



Price integration in the flatfish value chain

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"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 635188".

- ❑ **Price integration in the whole fresh turbot value chain in Spain**

- ❑ **Price integration in the whole fresh sole value chain in France**

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Price integration in the turbot value chain in Spain

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□ Turbot production in Spain

- ❖ Wild turbot = Only 41 t in 2014
- ❖ Farmed turbot = 7,776 t in 2014 (FAO, 2016), 99,5% of total Spanish turbot production

□ Turbot market in Spain (APROMAR, 2016):

- ❖ Wild turbot = 34% of the supply in the Spanish market
- ❖ Farmed turbot = 66% of the supply in the Spanish market

□ Trade:

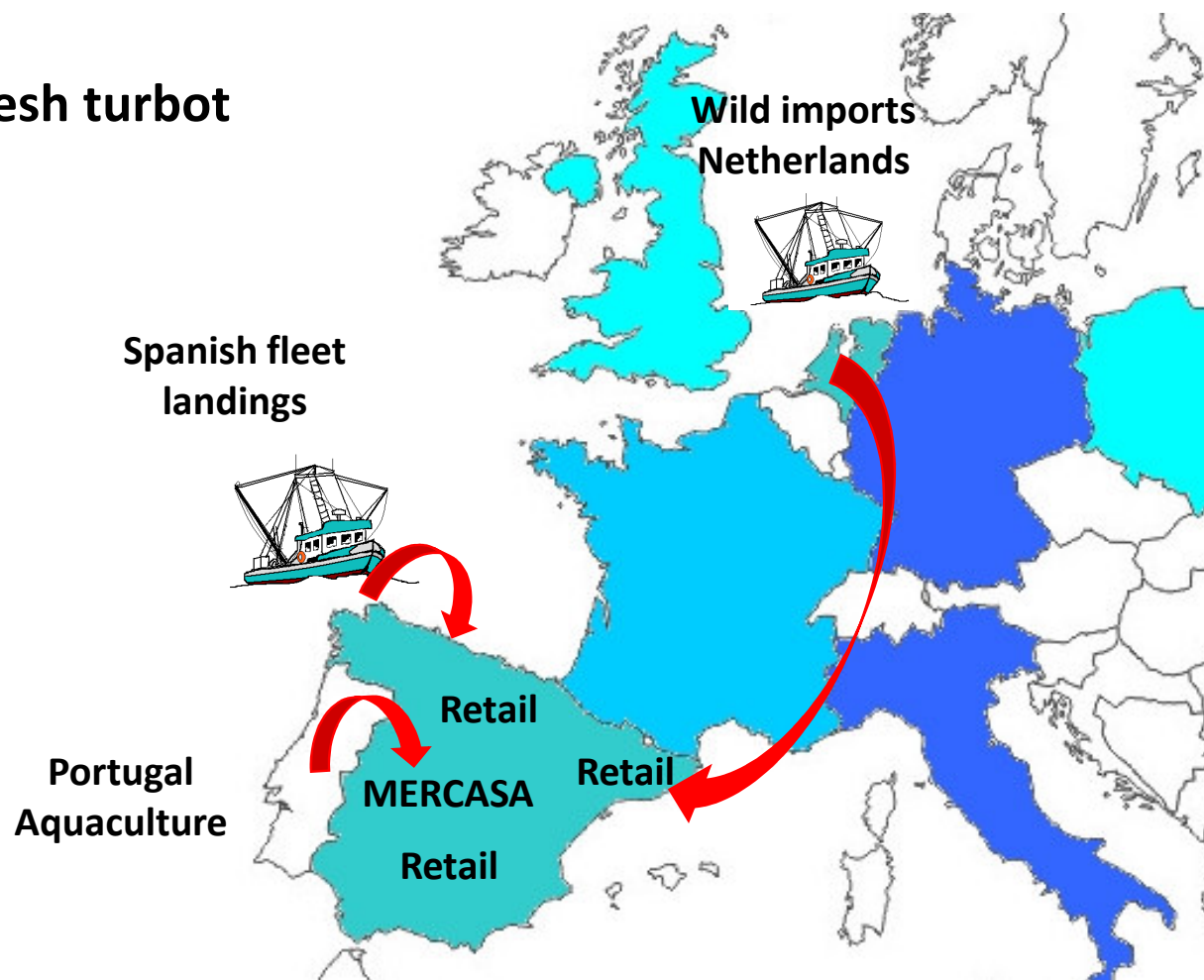
- ❖ Significant imports of wild turbot (5,990 t in 2014), mainly from the Netherlands
- ❖ Farmed turbot = Imported from Portugal

