



This research has received financial help through the European Union's Horizon 2020 research program, Grant Agreement 635188.

EAFE CONFERENCE 2017

April 24 – 28, 2017. Dublin Castle, Dublin (Ireland)

ECONOMIC ANALYSIS OF THE EUROPEAN FISH AND SEAFOOD VALUE CHAIN

Prof. Dr. José L. Fernández Sánchez*

Prof. Dr. José M. Fernández Polanco

Prof. Dr. Ignacio Llorente

Prof. Dra. Elisa Baraibar Diez

Prof. Dra. María D. Odriozola Zamanillo

Prof. Dr. Ladislao Luna Sotorrío

Professor in Business Economics and researcher of IDES-UC research group

E-mail: fernandezjl@unican.es.

Research aim

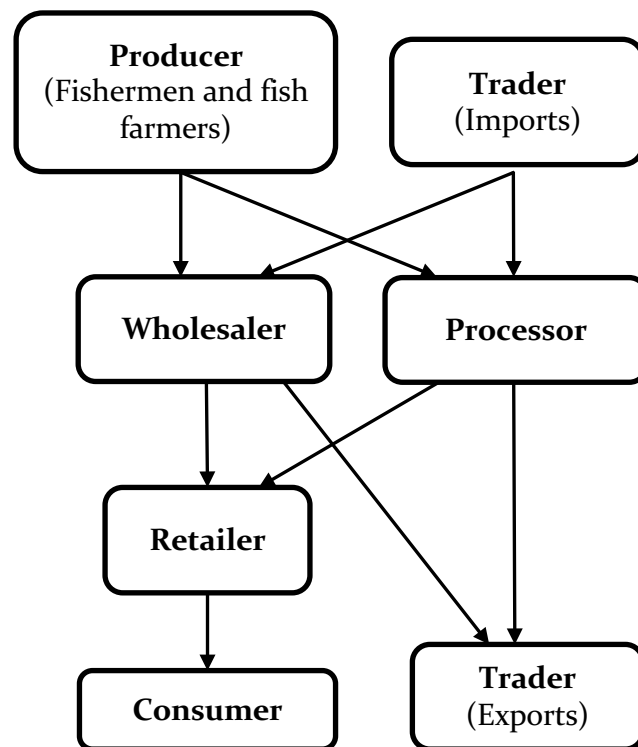
The objective of this study is to show how the revenues, costs, and profits of different agents are distributed over the entire fish and seafood value chain in Europe.



Value Chain Analysis

The term **value chain** (VC) refers both to a set of interdependent economic activities and to a group of vertically linked economic agents.

A typical fish and seafood value chain consists of harvesting (either through fishing or aquaculture, or a combination of both), processing, distribution and marketing and finally consumption.



METHODOLOGY

Data

- We have employed fish and seafood prices obtained from EUMOFA and economic data of EU28 firms obtained from the AMADEUS (total) database for the period 2009-2013.

Analysis method

- To perform this analysis, we employ the VC methodology, which attempts to understand value creation, activities of actors and their financial performance along the chain (Deng et al., 2016).

