WP5 Salmon case study

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VALUMICS

Food Systems Dynamics

Outline:

- Introduction

- Price transmission in salmon market (case studies France and Poland)

- Data requirements (market power and contracts)

- Beef supply chain governance in Germany

Introduction

- Price transmission and market power analyses are parts of WP5 of VALUMICS project
- Economics is used in line with the technical understanding of the supply chains
- Governance studies lay the groundwork for other empirical analyses
- The beef governance in Germany will be presented to show how the two supply chains (salmon and beef) are different in their structure

Price Transmission Model

- **Long-run spatial price equilibrium**

$$\mathbf{P_{1t} = \alpha + \beta * P_{2t} + \varepsilon_t}$$

$\boldsymbol{\beta}$ - long-run price transmission elasticity

$\boldsymbol{\varepsilon_{t-1}}$ - deviations from the equilibrium

- **Vector Error Correction Model (VECM)**

$$\Delta \mathbf{P_t} = \boldsymbol{\alpha} * \boldsymbol{\varepsilon_{t-1}} + \sum_{m=1}^{M} \boldsymbol{\Gamma_m} \Delta \mathbf{P_{t-m}} + \boldsymbol{\epsilon_t}$$

$\boldsymbol{\alpha}$ - speed of adjustment parameter

  - All prices in logarithm
  - Weekly prices

France: Prices

Salmon prices
France and Norway

Legend:
- France (fillet) Retail price
- France (fillet) Wholesale price
- France (whole) Retail price
- France (whole) Wholesale price
- Norway (whole) Export price
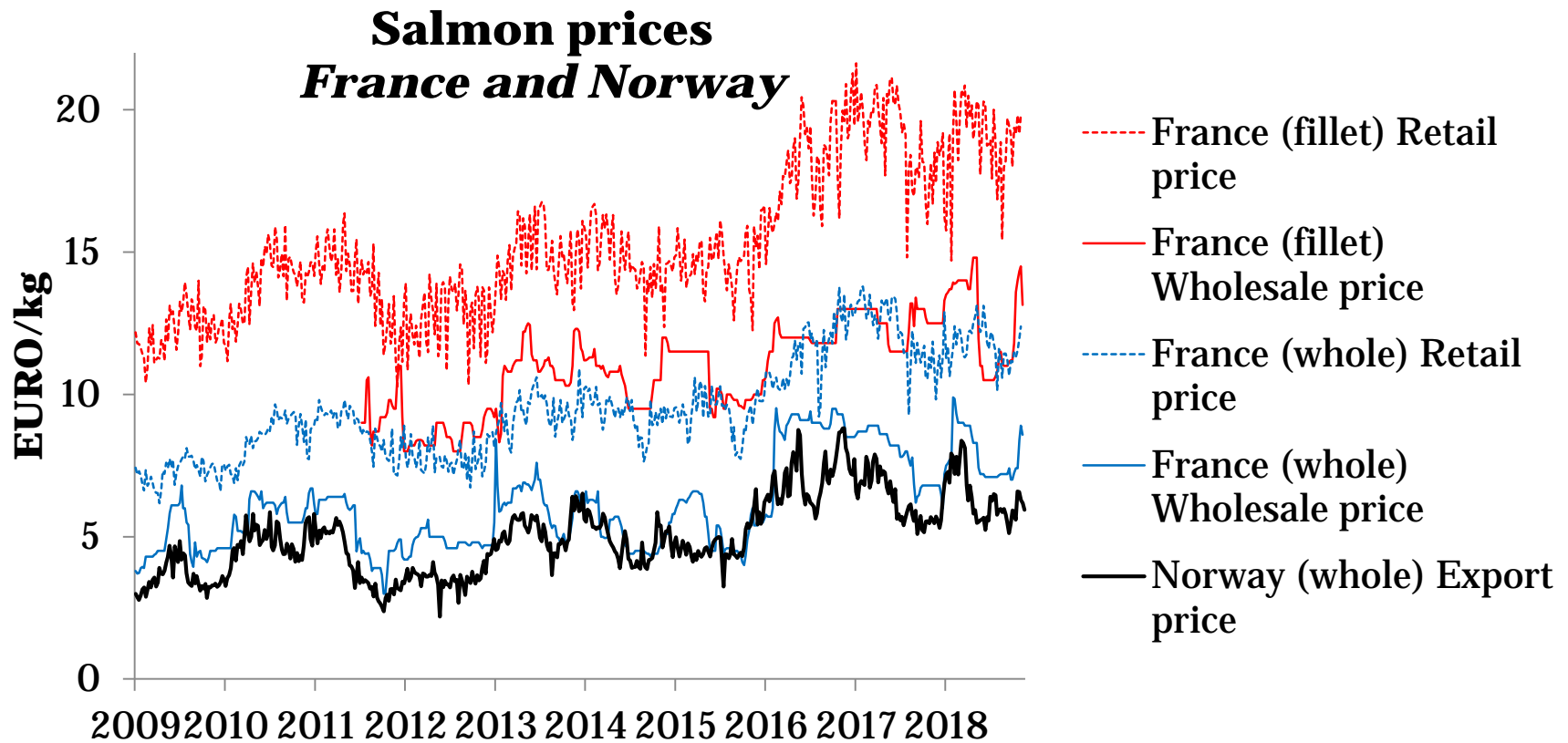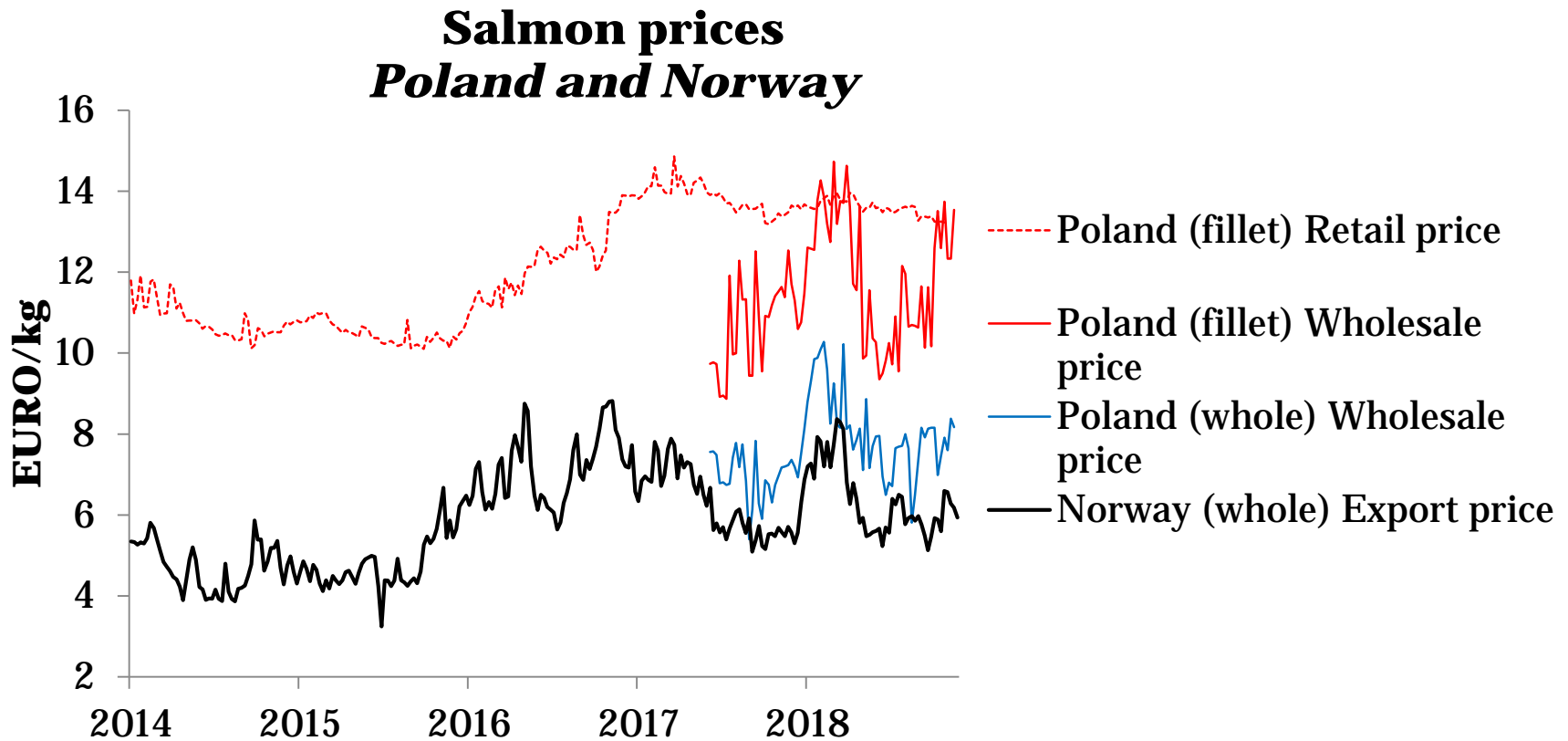
Sources: EUMOFA 2019, Fish Pool 2019