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Research goals

- ❑ Analyse **market delimitation and price transmission and imports price to the retail stage in the whole fresh turbot value chain in Spain**
- ❑ Scrutinise the **influence of international trade on domestic prices formation**
- ❑ Identification of **asymmetries in the transmission of prices and market powers**

Whole fresh turbot



No Spanish exfarm
Price available

Production

Wild: Whole and fresh

- ❖ Spanish landings (Turbot landings in Galicia):
Source: Xunta de Galicia Frequency: Daily
Period: 2009-2017

- ❖ Imports from Netherlands:
Source: Eurostat Frequency: Monthly
Period: 2012-2016

Aquaculture: Whole and fresh

- ❖ Imports from Portugal:
Source: Eurostat Frequency: Monthly
Period: 2012-2016

Wholesale

- ❖ MERCASA: whole and fresh

Source: MERCASA Frequency: Weekly
Period: 2009-2016

Retail

- ❖ MAPAMA: whole and fresh

Source: Panel consume Alimentario
Frequency: Monthly Period: 2009-2016
Hypermarket, Supermarket, Fish-shop, Traditional market

Turbot results

- The **Augmented Dickey-Fuller (ADF)** test (Dickey & Fuller, 1979; 1981) is used to test the time series properties of the data (non-stationarity).

	Constant		Linear trend		Quadratic trend	
	Levels	1st diff.	Levels	1st diff.	Levels	1st diff.
Imports PT	-1.99849	-6.3983***	-3.44024*	-6.3886***	-4.22411**	-5.2336***
Imports NL	-1.32832	-1.65728	-0.258984	-2.05512	-0.614917	-3.10879
Landings Spain	-0.0462801	-4.9231***	-3.39878*	-4.6882***	-2.31006	-5.2101***
Retail	-1.73165	-11.256***	-1.97724	-11.155***	-2.16427	-11.053***

*** 99% CL; ** 95% CL; * 90% CL

- Unit root can be rejected in the case of imports from the Netherlands and in all trended models of the imports from Portugal. **Analysis will be based on Granger causality.**

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Turbot results

Imports from Portugal

All lags of Imports PT	$F(6, 12) = 1.3046 [0.3264]$
All lags of Imports NL	$F(6, 12) = 1.4849 [0.2633]$
All lags of Landings SP	$F(6, 12) = 0.77429 [0.6050]$
All lags of Retail	$F(6, 12) = 2.304 [0.1030]$

Imports from the Netherlands

All lags of Imports PT	$F(6, 12) = 1.261 [0.3438]$
All lags of Imports NL	$F(6, 12) = 4.2512 [0.0159]^{***}$
All lags of Landings SP	$F(6, 12) = 1.4013 [0.2908]$
All lags of Retail	$F(6, 12) = 1.5624 [0.2402]$

Landings in Spain (Galicia)

All lags of Imports PT	$F(6, 12) = 0.17257 [0.9793]$
All lags of Imports NL	$F(6, 12) = 1.2389 [0.3530]$
All lags of Landings SP	$F(6, 12) = 0.9261 [0.5101]$
All lags of Retail	$F(6, 12) = 0.6348 [0.7010]$

Retail

All lags of Imports PT	$F(6, 12) = 0.77842 [0.6023]$
All lags of Imports NL	$F(6, 12) = 0.32937 [0.9087]$
All lags of Landings SP	$F(6, 12) = 0.32448 [0.9116]$
All lags of Retail	$F(6, 12) = 0.26459 [0.9432]$

□ **The four price series are independent.**

Turbot conclusions

- Wild and farmed turbot are well differentiated and there is no substitution across both origins.

- Same happens with domestic and imported wild turbot.



Price integration in the sole value chain in France

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- ❑ The common sole (*Solea Solea*) is ranked **seventh of the Seafood consumption of fresh fish** in France (France Agrimer, 2016)
- ❑ The French **Sole market is mostly a fresh (and whole)** Seafood market
- ❑ **Domestic production** is around **8,000 tonnes** per year **exclusively from fishing** fleet catches
- ❑ **Sole imports for the French Sole market** amount **2,400 tonnes**

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- ❑ **Sole landings mainly come from Atlantic fishing area (Bay of Biscay and East English Channel). Netters (60% of landings) and Trawlers (20%).**
- ❑ **Imports come from 2 main countries: Netherlands (56%) and UK (24%). Imports from UK are a bit cheaper than NL**
- ❑ **Sole prices on the top of the chain vary slightly between domestic fishery production (10€/kg) and imports (8.7€/kg). At the end of the chain, fresh sole is sold around 17.5 €/kg for consumption at home**
- ❑ **Unfortunately few (close to no) data are available about wholesaler prices in the fresh fish value chain in France.**