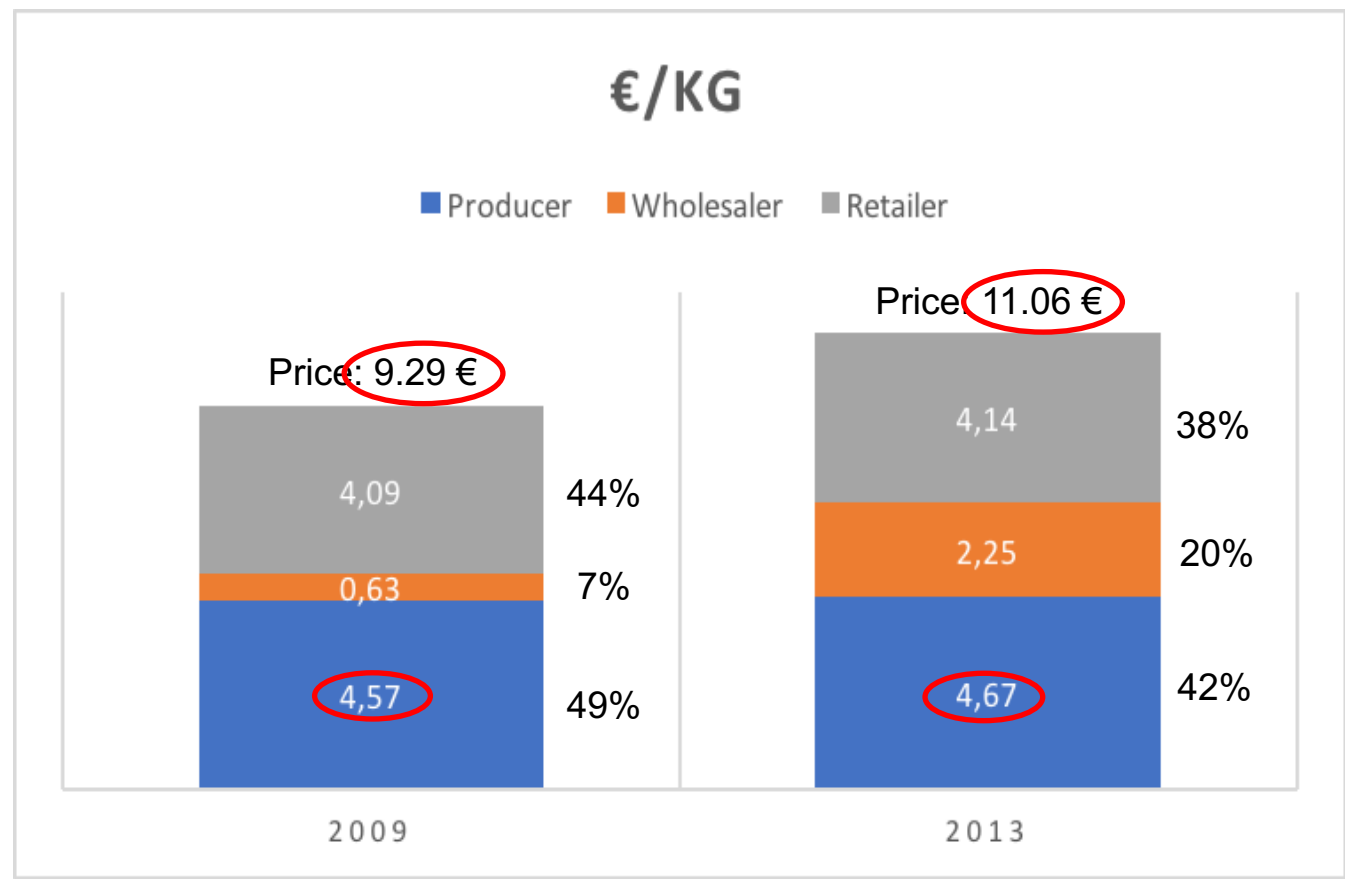
Figure 1
Average European fish and seafood price distribution in the VC and its evolution (2009-2013)



Source: Authors' elaboration using EUMOFA database.