France: Price Transmission Results
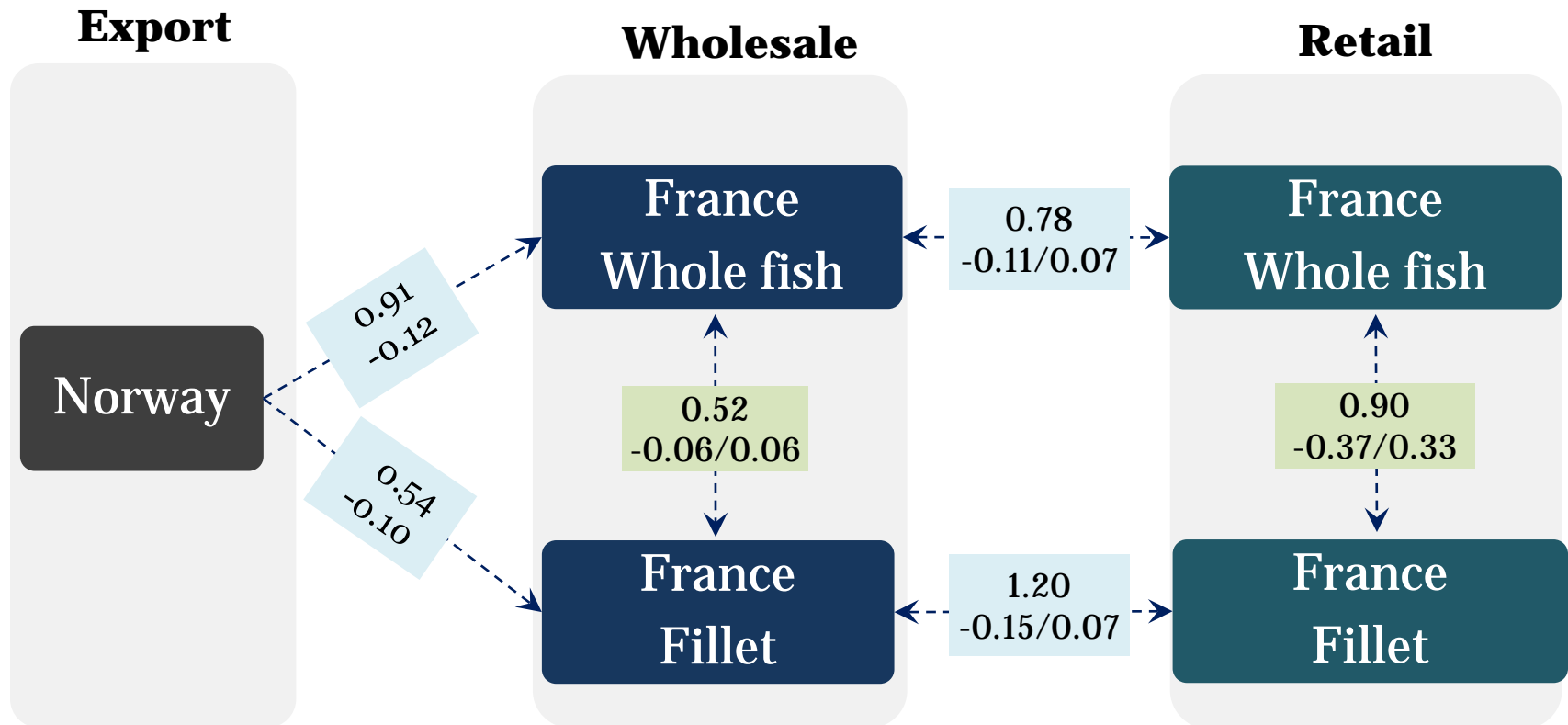
✓ **Symmetric adjustment**
- – negative and positive price deviations are both adjusted with the same speed

