 2700/98).

Imputed value of unpaid labour:

Unpaid workers normally refer to persons who live with the proprietor of the unit and work regularly for the unit, but do not have a contract of service and do not receive a fixed sum for the work they perform. This is limited to persons who are not included on the payroll of another unit as their principal occupation.

Thus, imputed value of unpaid labour estimates the value of the salaries that these unpaid workers would have received if their work was remunerated.

The chosen methodology to estimate this imputed value of unpaid labour should be explained by the Member State in their national programme.

Energy costs:

"Energy costs" corresponds to the "Purchases of energy products (in value)" on the Structural Business Statistics.

Purchases of all energy products during the reference period should be included in this variable only if they are purchased to be used as fuel. Energy products purchased as a raw material or for resale without transformation should be excluded. This figure should be given in value only. (Structural Business Statistics (SBS) Code 20 11 0, Commission Regulation (EC) No 2700/98).

Other operational costs:

Other operating costs should comprise outsourcing costs, property or equipment rental charges, the cost of raw materials and supplies that cannot be held in the inventory and have not been already specified (i.e. water, small items of equipment, administrative supplies, etc.), insurance premiums, studies and research costs, external personnel charges, fees payable to intermediaries and professional expenses, advertising costs, transportation charges, travel expenses, the costs of meetings and receptions, postal charges, bank charges (but not interest on bank loans) and other items of expenditure.

On the Structural Business Statistics is included inside 13 11 0 "Total purchases of goods and services".

Depreciation of capital:

Depreciation refers to the decline in value of the assets. In accounting, it is used as the allocation of the cost of tangible assets to periods in which the assets are used, in order to reflect this decline in their value.

The chosen methodology to allocate these costs over periods should be explained in the national programme. ESA (6) 6.02 to 6.05 European System of Accounts 1995 (Regulation (EC) No 2223/96, Regulation (EC) No 1267/2003, Eurostat ESA 1995 manual).

Financial costs, net:

"Financial costs, net" should be calculated as costs, coming from financial activity of the enterprise, minus the financial income.

Extraordinary costs, net:

"Extraordinary costs, net" is the difference between "Extraordinary charges" and "Extraordinary income".

"Extraordinary income" and "Extraordinary charges" are the income and costs that arise otherwise than in the course of the company's ordinary activities (Article 29 of the Fourth Council Directive 78/660/EEC of 25 July 1978).

Total value of assets:

This parameter corresponds to the Balance sheet total of the Structural Business Statistics and the Capital value in the European System of Accounts.

Balance sheet total consists of the sum of items 1 to 16 of the asset side of the balance sheet or of the sum of items 1 to 14 of the liability side of the balance sheet. (Structural Business Statistics (SBS) Code 43 30 0, Commission Regulation (EC) No 2700/98).

Capital value is the total accumulated value of all net investments in the enterprise at the end of the year. ESA 7.09 to 7.24 European System of Accounts 1995 (Regulation (EC) No 2223/96, Regulation (EC) No 1267/2003, Eurostat ESA 1995 manual).

Net Investments:

"Net investments" refers to the difference between Purchase (Gross investment in tangible goods) and Sale (Sales of tangible investment goods) of assets during the year.

Gross investment in tangible goods is the Investment during the reference period in all tangible goods. Included are new and existing tangible capital goods, whether bought from third parties or produced for own use (i.e. Capitalised production of tangible capital goods), having a useful life of more than one year including non-produced tangible goods such as land. The threshold for the useful life of a good that can be capitalised may be increased according to company accounting practices where these practices require a greater expected useful life than the one-year threshold indicated above.

All investments are valued prior to (i.e. gross of) value adjustments, and before the deduction of income from disposals. Purchased goods are valued at purchase price, i.e. transport and installation charges, fees, taxes and other costs of ownership transfer are included.