Figure 1

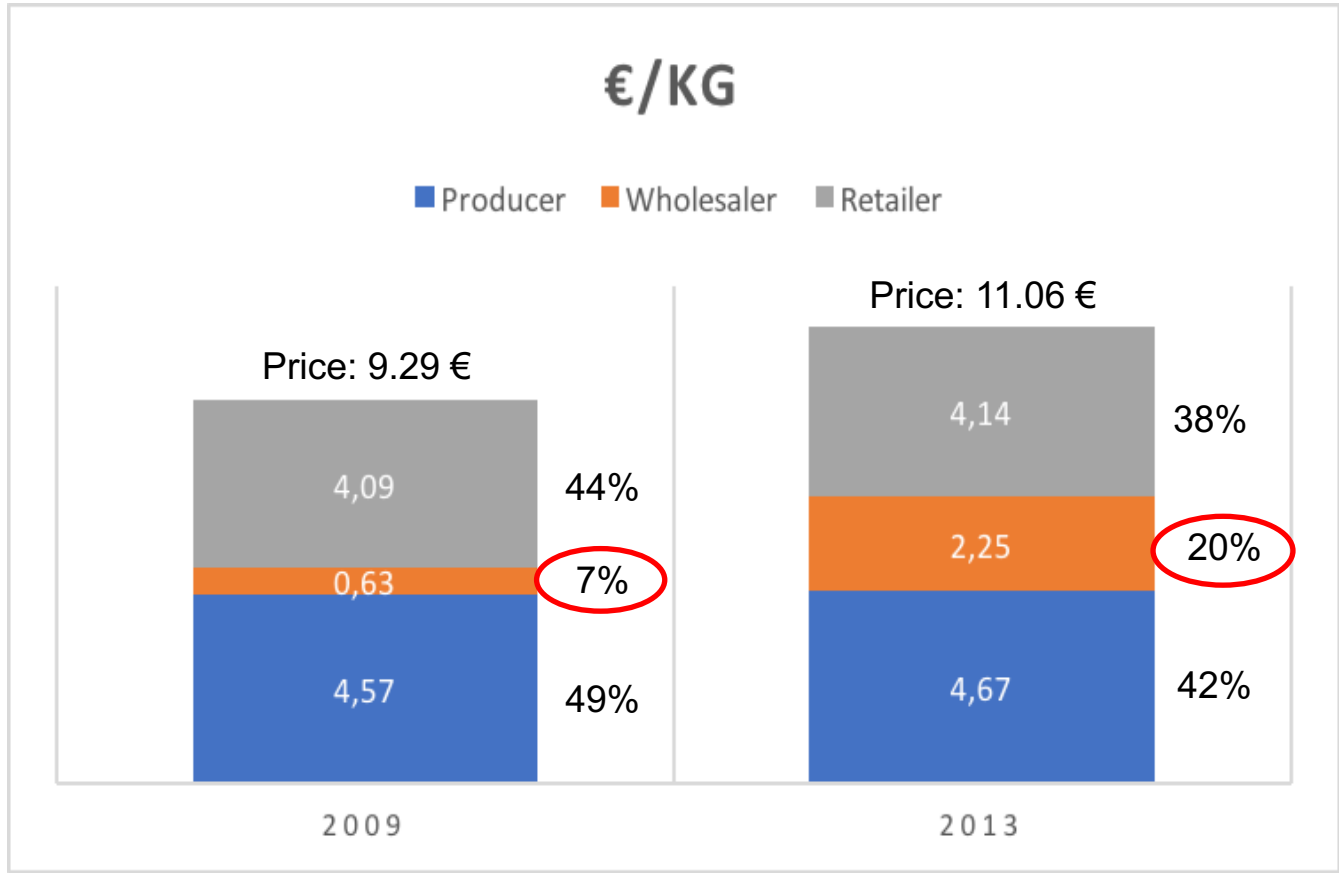
Average European fish and seafood price distribution in the VC and its evolution (2009-2013)



The average retail prices of fish and seafood products grew in Europe a 19.1% in 5 years, whereas production prices increased by a 2.2%.