Poland: Prices

Salmon prices
Poland and Norway

Legend:
- Poland (fillet) Retail price
- Poland (fillet) Wholesale price
- Poland (whole) Wholesale price
- Norway (whole) Export price

Sources: EUMOFA 2019, Fish Pool 2019

Poland: Price Transmission Results
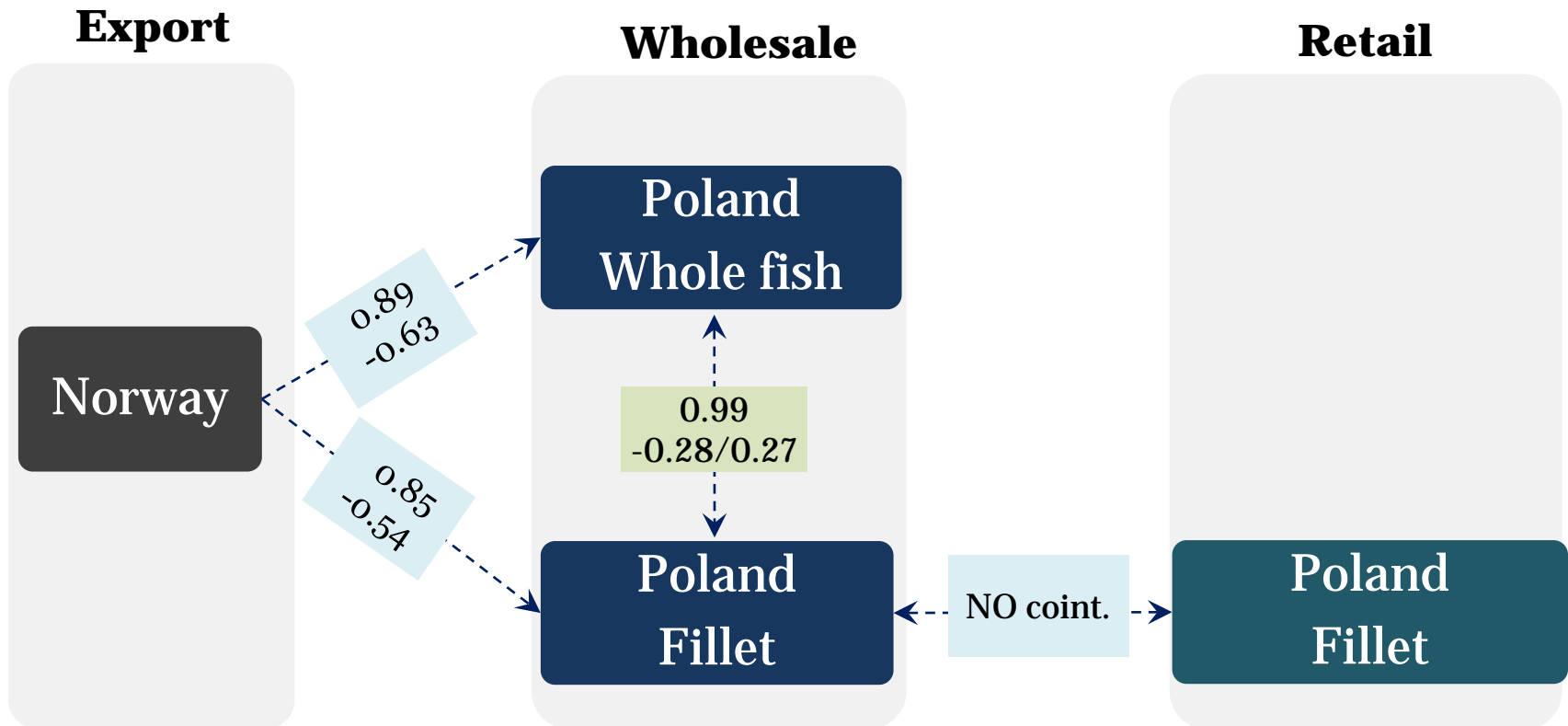
Export

