



# Price integration in the fresh hake value chain in Spain

José M. Fernández Polanco, Ignacio Llorente, José L. Fernández Sánchez, Maria D. Odriozola, Elisa Baraibar-Diez, and Ladislao Luna Sotorrio

University of Cantabria (UC) – Spain Faculty of Economics and Business Administration  
Avda. de los Castros s/n 39005 Santander (Spain)



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

- In 2014, 1,333,549 tons of hake were harvested worldwide (64% in the Atlantic Ocean)
- **Argentina, the United States and South Africa are the main producers.**
- **EU hake catches** totaled 198,106 tons in 2014, representing approximately **15% of the world total**
- **Spain** ranks 5th with 9% of the world's catch (120,738 tons). **Spain is the EU's first producer of hake** with catches close to 61%, closely followed by France with 21%.

Source: MAPAMA 2016

- Hake is one of the most rooted white fish in the gastronomic culture in Spain, very important in this relevant seafood market



- In the Spanish market **there are hake available throughout the year**, since in the Spanish market **there are eight different species of the twelve known**, coming from different fishing grounds and therefore with different seasonality under the generic name of "hake"
- Hake is marketed mainly in four presentations: Fresh or chilled , frozen hake, frozen hake fillets and meats, hake preparations and preserves.

## European hake (*Merluccius merluccius*)

- The **European hake** with commercial denomination "hake", is **the most appreciated and valued in Spain**
- Its most common form of commercialization is **fresh whole, proceeding mainly from the landings of the Spanish fleet** and intra-EU trade

## Hake consumption in Spain

- ❑ **Fresh hake (2015). 2.43 kg/per capita.** 108,426 t with a value of 778 million €
- ❑ **Frozen hake (2015). 0.94 kg/per capita.** 42.155 t with a value of 284 million €

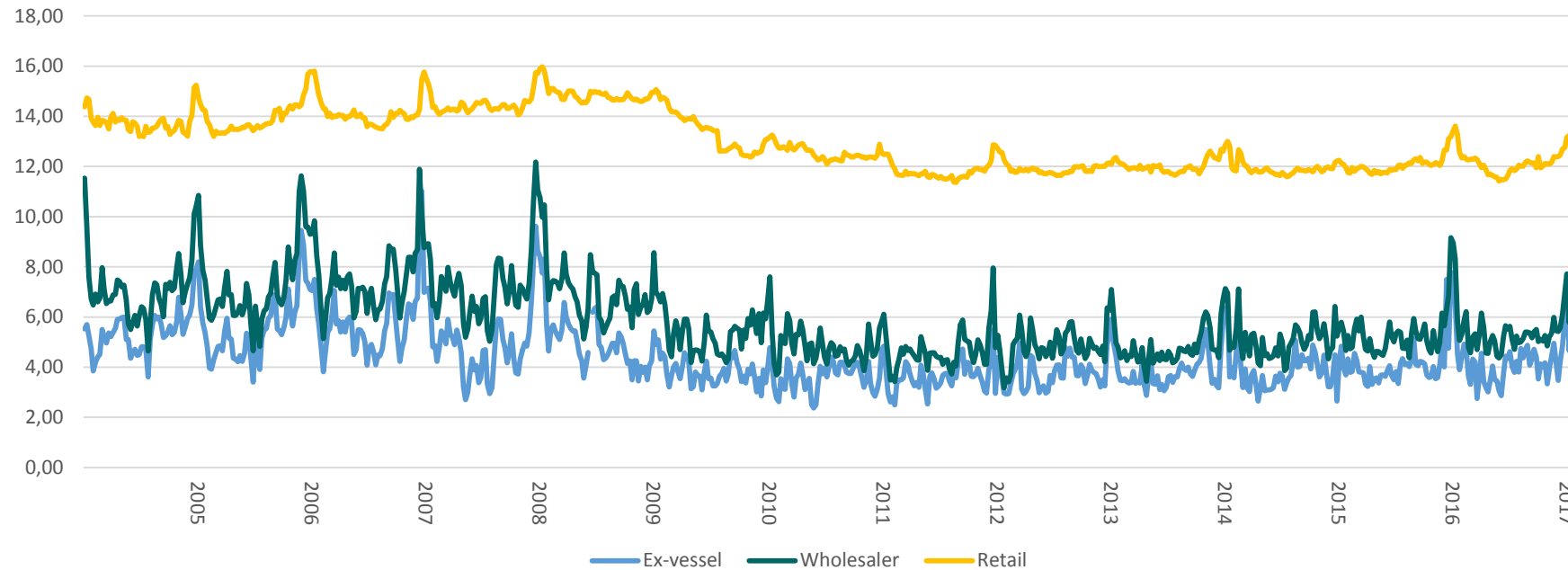
## Most consumed fish in Spain

13% of total seafood products / 23% of fish products

Source: Base datos consume en hogares  
MAPAMA 2016

- ❑ Analyse **market delimitation and price transmission** from the sources of production (ex-vessel and imports price) to the retail stage in the fresh hake 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**

## Evolution of prices in the fresh hake value chain in Spain (€/kg)





## Fresh Hake

- The prices for sea bream at **ex-farm, wholesale and retail levels** have been collected **weekly** from 2004 to 2016 by **Spain's Ministry of Agriculture and Food through the Observatory of Food**. The price is the average between “Merluza”(2,5 kg to 5 kg) and “Pescadilla” (1,5 kg)

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- 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.
Local	-2.377	-9.865***	-3.1308	-9.835***	-4.293***	-9.801***
Wholesale	-1.73906	-10.63***	-2.33449	-10.60***	-3.00726	-10.58***
Retail	-0.913	-9.783***	-1.481	-9.748***	-1.547	-9.873***
Imports	-4.797***	-12.78***	-5.677***	-12.73***	-5.669***	-12.69***

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

- Unit root can be rejected for imports and the domestic prices in a quadratic trend model. The remaining **price series behave as non stationary variables**.

Granger Causality				
Causes				
	Local catches	Wholesale	Retail	Imports
Local catches	22.846***	5.7180***	2.2212	0.73659
Wholesale	3.8366***	10.722***	2.8004**	0.15272
Retail	7.9998***	3.1193**	393.29***	0.050933
Imports	0.80053	0.57423	1.1035	14.119***

- ❑ **Imports prices appear to be independent** from all other price series included in the system. **Import prices are not transmitted to the final consumer.**
- ❑ **Domestic prices** are caused by **wholesale prices** but also cause wholesale prices in a **bidirectional relation**
- ❑ **Wholesale prices** are also **affected by changes** in the **retail prices**.
- ❑ Finally **retail prices** are **affected** by changes **in the previous stages of the value chain**.

## Johansen test (Johansen, 1991) and Weak exogeneity test

Rank	Eigenvalue	Trace Test	Lmax test
0	0.23923	62.033***	42.108***
1	0.11388	19.925***	18.619***
2	0.0084433	1.3058	1.3058
Weak exogeneity test			
	Local	Wholesale	Retail
	9.08136***	7.05397***	8.2214***

- Two cointegrating vectors result from the Johansen test. Weak exogeneity tests point to endogeneity in all the three involved variables, confirming the reciprocal relations observed in the Granger causality test.

- With the exception of imports, which are not affected or affect any of the another price series, **the system of domestic prices is perfectly connected and prices are transmitted from origin to retail and viceversa.**



# Thank you!

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**Acknowledgements:** This paper is part of the SUCCESS project which has received funding from the European Union's H2020 program under grant agreement No 635188.



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