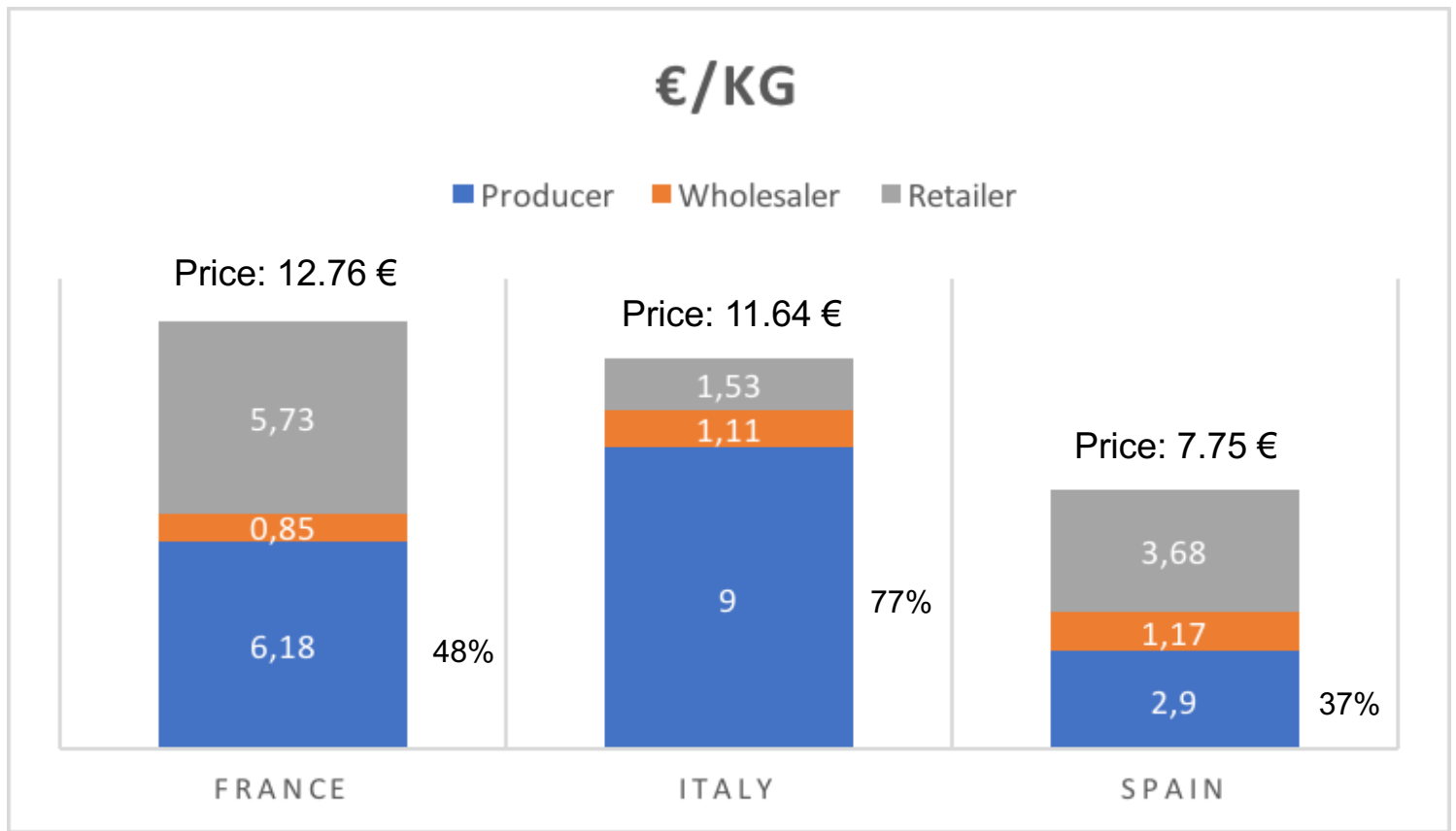
ANALYSIS OF RESULTS

Figure 1
Average European fish and seafood price distribution in the VC and its evolution (2009-2013)



European fish and seafood retailers and producers had, on average, a similar participation in the final retail price although wholesalers' participation in the VC increased significantly in these years.