Wholesale

Retail

Norway

0.89
-0.63

0.85
-0.54

Poland
Whole fish

0.99
-0.28/0.27

Poland
Fillet

NO coint.

Poland
Fillet

✓ **Symmetric adjustment**
– negative and positive price deviations are both adjusted with the same speed

Long-run Price Transmission

Supply chain level	France	Poland
Whole fish		
Export-to-Wholesale	91%	89%
Wholesale-to-Retail	78%	-----------
Fillet		
Export-to-Wholesale	54%	85%
Wholesale-to-Retail	90%	NO coint.
Wholesale level		
Whole fish-to-Fillet	52%	99%
Retail level		
Whole fish-to-Fillet	90%	-----------

Speed of price adjustment (% of price disequilibrium eliminated per week)

Supply chain level	France	Poland
Whole fish		
Export-to-Wholesale	**12**% (12% + 0%)	**63**% (63% + 0%)
Wholesale-to-Retail	**10**% (10% + 0%)	------------
Fillet		
Export-to-Wholesale	**18**% (11% + 7%)	**54**% (54% + 0%)
Wholesale-to-Retail	**22**% (15% + 7%)	NO coint.
Wholesale level		
Whole fish-to-Fillet	**12**% (6% + 6%)	**55**% (28% + 27%)
Retail level		
Whole fish-to-Fillet	**70**% (37% + 33%)	------------

Summary & Further Issues: Price Transmission

- **SUMMARY BY COUNTRY (Poland vs. France)**
  - **Salmon price relationships are stronger for Poland–Norway compared to France–Norway** <<< Poland became a processing hub for Norwegian salmon

- **SUMMARY BY PRODUCT (Whole fish vs. Fillet)**
  - **Salmon price relationships are very strong at the WHOLESALE level in POLAND**
  - <<< indicates competitiveness of the sector and may result from the common pricing strategy of a fish processor (?)
  - **Salmon price relationships are very strong at the RETAIL level in FRANCE**
  - <<< indicates competitiveness of the sector and may result from the common pricing strategy of a retailer (?)

- **FURTHER ISSUES**
  - Price series for Poland are lacking
  - Which other (EU) countries are candidates for the analysis?