Own produced tangible goods are valued at production cost. Goods acquired through restructurations (such as mergers, take-overs, break-ups, split-off) are excluded. Purchases of small tools which are not capitalised are included under current expenditure. Also included are all additions, alterations, improvements and renovations which prolong the service life or increase the productive capacity of capital goods. Current maintenance costs are excluded as is the value and current expenditure on capital goods used under rental and lease contracts. Investment in intangible and financial assets are excluded. Concerning the recording of investments where the invoicing, delivery, payment and first use of the good may take place in different reference periods, the following method is proposed as an objective:

i) Investments are recorded when the ownership is transferred to the unit that intends to use them. Capitalised production is recorded when produced. Concerning the recording of investments made in identifiable stages, each part-investment should be recorded in the reference period in which they are made.

In practice this may not be possible and company accounting conventions may mean that the following approximations to this method need to be used:

i) investments are recorded in the reference period in which they are delivered,

ii) investments are recorded in the reference period in which they enter into the production process,

iii) investments are recorded in the reference period in which they are invoiced,

iv) investments are recorded in the reference period in which they are paid for.

Gross investment in tangible goods is based on Gross investment in land (15 12 0) + Gross investment in existing buildings and structures (15 13 0) + Gross investment in construction and alteration of buildings (15 14 0) + Gross investment in machinery and equipment (15 15 0). (Structural Business Statistics (SBS) Code 15 11 0, Commission Regulation (EC) No 2700/98).

Sales of tangible goods includes the value of existing tangible capital goods, sold to third parties. Sales of tangible capital goods are valued at the price actually received (excluding VAT), and not at book value, after deducting any costs of ownership transfer incurred by the seller. Value adjustments and disposals other than by sale are excluded. (Structural Business Statistics (SBS) Code 15 21 0. Commission Regulation (EC) No 2700/98).

Debt:

Financial assets created when creditors lend funds to debtors, either directly or through brokers, which are either evidenced by non-negotiable documents or not evidenced by documents.

Short-term loans: loans whose original maturity is normally one year or less, and in exceptional cases two years at the maximum, and loans repayable on demand.

Long-term loans: loans whose original maturity is normally more than one year, and in exceptional cases more than two years at the minimum.

"Debts" account for provisions and long- and short-term debt (STECF meeting SGECA 06-01).

Number of persons employed (Total employment):

This indicator refers to the number of people employed (including full-time and part-time employees) (SGECA-09-03). It corresponds to the Number of people employed of the Structural Business Statistics.

The number of persons employed is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams). It includes persons absent for a short period (e.g. sick leave, paid leave or special leave), and also persons on strike, but not those absent for an indefinite period. It also includes part-time workers who are regarded as such under the laws of the country concerned and who are on the pay-roll, as well as seasonal workers, apprentices and home workers on the pay-roll. The number of persons employed excludes manpower supplied to the unit by other enterprises, persons carrying out repair and maintenance work in the enquiry unit on behalf of other enterprises, as well as those on compulsory military service. Unpaid family workers refer to persons who live with the proprietor of the unit and work regularly for the unit, but do not have a contract of service and do not receive a fixed sum for the work they perform. This is limited to those persons who are not included on the payroll of another unit as their principal occupation. (Structural Business Statistics (SBS) Code 16 11 0, Commission Regulation (EC) No 2700/98).

The number of employees should be reported by gender.

FTE National:

"FTE national" is the number of employees converted in full time equivalents (calculation methodologies vary between countries).

It corresponds to the "Number of employees in full time equivalent units" of the Structural Business Statistics.

The number of employees converted into full time equivalents (FTE). Figures for the number of persons working less than the standard working time of a full-year full-time worker, should be converted into full time equivalents, with regard to the working time of a full-time full-year employee in the unit. Included in this category are people working less than a standard working day, less than the standard number of working days in the week, or less than the standard number of weeks/months in the year. The conversion should be carried out on the basis of the number of hours, days, weeks or months worked. (Structural Business Statistics (SBS) Code 16 14 0, Commission Regulation (EC) No 2700/98).

Reporting the number of FTE national by gender is optional.

Number of enterprises:

The "Number of enterprises" parameter corresponds to a count of the number of enterprises active during at least a part of the reference period (SGECA-09-03).

A count of the number of enterprises registered to the population concerned in the business register corrected for errors, in particular frame errors. Dormant units are excluded. This statistic should include all units active during at least part of the reference period. (Structural Business Statistics (SBS) Code 11 11 0, Commission Regulation (EC) No 2700/98).