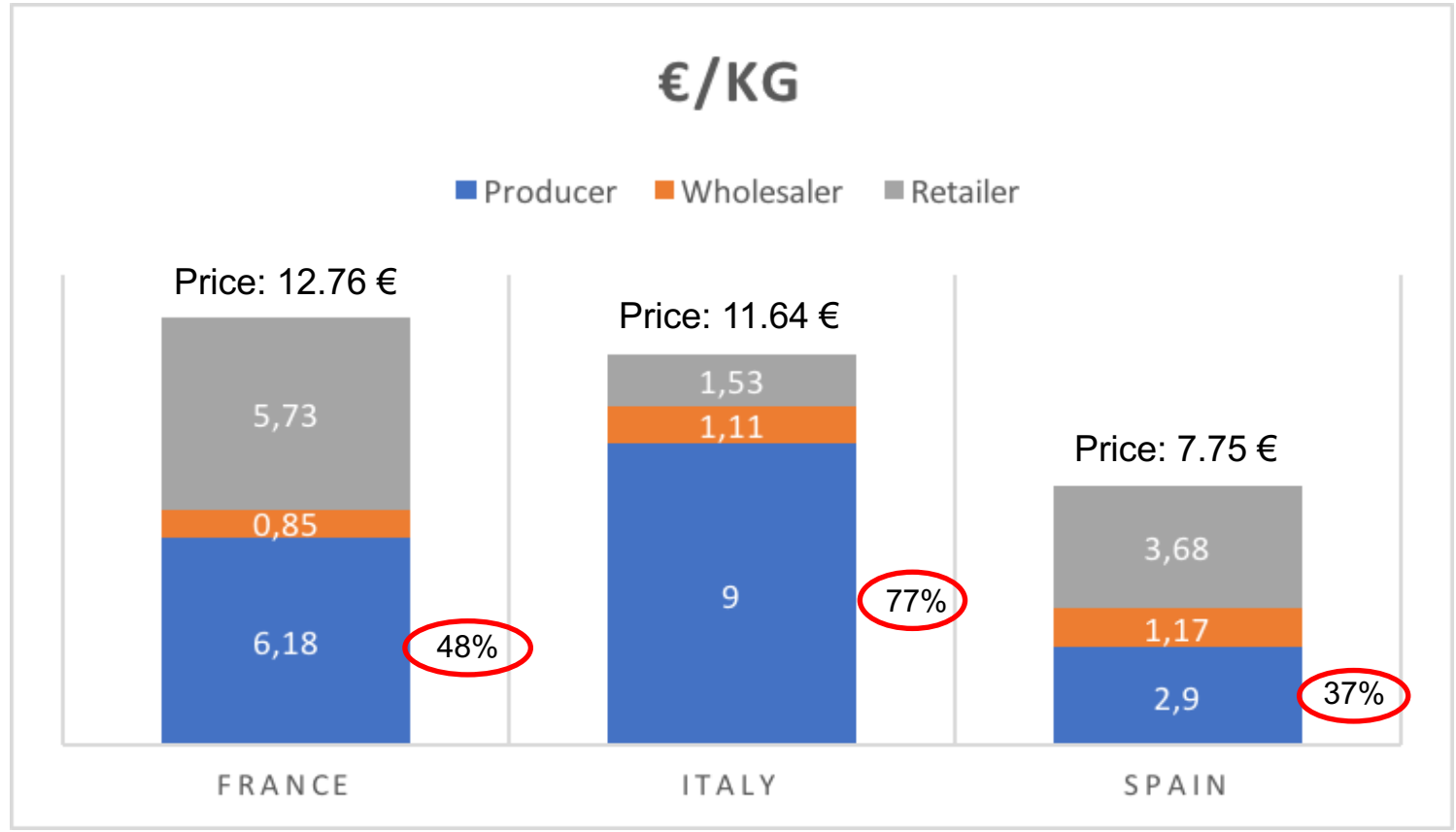
Figure 2
Price distribution in the VC by country
(average 2009-2013)



Source: Authors' elaboration using EUMOFA database.

ANALYSIS OF RESULTS

Figure 2
Price distribution in the VC by country
(average 2009-2013)



Despite of the differences in retail prices, French and Spanish producers have a similar relative participation. Italian producers have the largest relative participation in the VC.

Table 1
VC participation of fish and seafood producers by country
(average 2009-2013)

Country	Retail price (€/kg)	Production price (€/kg)	Producer VC participation (%)
Belgium	17.50	6.52	37.3
Denmark	15.86	5.49	34.6
France	12.76	6.18	48.4
Germany	13.13	1.89	14.4
Greece	12.86	5.50	42.8
Italy	11.64	9.00	77.3
Latvia	4.71	0.28	5.9
Lithuania	4.31	0.75	17.4
Netherlands	14.67	4.35	29.7
Portugal	5.89	3.49	59.3
Spain	7.75	2.90	37.4
Sweden	15.65	10.97	70.1
United Kingdom	10.87	3.07	28.2

ANALYSIS OF RESULTS

Table 1

VC participation of fish and seafood producers by country
(average 2009-2013)

Country	Retail price (€/kg)	Production price (€/kg)	Producer VC participation (%)
Belgium	17.50	6.52	37.3
Denmark	15.86	5.49	34.6
France	12.76	6.18	48.4
Germany	13.13	1.89	14.4
Greece	12.86	5.50	42.8
Italy	11.64	9.00	77.3
Latvia	4.71	0.28	5.9
Lithuania	4.31	0.75	17.4
Netherlands	14.67	4.35	29.7
Portugal	5.89	3.49	59.3
Spain	7.75	2.90	37.4
Sweden	15.65	10.97	70.1
United Kingdom	10.87	3.07	28.2

Some European countries with a high participation of producers in the VC as Italy, Sweden, Portugal, France, and Greece with percentage values in a range of 40%-80% of the retail price.