Data requirements on market power and contract analysis

Market power

- Price to Market (PTM)
- Used for trade data.
  - By following the price transmission results, the Xie et al (2014) approach will be applied (**more prices from Poland**)
- Cost/Revenue function approach
  - **More detail data on labour costs, material costs are needed** (more than available information in Contali report)
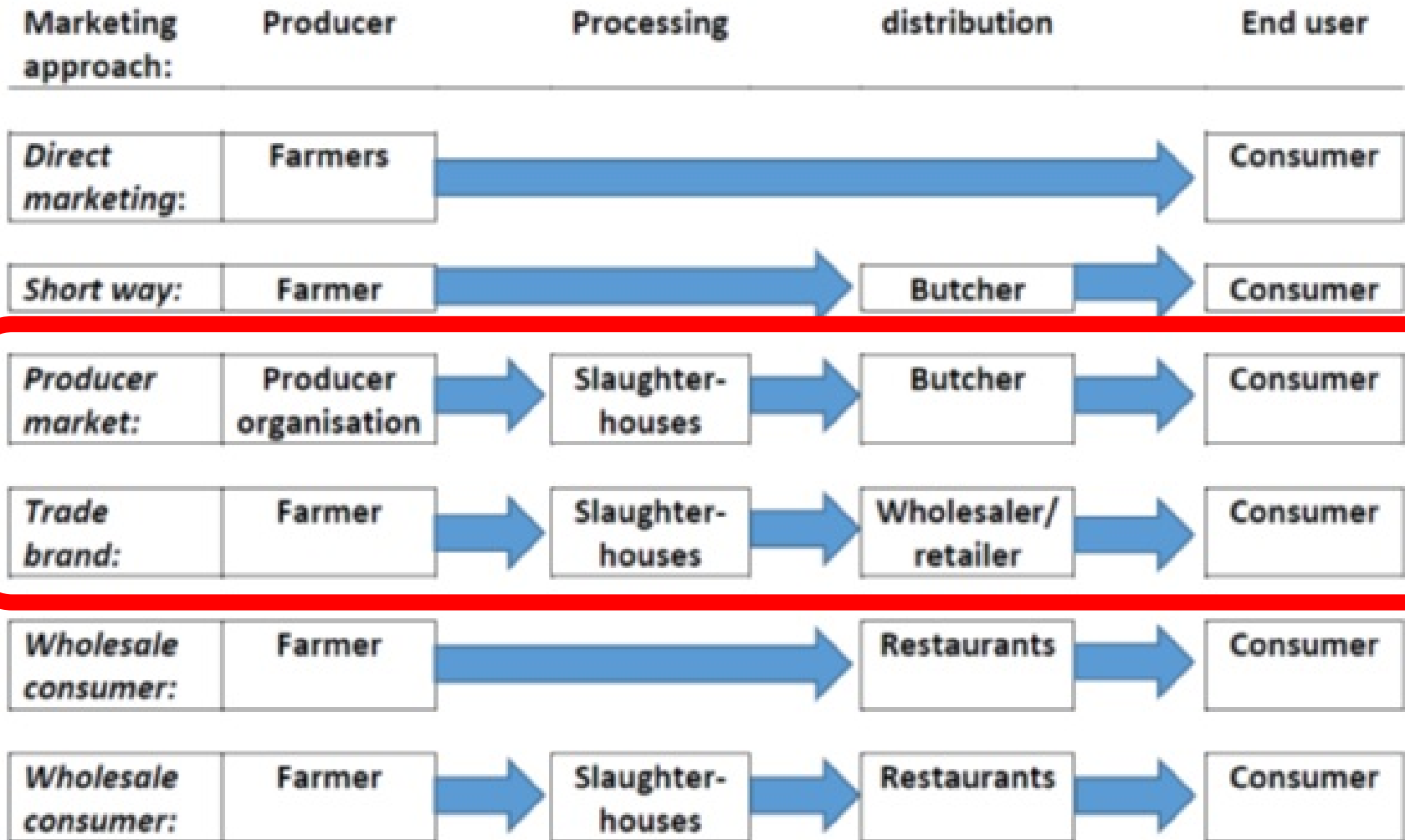
Contracts

