Nonparametric Analysis of **US Dairy Production and Consumption**

Teo Bucci
Filippo Cipriani
Gabriele Corbo
Andrea Puricelli

Nonparametric Statistics
MSc. Mathematical Engineering
Politecnico di Milano

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Dataset

Average yearly **consumption of 33 dairy goods**

Average **milk price** (dollars per pound)

Examples of **factors** involved in production chain or **affecting supply:**

- Hay price
- Average milk cow number
- Slaughter price

1975 — 2022

Objective

We identified our main stakeholders in **cheese factories** with one of the following **needs:**

Improvements to the production chain

Identify which dairy products have seen their **consumption increase** and which **decline** over time, and the reasons behind

The aim is to **understand potential improvements** to production chain and **marketing strategy** of declining goods

Optimal price strategy of a new competitor

A **new potential competitor** wants to decide whether to **join the market** or not, the problem is to identify the **potential of its resources**

It’s therefore important to have a clear idea of the **pricing** of goods and make **predictions** about it

Methods

Next Steps

- Before further analyses: adjust average price for **inflation**
- Perform a broader **stakeholder analysis** to identify all the major players and their strategies
- Find and use Import and Export data to understand which type of cheese best fits the current **domestic market demand**
- Research on the events that could have influenced consumptions and prices in a specific year

Technical approach

- Identify which goods follow the same trend during the time span: **functional analysis clustering**
- Understand how production factors influence the final price: **GAM Regression**
- Groupings using different factors to implement **mixed effects models**