ANALYSIS OF RESULTS

Table 1

VC participation of fish and seafood producers by country
(average 2009-2013)

Country	Retail price (€/kg)	Production price (€/kg)	Producer VC participation (%)
Belgium	17.50	6.52	37.3
Denmark	15.86	5.49	34.6
France	12.76	6.18	48.4
Germany	13.13	1.89	14.4
Greece	12.86	5.50	42.8
Italy	11.64	9.00	77.3
Latvia	4.71	0.28	5.9
Lithuania	4.31	0.75	17.4
Netherlands	14.67	4.35	29.7
Portugal	5.89	3.49	59.3
Spain	7.75	2.90	37.4
Sweden	15.65	10.97	70.1
United Kingdom	10.87	3.07	28.2

Other countries, however, have a low participation, below 30%, of producers in the VC as Netherlands, United Kingdom, Germany, Lithuania, and Latvia.

Table 2

Analysis of the European fish and seafood value chain
(average 2009-2013)

Concept	Average proportion by firm (%)			
	<i>Production NACE 03XX</i>	<i>Processing NACE 1020</i>	<i>Wholesale NACE 4638</i>	<i>Retail NACE 4723</i>
Total revenues (turnover)	100	100	100	100
Materials purchase costs	39.8	63.5	69.9	70.2
Labour costs	17.8	11.7	6.4	13.8
Other operating costs	17.6	14.6	12.5	12.6
Depreciation costs	6.4	2.4	1.1	2.1
Gross profit	60.2	36.5	30.1	29.8
Operating profit	18.3	7.7	10.1	1.2

Table 2

Analysis of the European fish and seafood value chain
(average 2009-2013)

Concept	Average proportion by firm (%)			
	<i>Production NACE 03XX</i>	<i>Processing NACE 1020</i>	<i>Wholesale NACE 4638</i>	<i>Retail NACE 4723</i>
Total revenues (turnover)	100	100	100	100
Materials purchase costs	39.8	63.5	69.9	70.2
Labour costs	17.8	11.7	6.4	13.8
Other operating costs	17.6	14.6	12.5	12.6
Depreciation costs	6.4	2.4	1.1	2.1
Gross profit	60.2	36.5	30.1	29.8
Operating profit	18.3	7.7	10.1	1.2

European fish and seafood producers had, on average, higher gross and operating profit margins (60.2% and 18.3% respectively) than the rest of agents in the fish and seafood VC. By the contrary, processing and trading activities generated a gross profit around 30% and operating profits around or lower than 10%.

Table 2

Analysis of the European fish and seafood value chain
(average 2009-2013)

Concept	Average proportion by firm (%)			
	<i>Production NACE 03XX</i>	<i>Processing NACE 1020</i>	<i>Wholesale NACE 4638</i>	<i>Retail NACE 4723</i>
Total revenues (turnover)	100	100	100	100
Materials purchase costs	39.8	63.5	69.9	70.2
Labour costs	17.8	11.7	6.4	13.8
Other operating costs	17.6	14.6	12.5	12.6
Depreciation costs	6.4	2.4	1.1	2.1
Gross profit	60.2	36.5	30.1	29.8
Operating profit	18.3	7.7	10.1	1.2

The activity of production had, on average, higher labour costs than in the rest of activities (a 17.8% of the firm revenues). Besides, this activity had a 6.4% of depreciation costs, the highest proportion compared with the rest of activities in the VC. Regarding trading activities, the most important operating cost is the purchase of raw materials (around a 70% of the revenues) whereas, for processing, raw materials are lower (63.5%) and labour costs have a little higher proportion of the revenues (11.7%).

