The French Observatory on the formation of food product prices and margins

Focus on dairy products & Ultra Heat Treated (UHT) milk

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• Context and objectives of the Observatory

• Dairy products price monitoring outlines

• UHT milk prices: an analytical model
  • Processing chain analysis
  • Milk deliveries seasonality analysis
  • Considering the whole dairy products opportunities
  • Production price: an analytical price for raw material

• Semi-skimmed UHT milk price monitoring results

• Important: main results on other dairy products
Context and objectives of the Observatory
Long-term agrifood sector trends in France

- Decreasing share of household budget devoted to food
- Agri-food products are more processed
  - Smaller share of farmgate price in food consumer prices
- Recent volatility of world food prices
- Reforms of the Common Agricultural Policy
- Chain stakeholders are subject to increased price volatility
Objectives of the Observatory

- To improve transparency on the mechanisms of price formation within supply and marketing chains
- To help understand how agrifood marketing chains work
- To serve as a learning tool for chain stakeholders, consumers and policy makers
- To contribute over the long term to the development of agro-industries which do not thwart consumer interests and the sustainability of the French agricultural sector
The current Observatory

- Set up by the Law on Modernization of Agriculture and Fisheries dated 27 July 2010

- Under the dual supervision of the Ministries of Agriculture and Consumerism

- Hosted by FranceAgriMer, the French Intervention Paying Agency

- Uses public statistics and data provided by agro-industries, distributors and retailers

- Multistakeholder steering committee to avoid being embroiled in political discussions
  - Dairy working group involving farmers, processors, retailers and consumers
Outlines of dairy product price monitoring
Dairy product price monitoring

• Milk: a widely processed product
  • Milk cracking leads to very different products
  • Wide variety of products at consumer level
  • Great complexity of price chain (vs. Tomatoes for example)

• Price monitoring for different products: representative, symbolic and « plain » products: as close as possible from milk
  • Semi-skimmed UHT milk
    • the French standard drinking milk with 75% market shares
  • Plain yogurts
  • Emmental cheese
  • Butter

• First publications in 2009, but the results were hard to read and understand. New, clearer and more synthetic method.
Price monitoring:

- Retail price (tax included)
- Retail price (tax excluded)
- Industrial price
- Production price
- VAT

- Essential: Product homogeneity throughout price chain
- NB: we refer to gross margin! (quite different from profits!!)
Consumer milk: which milk are we talking about?

- From collected milk to consumer milk:
  - which products?
  - which prices?
  - which volumes?

- Collected milk: average milk production price, average composition
- Final product: average weighed household purchasing price (Kantar Worldpanel)
  - Good representation of consumer behaviour patterns
  - Representation of discounts effects, products categories effects…

- To compare those prices, we must analyse the whole chain, from supplies to final process
UHT milk processing chain analysis
UHT milk processing chain analysis

- Monthly material balance:
  - Average milk deliveries composition (Fat & Protein content)
  - Average semi-skimmed sterilized milk composition (with fat standardisation)
  - *Major importance of a monthly balance (changes in milk price and composition)*

- Loss: from dairy industry experts

Milk to be collected: xxxx L.

Processed milk: 1099 L. (average)

Loss: 27 L. (average)

Semi-skimmed UHT milk: 1000 L.

Cream: 72 L. (average)
Coproducts uses

- Coproducts are considered as processed in industrial commodities (butter, SMP…)
  - Standard products
  - Well-known prices…
- Simplified but realistic model
Milk deliveries seasonality analysis
Seasonal surplus concept

Seasonal surplus in dairy products: example

Average French milk production seasonal factor

- Milk processed in a consumer product
- Seasonal surplus
- Milk collected
Seasonal surplus statistical analysis

Estimates of seasonal surplus: EXAMPLE

ÉTABLISSEMENT NATIONAL DES PRODUITS DE L'AGRICULTURE ET DE LA MER
Semi-skimmed UHT milk seasonal surplus

SEMI SKIMMED LONG LIFE MILK: Estimates of seasonal surplus

Base 1000 at lower point

Milk processing seasonality  Seasonal surplus
Other dairy product seasonal surplus

YOGURT: Estimates of seasonal surplus

ENMENTAL CHEESE: Estimates of seasonal surplus
Considering the whole range of dairy products
Considering the whole dairy product opportunities

- The milk chain analysis must be as close as possible to the situation of the French dairy industry

- But French dairy industry also has a real focus on the production of industrial commodities (butter, SMP, …)

- Milk deliveries and opportunities on consumer markets do not always evolve in parallel ways.

- Estimation of milk volumes structurally devoted to industrial commodities
  - Those volumes are not real « surplus » but can be considered as surplus compared to consumer products markets
Milk deliveries and milk uses

Seasonal and structural surplus in dairy products

Average French milk production seasonal factor

- Milk processed for consumer products
- Seasonal surplus
- Structural surplus
Annual surplus estimations

- Processed milk for consumer products
- Seasonal surplus
- Annual surplus

Seasonality statistical analysis

Milk deliveries

Equivalents Litres

Product 1

Product 2

...
Annual surplus estimations

<table>
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<tr>
<th>Year</th>
<th>Annual calculated surplus</th>
<th>Sum of seasonal surplus</th>
<th>Sum of milk processed for consumers products</th>
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<td>2000</td>
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<td>2010</td>
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<td>2010/11</td>
<td>6.7%</td>
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</tbody>
</table>

Billions L.
The surplus in semi-skimmed UHT milk chain

Milk to be collected 1309 L.