Both definitions are similar. However, there are often some divergences with Eurostat data. This is mostly due to the use of the Veterinary list (which is necessary to trade with food products) to update the business register and so companies that are dormant or focusing on other products have been excluded.

Moreover, under the DCF regulation, the number of companies should be disaggregated by the number of persons employed (in ≤5; 6-10 and >10 FTE) (Structural Business Statistics (SBS) Code 16 14 0, Commission Regulation (EC) No 2700/98).

Indicators calculated under the DCF

Average wage:

The average salary or mean wage estimates the salary an employee working full time is receiving on this sector. It includes the salaries themselves, the social security costs and imputed value of unpaid labour.

Mean wage = (Wages and salaries + Imputed value of unpaid labour) / FTE

Gross Value Added (GVA):

Gross Value Added measures the contribution of the sector to the economy.

The Gross Value Added indicator calculated in this report is similar, but does not fully correspond to the Value added at factor cost of the Structural Business Statistics.

Value added at factor cost as defined in the Structural Business Statistics is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production. Alternatively, it can be calculated from gross operating surplus by adding personnel costs. Income and expenditure classified as financial or extra-ordinary in company accounts is excluded from value added. Value added at factor costs is calculated "gross" as value adjustments (such as depreciation) are not subtracted. (Structural Business Statistics (SBS) Code 12 15 0, Commission Regulation (EC) No 2700/98).

Thus, Gross Value Added is calculated on this report as:

GVA = Turnover + Other Income – Energy costs – Purchase of fish and other raw material for production - Other Operational costs.

GVA margin or GVA to Revenues:

Gross value added to revenue ratio - indicates the share of revenue that contributes to the economy through factors of production (returns to labour and returns to capital). Indicator is calculated as the ratio between gross value added and revenue (the sum of Turnover and Other Income). Expressed as a percentage.

$$GVA\ to\ Revenue = \frac{GVA}{Turnover + Other\ Income} 100\%$$

Earnings Before Interest and Tax (EBIT):

"Earnings before interest and taxes (EBIT)" or "Operating profit" is a measure of a firm's profitability that excludes interest and income tax expenses.

EBIT = Turnover + Other Income + Subsidies – Energy costs – Wages and salaries - Imputed value of unpaid labour - Purchase of fish and other raw material for production – Other Operational costs – Depreciation of capital

Net profit:

"Net profit" is a measure of a firm's profitability that includes the results of financial activity of the enterprise.

Net profit = EBIT – Financial_costs_net

Net profit margin:

Net profit margin is a measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs (operating, capital and financial). Expressed in percentage.

$$Net\ profit\ margin = \frac{Net\ profit}{Total\ Income} 100\%$$

Return on Investment (ROI):

Return on investment is a performance measure to evaluate the profitability (efficiency) of an investment.

During the SGECA-10-04 meeting it was decided that it was more appropriate to calculate the Return on Investment using the "Earnings Before Interest and Tax (EBIT)", rather than the Net profit.

$$ROI = \frac{EBIT}{Total\_Value\_of\_Assets} * 100\%$$

Earnings Before Interest and Tax (EBIT) margin:

"Earnings before interest and taxes (EBIT) to revenue ratio" measures the margin of the companies' profit. Expressed in percentages.

$$EBIT\ to\ Revenue = \frac{EBIT}{Total\ Income} * 100\%$$

Labour productivity:

Labour productivity is calculated as the average output per worker or per time unit. It can be calculated as Gross Value Added (GVA) divided by Full Time Equivalents (FTE). This indicator describes the value added to the economy from the activity, in this case the value added to the economy by one FTE.

$$Labour\_productivity = \frac{GVA}{FTE}$$

When a MS cannot report the level of employment in FTEs, the number of employees is used as a second best alternative. However, this alternative compromises the comparison and should be clearly stated in the report.

Capital productivity:

Capital productivity is calculated as the average output per unit of capital. It can be calculated as Gross Value Added (GVA) divided by Capital value (total value of assets) in percentage. The indicator describes the value added to the economy by one unit of capital.

$$Capital\ productivity = \frac{GVA}{Total\ value\ of\ assets} 100\%$$

Parameters requested under the EUMAP

Turnover: corresponds to the DCF variable "Turnover".