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- ❑ **French Sole landings are seasonal (See also Daurès, 2016, Sole chain (SUCCESS, D3.2) with a peak of landings in the beginning of the year and hence a decrease in prices at the same time.**
- ❑ **France Agrimer assessed the Sole home consumption at 3,515 tonnes and 61 m€ in 2015.**
- ❑ **This consumption is mostly fresh (82%) at an average price is 17.5 €/kg but this price varies according to the places where the sole is purchased.**
- ❑ **The lowest prices occur at the supermarkets which concentrate 55% of the purchasing. Based on Aglia Sole is also purchased to traditional markets (22%), fishmongers (15%) but also through other direct channels (around 9%).**

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- ❑ The information used in the introduction was extracted from the description of the sole value chain in France made by Fabienne Daures (IFREMER) as a contribution to the D4.1.
- ❑ The prices used for the statistical analysis of price transmission in the sole value chain in France was provided by Fabienne Daures (IFREMER).
 - ❑ Imports: Fresh or chilled sole. Product_NC 03022300. Frequency: Monthly. Period 2010-2015. Source: Eurostat
 - ❑ Ex-vessel: Fresh Whole. Frequency: Monthly. Period 2010-2015. Source: SIH Ifremer - Sacrois
 - ❑ Retail: Fresh whole. Frequency: Monthly. Period 2010-2015. Source: Kantar Worldpanel

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Sole Results

- The **Augmented Dickey-Fuller (ADF)** test (Dickey & Fuller, 1979; 1981) is used to test the time series properties of the data (non-stationarity).

	Constant		Linear trend		Quadratic trend	
	Levels	1st diff.	Levels	1st diff.	Levels	1st diff.
Ex-vessel	-1.19251	-4.273***	-0.617439	-10.528***	-1.67874	-10.510***
Import	-1.12245	-9.208***	-0.781276	-9.385***	-1.89359	-9.285***
Retail	-1.52269	-11.028***	-1.43982	-10.994***	-3.13438	-10.923***

*** 99% CL; ** 95% CL; * 90% CL

- Unit root cannot be rejected in all cases. **Price series behave as non-stationary variables.**
- Johansen test should be performed for confirming causal relations.

Sole results

Granger Causality			
Causes			
	Ex-vessel	Imports	Retail
Ex-vessel	3.9232 ***	0.53757	1.5714
Imports	0.060635	5.3139 ***	0.72499
Retail	2.0575	2.6393 *	0.68638

*** 99% CL; ** 95% CL; * 90% CL

Beyond a low intensity link from imports on retail, price series appear to be independent.

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Sole results

Exvessel

Todos los retardos de Exvessel	$F(3, 47) = 3.9232 [0.0140]^{***}$
Todos los retardos de Imports	$F(3, 47) = 0.53757 [0.6589]$
Todos los retardos de Retail	$F(3, 47) = 1.5714 [0.2088]$
Todas las variables, retardo 3	$F(3, 47) = 4.6909 [0.0060]$

Imports

Todos los retardos de Exvessel	$F(3, 47) = 0.060635 [0.9802]$
Todos los retardos de Imports	$F(3, 47) = 5.3139 [0.0031]^{***}$
Todos los retardos de Retail	$F(3, 47) = 0.72499 [0.5422]$
Todas las variables, retardo 3	$F(3, 47) = 1.4844 [0.2309]$

Retail

Todos los retardos de Exvessel	$F(3, 47) = 2.0575 [0.1186]$
Todos los retardos de Imports	$F(3, 47) = 2.6393 [0.0604]^*$
Todos los retardos de Retail	$F(3, 47) = 0.68638 [0.5649]$
Todas las variables, retardo 3	$F(3, 47) = 2.7448 [0.0534]$

Beyond a low intensity link from imports on retail, price series appear to be independent.

Sole results

Johansen and weak exogeneity tests:

Rank	Eigenvalue	Trace Test	Lmax test
0	0.25429	33.411	20.246
1	0.12884	13.164	9.5171
2	0.051487	3.6473	3.6473
Weak exogeneity test			
	Ex-vessel	Imports	Retail
	-	-	-

Johansen test confirms independence of the price series since there is no cointegration in the system.

- ❑ Results suggest a similar situation as in the previous flatfish value chain, turbot in Spain
- ❑ Imported and local are well differentiated and there is no substitution across both origins.
- ❑ Increasing concentration of sales in supermarkets. In other seafood value chains retail prices have resulted independent of the model



Thank you!

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