- Seasonal surplus 126 L.
- Annual surplus 83 L.

Processed milk : 1099 L.

- Loss : 27 L.

Semi-skimmed sterilized milk : 1000 L.

- Cream : 72 L.
- Butter : 35 kg.
- Buttermilk powder : 7 kg.
Semi-skimmed UHT milk supply and processing chain

Milk to be collected: 1309 L.
- Seasonal surplus: 126 L.
- Annual surplus: 83 L.
- Total: 209 L.
  - Butter: 10 kg.
  - Buttermilk powder: 2 kg.
  - SMP: 19 kg.

Processed milk: 1099 L.
- Loss: 27 L.
  - Cream: 72 L.
    - Butter: 35 kg.
    - Buttermilk powder: 7 kg.

Semi-skimmed sterilized milk: 1000 L.

NB: Those are average values but all of them are monthly calculated.
Production price: an analytical price for raw material
Commodity valuation leads to an analytical price for raw material

- Consumer product sales
- Total collected milk cost
- Industrial commodity processing costs
- Industrial commodity sales
- Net margin on induced commodities
- Raw material for consumer product cost
- Raw margin on consumer product
Commodity valuation leads to an analytical price for raw material

- **Raw material price is NOT milk deliveries production price**

- **This analytical price depends on:**
  - Milk deliveries production price
  - Induced commodities valorisation: coproducts and processed surplus
  - Milk deliveries average composition...

- **This raw material price is different depending on the various studied products:**
  - Seasonal surplus are different
  - Co-products from processing chain are different...
Situation of HIGH level prices for industrial commodities

- **Consumer product sales**
  - Total collected milk cost

- **Industrial commodity processing costs**

- **Industrial commodity sales**
  - Net margin on induced commodities

- **Raw margin on consumer product**
  - Raw material for consumer product cost
Situation of LOW level prices for industrial commodities
Industrial sales price
Semi-skimmed UHT milk industrial price

Long life packed milk industrial price

€/L.

Annual average price: national survey
Monthly price: calculated from monthly index

FranceAgriMer from INSEE & SSP
ÉTABLISSEMENT NATIONAL DES PRODUITS DE L'AGRICULTURE ET DE LA MER
Drinking milk price monitoring:

- Retail price
  - Weighted average household purchasing price

- Industrial price
  - Calculated from
    - monthly index
    - annual surveys

- Raw material price
  - Analytical, calculated from:
    - Milk deliveries production price
    - Raw milk average composition
    - Manufacturing coproduct prices

VAT

Retailing gross margin

Industrial gross margin
Results on semi-skimmed UHT milk
Results on semi-skimmed UHT milk

Semi skimmed sterilized milk retailing price formation

€ / L. of final product

- Raw material price
- Retailing gross margin
- VAT
- Retailing price (tax included)

Industrial gross margin on sterilized milk
Industrial gross margin on semi-skimmed UHT milk

€ / L of final product

Semi-skimmed sterilized milk : industrial gross margin

janv-01 to janv-11

€ / L of final product
Retailing gross margin on semi-skimmed UHT milk

Semi-skimmed sterilized milk retailing gross margin

€ / L of final product

0.00 0.05 0.10 0.15 0.20 0.25

janv.01 2001-01-01
janv.02 2002-01-01
janv.03 2003-01-01
janv.04 2004-01-01
janv.05 2005-01-01
janv.06 2006-01-01
janv.07 2007-01-01
janv.08 2008-01-01
janv.09 2009-01-01
janv.10 2010-01-01
janv.11 2011-01-01
The analysis of an isolated product would not make sense
Plain yogurt price monitoring results

€ / kg de yaourt

Plain yoghurts retailing price formation

- Raw material price
- Retailing gross margin on plain yoghurts
- Retailing price (tax included)
- Industrial gross margin on plain yoghurts
- VAT
Emmental cheese price monitoring results

Emmental : retailing price formation

€/ kg. of Emmental

- Raw material price
- Industrial gross margin on Emmental
- Retailing gross margin
- Retailing price (tax included)
- VAT

250g packaged butter: price monitoring results

Butter pad retailing price formation

€ / kg of butter


- Raw material price (manufacturing butter)
- Retailing gross margin
- VAT
- Industrial gross margin for butter pad conditioning
- Retailing price (tax included)
To conclude…

• Milk: a cracked and highly processed product, a complex value chain

⇒ Analytical approach
  • Processing chain analysis: monthly material balance
  • Seasonal surplus analysis
  • Annual surplus analysis

• It is essential to study different products in parallel
  • Various and additional products
  • Each product must be representative
  • ⇒ concept of a balance within products

• The Observatory beyond price formation monitoring
  • Industry annual economic results
  • Milk production costs…

• Projects:
  • Analysis of Camembert retail price formation
  • Focus on distributors’ brands…
Thank you for your attention
Comments welcome!

• More results at:
  • http://www.franceagrimer.fr (and soon a special website)
  • Dairy products, fruit and vegetables, pig meat, beef meat, poultry meat…

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