Operating Subsidies: corresponds to the DCF variable "Subsidies". It refers to direct payments which general government or the institutions of the European Union make to resident producers. (ESA D.3).

Other Income: corresponds to the DCF variable "Other Income".

Wages and salaries: corresponds to the DCF variable "Wages and salaries".

Imputed value of unpaid labour: corresponds to the DCF variable "Imputed value of unpaid labour".

Energy Costs: corresponds to the DCF variable "Energy Costs".

Purchase of fish and other raw material for production: corresponds to the DCF variable "Purchase of fish and other raw material for production".

Other operational costs: corresponds to the DCF variable "Other operational costs".

Consumption of fixed capital: corresponds to the DCF variable "Depreciation of capital".

Total Value of Assets: corresponds to the DCF variable "Total Value of Assets".

Net Investments: corresponds to the DCF variable "Net Investments".

Debt: corresponds to the DCF variable "Debt".

Persons employed: corresponds to the DCF variable "Total employees".

Persons employed FTE: corresponds to the DCF variable "Total FTE".

Financial Expenditure minus Financial Income: corresponds to the DCF variable "Financial Costs, net".

Payment for external agency workers: is an optional new variable to account for the costs of outsourced labour.

Subsidies in investments: Direct payments which general governments or the institutions of the European Union make to resident producers to finance all or part of the costs of their acquiring assets related to the company.

Number of hours worked by employees and unpaid labour: The aggregate number of hours worked by the persons employed and the unpaid labour during the reference period.

Unpaid labour: Number of workers that have not received compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind.

Indicators calculated under the EUMAP

Average wage:

The average salary or mean wage estimates the salary an employee working full time is receiving on this sector. It includes the salaries themselves, the social security costs and imputed value of unpaid labour.

Under the EUMAP, the indicator is calculated as follows:

Mean wage = (Wages and salaries + Imputed value of unpaid labour) / (Persons employed FTE + Unpaid labour FTE)

$$\text{Mean wage} = \frac{Wages\ and\ salaries\ +\ Imputed\ value\ of\ unpaid\ labour}{Persons\ employed\ FTE\ +\ Unpaid\ labour\ FTE}$$

Gross Value Added (GVA):

Gross Value Added measures the contribution of the sector to the economy.

The Gross Value Added indicator calculated in this report is similar, but does not fully correspond to the Value added at factor cost of the Structural Business Statistics.

Value added at factor cost as defined in the Structural Business Statistics is the gross income from operating activities after adjusting for operating subsidies and indirect taxes. It can be calculated from turnover, plus capitalised production, plus other operating income, plus or minus the changes in stocks, minus the purchases of goods and services, minus other taxes on products which are linked to turnover but not deductible, minus the duties and taxes linked to production. Alternatively, it can be calculated from gross operating surplus by adding personnel costs. Income and expenditure classified as financial or extra-ordinary in company accounts is excluded from value added. Value added at factor costs is calculated "gross" as value adjustments (such as depreciation) are not subtracted. (Structural Business Statistics (SBS) Code 12 15 0, Commission Regulation (EC) No 2700/98).

Thus, under the EUMAP, the indicator is calculated as follows:

GVA = Gross sales (total) + Other Income – Energy costs – Purchase of fish and other raw material for production - Other Operational costs.

GVA margin or GVA to Revenues:

Gross value added to revenue ratio - indicates the share of revenue that contributes to the economy through factors of production (returns to labour and returns to capital). Indicator is calculated as the ratio between gross value added and revenue (the sum of Turnover and Other Income). Expressed as a percentage. Under the EUMAP, Gross Value Added is calculated as under the DCF:

$$GVA\ to\ Revenue = \frac{GVA}{Turnover + Other\ Income} 100\%$$

Earnings Before Interest and Tax (EBIT):

"Earnings before interest and taxes (EBIT)" or "Operating profit" is a measure of a firm's profitability that excludes interest and income tax expenses. Under the EUMAP, the indicator is calculated as follows:

EBIT = Turnover + Other Income + Operating Subsidies + Subsidies on Investments – Energy costs – Wages and salaries - Imputed value of unpaid labour - Payment for external agency workers – Purchase of fish and other raw material for production – Other Operational costs – Consumption of fixed capital.