Table 3

Evolution of the operating profit margin in the European fish and seafood value chain (period 2009-2013)

Value chain stage	Year 2009 (%)	Year 2013 (%)	Average (%)	%Δ
Production (NACE 03XX)	13.1	18.4	15.8	41.1
Processing (NACE 1020)	3.4	12.2	7.8	257.8
Wholesale (NACE 4638)	26.0	2.5	14.2	-90.3
Retail (NACE 4723)	-0.2	-3.7	-1.9	-17.5

Table 3

Evolution of the operating profit margin in the European fish and seafood value chain (period 2009-2013)

Value chain stage	Year 2009 (%)	Year 2013 (%)	Average (%)	%Δ
Production (NACE 03XX)	13.1	18.4	15.8	41.1
Processing (NACE 1020)	3.4	12.2	7.8	257.8
Wholesale (NACE 4638)	26.0	2.5	14.2	-90.3
Retail (NACE 4723)	-0.2	-3.7	-1.9	-17.5

European fish and seafood producers and processors had an increase in their average operating profits along the period 2009-2013, an 41.1% for producers and a 257.8% for processors, having producers the largest average operating profit margin in the period 2009-2013 (a 15.8%).

Table 3

Evolution of the operating profit margin in the European fish and seafood value chain (period 2009-2013)

Value chain stage	Year 2009 (%)	Year 2013 (%)	Average (%)	%Δ
Production (NACE 03XX)	13.1	18.4	15.8	41.1
Processing (NACE 1020)	3.4	12.2	7.8	257.8
Wholesale (NACE 4638)	26.0	2.5	14.2	-90.3
Retail (NACE 4723)	-0.2	-3.7	-1.9	-17.5

On the other hand, wholesalers and retailers had a negative evolution of their average operating profits with a decrease of -90.3% and -17.5% respectively.

ANALYSIS OF RESULTS

Table 4

Correlation among producers' participation in the VC and operating profit margins with fish and seafood prices and market concentration (CR4)
(Spearman's rank correlation)

Variable	Producers' VC participation (%)	Producers' operating profit margin (%)
Retail price (€/kg)	0.198	0.099
Production price (€/kg)	0.808	-0.035
Producers CR4*	0.088	-0.022
Processors CR4*	0.099	-0.066
Wholesalers CR4*	-0.088	-0.049
Retailers CR4*	-0.119	0.056

*CR4 values estimated by the authors

Producers' VC participation is positively correlated with production prices, but it is not correlated with retail prices. So, we can infer that in some countries some agents in the VC can moderate their own prices to compensate high producers' prices. In addition, there is not relationship of producers' VC participation and operating profit margins with market concentration (using the CR4 measure) in any of the VC stages.

CONCLUSION

The main conclusions of this research are:

- In the analysed period 2009-2013, over 40% of the retail price is for fish and seafood producers and around 40% of the retail price is for retailers. On the other hand, the participation of wholesalers was below 20%.
- However, producers' participation in the European fish and seafood value chain is very different depending on the analysed country. Thus, the largest participation of producers has been in Italy (over 70%), Sweden, Portugal (with a participation over 50%), whereas the lowest participation has been in Latvia, Germany, and Lithuania (with a participation below 20%).
- European fish and seafood producers had, on average, higher gross and operating profit margins than the rest of agents in the fish and seafood VC. The activity of production had, on average, higher labour and depreciation costs compared with the rest of activities (processing and trading).

CONCLUSION

- European fish and seafood producers also had, on average, the largest operating profit margin having an increase around 40% in 5 years. This positive evolution can be explained by a decrease in producers' operating costs in this period.
- On the other hand, despite the positive evolution of wholesale and retail prices, the operating profit margin of wholesalers and retailers had a negative evolution (a decrease around 90% and 18% respectively) that can be explained by an increase in wholesalers and retailers' operating costs over the increase in wholesale and retail prices.
- We have not found evidence that any agent in the VC had used its market position and negotiating power to get a higher proportion of the retail prices and profit margins. By the contrary, we have found evidence that, in some countries, VC agents could be moderating their own prices to compensate high producers' prices (evidence of an asymmetric price distribution).



EAFE CONFERENCE 2017
April 24 – 28, 2017. Dublin Castle, Dublin (Ireland)



Economic Analysis of the European Fish and Seafood Value Chain

THANK YOU FOR YOUR ATTENTION

Do you have a question?