- Persistency of contracts between partners
- Why two partners continue to trade salmon?
- Mainly trade company level transaction custom data are needed
- Larson and Asche (2011) had access to such a dataset
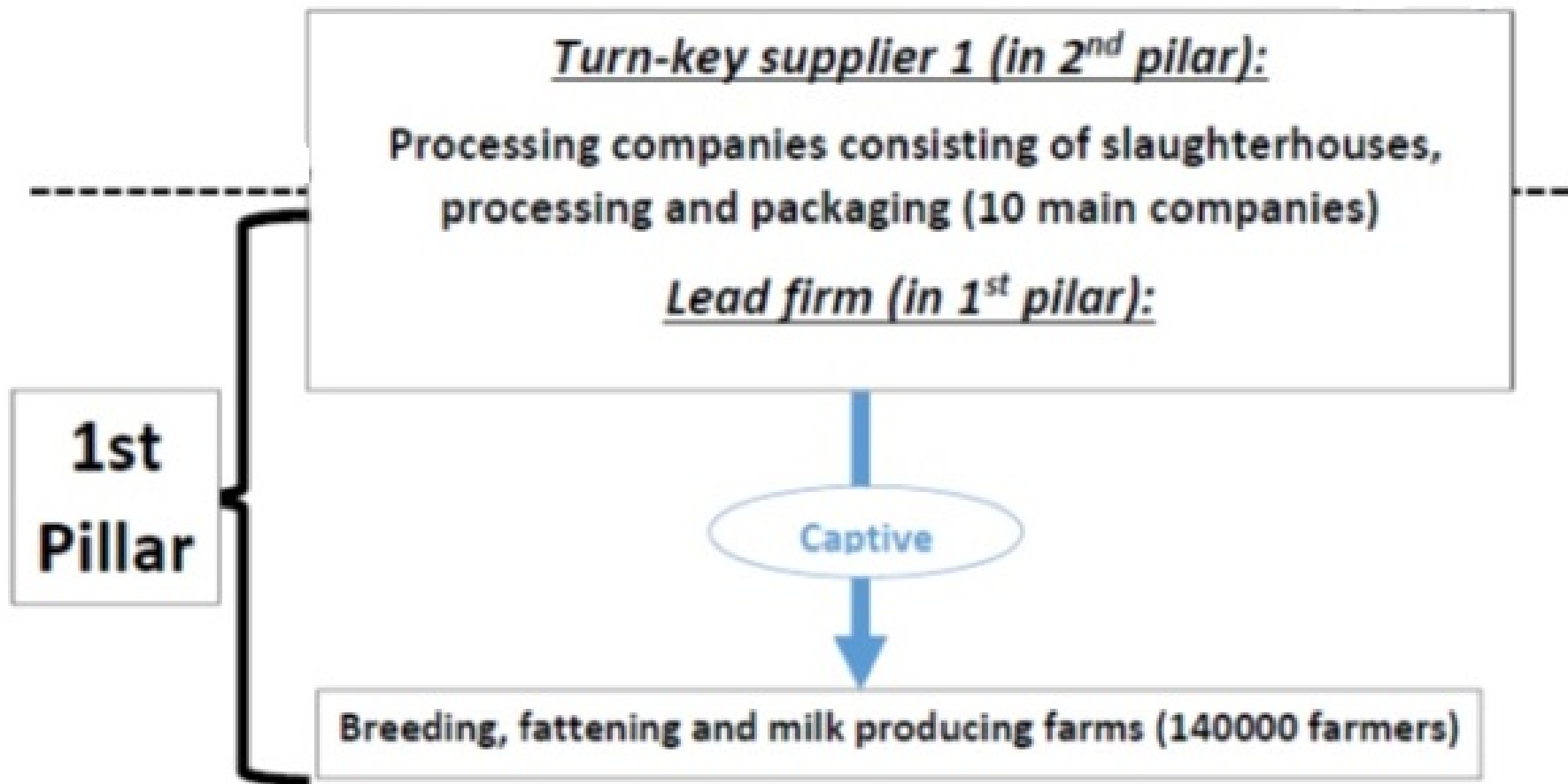- **Is it possible to have such a dataset in Norway?**

Beef supply chain governance in Germany

- Beef is third important meet in Germany after pork and chicken
- The beef production and consumption has reduced approximately 1 million tons in Germany since the German unification
- Production has reduced from more than 2 million tons to more than 1 million tons
- Extreme concentration on beef processing and retailing can be recognised in beef chain
- The main part of beef production in Germany is used in the country.
- There is a certain level of beef trade available mainly inside the EU

The beef supply chain in Germany (in 90's)

Marketing approach:	Producer	Processing	distribution	End user
Direct marketing:	Farmers	➜		Consumer
Short way:	Farmer	➜	Butcher ➜	Consumer
Producer market:	Producer organisation ➜	Slaughter-houses ➜	Butcher ➜	Consumer
Trade brand:	Farmer ➜	Slaughter-houses ➜	Wholesaler/ retailer ➜	Consumer
Wholesale consumer:	Farmer	➜	Restaurants ➜	Consumer
Wholesale consumer:	Farmer ➜	Slaughter-houses ➜	Restaurants ➜	Consumer