Net profit:

"Net profit" is a measure of a firm's profitability that includes the results of financial activity of the enterprise. Under the EUMAP, the indicator is calculated as follows:

Net profit = EBIT – (Financial Expenditure - Financial Income)

Net profit margin:

Net profit margin is a measure of the economic performance of a sector or enterprise expressed in relative terms. It is a difference between total income and all incurred costs (operating, capital and financial). Expressed in percentage. Under the EUMAP, the indicator is calculated as follows:

$$Net\ profit\ margin = \frac{Net\ profit}{Turnover\ +\ Other\ Income\ +\ Operating\ Subsidies\ +\ Subsidies\ on\ Investments} 100\%$$

Return on Investment (ROI):

Return on investment is a performance measure to evaluate the profitability (efficiency) of an investment.

During the SGECA-10-04 meeting it was decided that it was more appropriate to calculate the Return on Investment using the "Earnings Before Interest and Tax (EBIT)", rather than the Net profit. Under the EUMAP, the indicator is calculated as under the DCF:

$$ROI = \frac{EBIT}{Total\_Value\_of\_Assets} * 100\%$$

Earnings Before Interest and Tax (EBIT) margin:

"Earnings before interest and taxes (EBIT) to revenue ratio" measures the margin of the companies' profit. Expressed in percentages. Under the EUMAP, the indicator is calculated as follows:

$$EBIT\ to\ Revenue = \frac{EBIT}{Turnover\ +\ Other\ Income\ +\ Operating\ Subsidies\ +\ Subsidies\ on\ Investments} * 100\%$$

Labour productivity:

Labour productivity is calculated as the average output per worker or per time unit. It can be calculated as Gross Value Added (GVA) divided by Full Time Equivalents (FTE). This indicator describes the value added to the economy from the activity, in this case the value added to the economy by one FTE. Under the EUMAP, the indicator is calculated as follows:

$$Labour\_productivity = \frac{GVA}{Persons\ employed\ FTE\ +\ Unpaid\ labour\ FTE}$$

When a MS cannot report the level of employment in FTEs, the number of employees is used as a second best alternative. However, this alternative compromises the comparison and should be clearly stated in the report.

Capital productivity:

Capital productivity is calculated as the average output per unit of capital. It can be calculated as Gross Value Added (GVA) divided by Capital value (total value of assets) in percentage. The indicator describes the value added to the economy by one unit of capital. Under the EUMAP, the indicator is calculated as under the DCF:

$$Capital\ productivity = \frac{GVA}{Total\ value\ of\ assets} 100\%$$

9.3 Annex 3 – Quality and Coverage checking procedures on the data submitted under the 2021 fish processing sector economic data call

Although the quality and coverage of the data reported under the Data Collection Framework (DCF) are a responsibility of the EU Member States, JRC (European Commission) has undertaken quality and coverage checking procedures on the data submitted, some carried out during the data uploading phase and some afterwards. The quality and coverage of the data has also been checked by national experts during the STECF EWG 21 14 meeting on the Economic Report on the fish processing industry which took place online, during the week 21 to 25 February 2022.

Fish processing data submitted under the 2021 data call and used for the STECF report have been checked in four subsequent steps. This section provides a synthetic description of each of them. More information of the quality and coverage checking procedures undertaken on DCF fish processing data are available in the JRC technical report available at:

http://datacollection.jrc.ec.europa.eu/

Step 1- Data checks before and during uploading procedure to the JRC database

Several data checks are already embedded in the excel templates which the Member States are required to use for uploading data on their national aquaculture sector. In specific cells of these files, the data entry is restricted to certain records (e.g. acceptable codes, value types and ranges).

Furthermore, during the data uploading procedure, a number of automatic syntactic checks are carried out on the data before it is accepted by the database hosted by JRC. Syntactic checks are carried out without any specific knowledge of what the data contains or its meaning. They tell if the data is present or not and in the correct format. These checks automatically reject data that do not confirm to specific restrictions, such as ensuring textual data is validated against defined parameters lists. In addition, numeric data are checked to make sure they contain numbers and not strings.

Step 2 - Results of the data quality checks/analyses are assessed by JRC experts

Once the datasets with the fish processing data are successfully uploaded, JRC produces different analyses on the data submitted in order to facilitate the assessment of its quality and coverage. Some of these analyses are prepared and shared with National Correspondents and National Data Experts. There are also prepared analyses not specifically related to data quality, i.e., analyses on the structure and economic performance of the EU aquaculture sector and overviews of the uploading status of DCF aquaculture data.

All the analyses performed by JRC were made available to National Correspondents and National Data Experts.

Besides developing the checks and analyses, JRC experts actively participate in the analysis of their results. All quality issues (e.g. inconsistencies, outliers and missing data) concerning the data submitted, identified through the analyses performed by JRC in the data excel files, including the most relevant information concerning the problems identified (e.g. description of the problem, structural and economic indicators affected and assessed impact on the analyses of the final STECF report), together with comments and actions recommended to solve the issues.

Step 3 – National correspondents receive a list of data transmission issues and may resubmit revised data

The information on the data quality issues (and including JRC experts' comments and opinions on the action to undertake) are sent to the national correspondents or the data uploaders (each of them receives information only about the country he/she represents).

MS are requested to consider the potential anomalies listed in the excel file, amend and re-submit the data as necessary. They are also requested to go over the quality analyses performed in

order to detect additional (if any) problems and add them to the list. Finally, they are asked to provide feedback (i.e. whether or not the problem has been resolved, which actions have been taken and possible comments) in designated columns of the excel file.

Step 4 – The quality and coverage of the data have been checked by the STECF Expert Working Groups

In addition to being analysed by JRC's experts, the quality and coverage of fish processing data submitted under the DCF and EU-MAP are also checked by national experts during the STECF EWG meeting. Data submitted under the 2021 fish processing data call has been checked during the EWG meeting 21-14 which took place during the week 21 to 25 February 2022.

At the beginning of the meeting, the experts are made aware of the data transmission issues of the MS assigned to them. Moreover, MS have been contacted whenever an inconsistency was found and the expert attending the meeting could not solve it by resubmitting data. Furthermore, all experts have been given access to the tableau dashboards. This has allowed them to visualise changes in the data whenever the MS have uploaded revised data during the meeting or submitted new templates.

The experts reported in the Data Transmission Monitoring Tool the relevant data coverage and quality issues that remained unsolved by the end of the STECF EWG.

9.4 Annex 4 – Estimation protocol used by EWG 21-14 for the 2021 report

The protocol approved by STECF 19-02 for data imputations/estimation was not applied tout court by EWG 21-14 as the submissions status has changed for some MSs: imputations (implemented by projecting DCF data by using ratio derived from Eurostat data) were implemented in the 2019 report for MSs that submitted data for the period 2008-2015 and for which only the last 2 years were missing (data call up to 2017), because of deletion of the fish processing data collection in their WPs. For the 2021 report, based on the data series 2008-2019, the EWG agreed it was useless and inefficient to impute data for a 4-years period (2015-2019) and more logical and efficient to use directly Eurostat data, deemed to be reliable, even more for some MSs submitting uncomplete dataset (i.e. France).

For sake of clarity, in the table below the Structural Business Statistics variables, published by Eurostat on the webpage of the Annual detailed enterprise statistics for industry (NACE Rev. 2, B-E)[73] and also available for the Nace code Activity 10.20 Processing and preserving of fish, crustaceans and molluscs are reported.