Source: Wagner & Beimdick (1997)

Results: power relation in German beef supply chain (pillar I)

Results: power relation in German beef supply chain (pillar II)
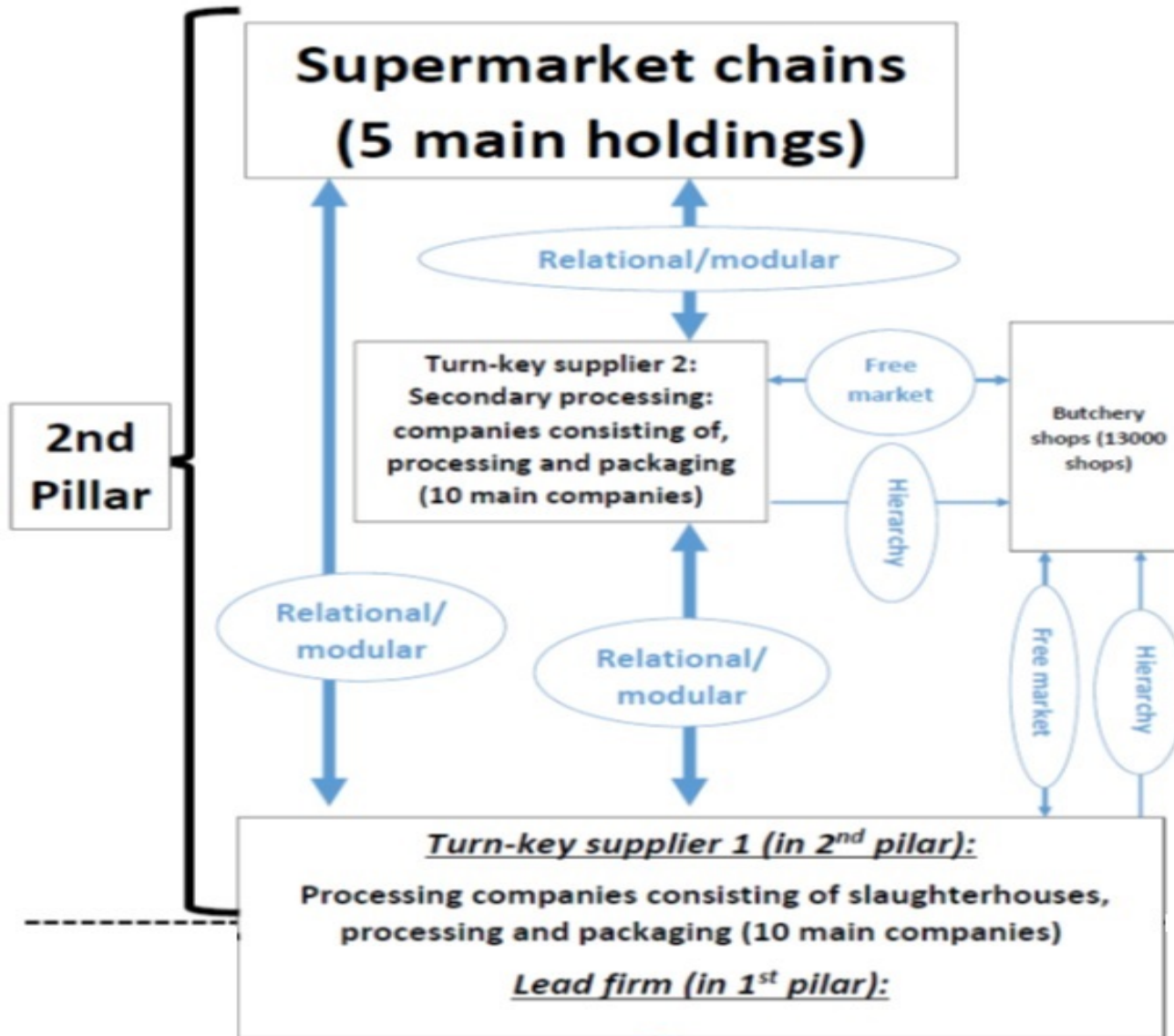
THANK YOU

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