Table 9.4.1: - List of variables for the fish processing sector (NACE code 10.20) available under EUROSTAT Structural Business Statistics (grouped per major item)

Structure	Number of enterprises	number
Employment	Number of persons employed	number
	Number of unpaid persons employed	
	Number of employees	
	Number of employees in full time equivalent units	
	Number of hours worked by employees	
Production value and turnover	Production value	million €
	Change in stocks of finished products and work in progress manufactured by the unit	
	Turnover or gross premiums written	
	Turnover from the principal activity at 3-digit level NACE Rev. 2	
Costs	Personnel costs	million €
	Wages and Salaries	
	Social security costs	
	Payments for agency workers	
	Payments for long term rental and operational and financial leasing of goods	
	Purchases of energy products (in value)	
	Purchases of goods and services purchased for resale in the same condition as received	
	Total purchases of goods and services	
Investments	Gross investment in land	million €
	Gross investment in machinery and equipment	
	Gross investment in construction and alteration of buildings	

[73] https://appsso.eurostat.ec.europa.eu/nui/show.do

	Gross investment in existing buildings and structures
	Gross investment in tangible goods
	Net investment in tangible goods
	Sales of tangible investment goods

Source: Economic report of the EU fish processing sector 2017 (STECF-17-16).

As already highlighted in the Economic report of the EU fish processing sector 2017 (STECF-17-16), there is not a complete match between DCF/EUMAP variables and Eurostat/SBS ones. Indeed, during the STECF EWG 17-16, a preliminary exercise to identify potential matches were identified. EWG 21-14 used these preliminary results, further elaborating on it. The matches used for the current report are reported in table 9.4.2.

Table 9.4.2: -- Matching table between DCF and Eurostat SBS variables and estimation note

Variable DCF/EUMAP	SBS variable name (and code)	EWG 21-14 note of estimation
Number of enterprises	Number of enterprises (SBS code 11 11 0)	
Turnover	Turnover from the principal activity at 3-digit level NACE Rev. 2 (SBS code 18 11 0)	*Turnover or gross premiums written (12 11 0) used instead of Turnover from the principal activity as the latest not available for most NO DCF MSs*
Personnel costs	Personnel costs (SBS code 13 31 0)	
Energy costs	Purchases of energy products (in value) (SBS code 20 11 0)	*Total purchase of goods and services (SBS code 13 11 0) used as a proxy of the sum of Raw material and energy costs of the DCF/EUMAP requirements*
Purchase of fish and other raw material for production		
Net Investments	Net investment in tangible goods (SBS 15 11 0 / 15 21 0)	*SBS variable is only a proxy of the DCF/EUMAP one as it relates only to tangible goods while DCF/EUMAP include both investments in tangible and intangible*
Total employees	Number of employees (SBS code 16 13 0)	
FTE national	Number of employees in full time equivalent units (SBS code 16 14 0)	
Unpaid labour (number)	Number of unpaid persons employed (SBS code 16 12 0)	

In particular, the following DCF/EUMAP variables are not covered by SBS and cannot be estimated:

- Operating subsidies
- Subsidies on investments
- Consumption of fixed capital
- Total value of assets
- Financial income
- Financial expenditures
- Debt
- Number of enterprises (non-main activities)
- Turnover (non-main activities)

For these reasons, some profitability indicators have been calculated and reported, in the EU overview, only for the DCF/EUMAP group of countries (e.g. tables 2.2.2 and 2.2.3).

Furthermore, some elaboration on Eurostat/SBS data have been done for some MS, i.e. France, because of missing data for the year 2018. Considering that the number of enterprises was available, data for 2018 have been imputed by calculating weighted averages as follow (an example is reported for energy costs):

$$\text{Purchase of energy costs (year 2018} = \frac{\text{Purchase of energy costs (year 2017)} + \text{Purchase of energycosts (year 2019)}}{\textit{Number of enterprises (year 2017)} + \textit{Number of enteprises (year 2019)}} * \textit{Number of enterprises (year 2018)}$$

10 LIST OF ELECTRONIC ANNEXES

Electronic annexes are published on the meeting's web site on:
http://stecf.jrc.ec.europa.eu/ewg2114

List of electronic annexes documents:

EWG-21-14 – Annex 1 - Economic Report on the fish processing industry - Dataset

11 LIST OF BACKGROUND DOCUMENTS

Background documents are published on the meeting's web site on:
http://stecf.jrc.ec.europa.eu/ewg2114

List of background documents:

EWG-21-14 – Doc 1 - Declarations of invited and JRC experts (see also chapter 7 of this report – List of participants)

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