



# L'impresa agricola oggi e i giovani imprenditori

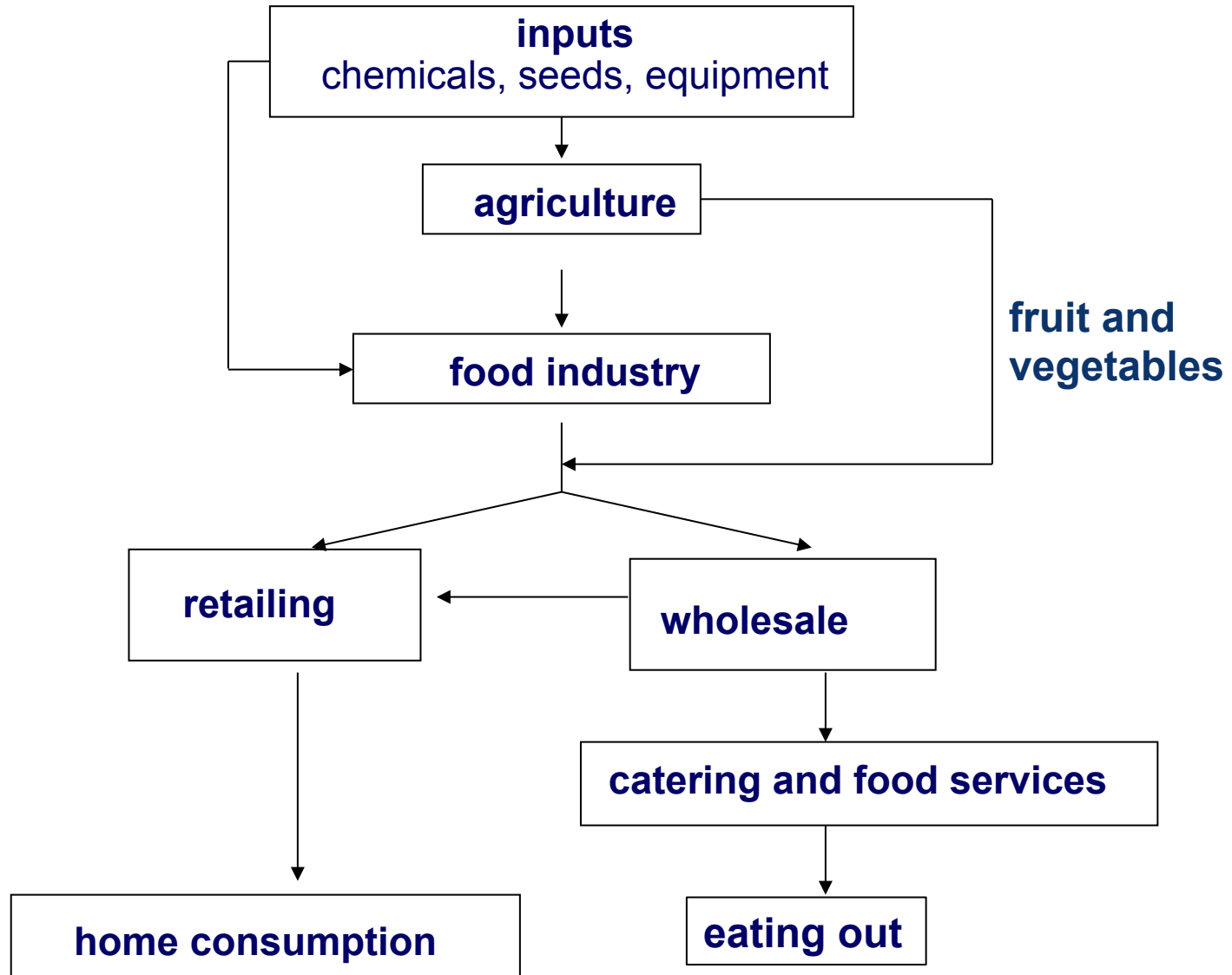
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# The Food System



# Agriculture

The **agriculture** is the set of activities directed at soil cultivation, farming and animal husbandry.

- **primary sector** ⇒ agriculture, fishery, forestry

Agriculture depends upon:

- **Natural resources and land** → animals and plants have **specific needs**
  - ✓ Type of **soil** → fertility
  - ✓ Flatland, hillside, mountain → slope, sun exposure, etc.
  - ✓ **Water** availability → irrigation
  - ✓ **Climate** conditions → sunlight, warm/cold temperature, rain, wind, etc.
  - ✓ **Land** → Land productivity



# Agriculture

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- **Fixed capital** (i.e., machineries) and **raw materials** (seeds, chemicals - fertilizers and pesticides-, animal feed, etc. ) → INPUT  
→ technological innovation
- **Labour** → labour productivity
  - extensive agriculture
  - intensive agriculture



# Agriculture

- **labour productivity** and **land productivity**

- $q_i = f(x_i) \rightarrow q_i = f(K_f, R_m, L, L_a, t)$

where  $q_i$ =production quantity,  $K_f$ =fixed capital,

$R_m$ =raw materials,  $L$ =labour,  $L_a$ =land,  $t$ =technological level

- **labour productivity**

$$LP = q_i / L \text{ (ex. t /worker)}$$

- **land productivity**

$$LaP = q_i / L_a \text{ (ex. t/ha)}$$

$$q_i / L = q_i / L_a * L_a / L$$

- $q_i \rightarrow$  tons t, **value of production** VoP (turnover, sales, output), **value added** VA
- $L_a \rightarrow$  ha = hectares of used land (10,000 m<sup>2</sup>)



# Agriculture

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- $q_i / L_a \rightarrow$  **land saving or yield increasing innovation**  $\rightarrow$  genetic improvement (mutagenesis, GMOs, NBTs) irrigation, fertilization, pesticides, hydroponics, vertical farming, etc.
- $L_a / L \rightarrow$  **labour saving innovations**  $\rightarrow$  improved machineries and techniques (precision agriculture)
  - **intensive agriculture**
  - **extensive agriculture**



# Agriculture – commodity pricing

- **commodities** → agricultural raw materials (like cereals, rice, soybean, etc.) → homogenous products → market structure similar to **perfect competition**
  - price is the result of the dynamics of total supply and demand → at the national or international level depending on the level of openness of the market
  - The single farmer is **price taker** → no chance to influence **market price** (small size)
  - If **price is lower than** unit production **cost** → farms firstly stay in the market with negative profits, then they exit → only the most competitive farms stay in the market



# Agriculture – Price volatility

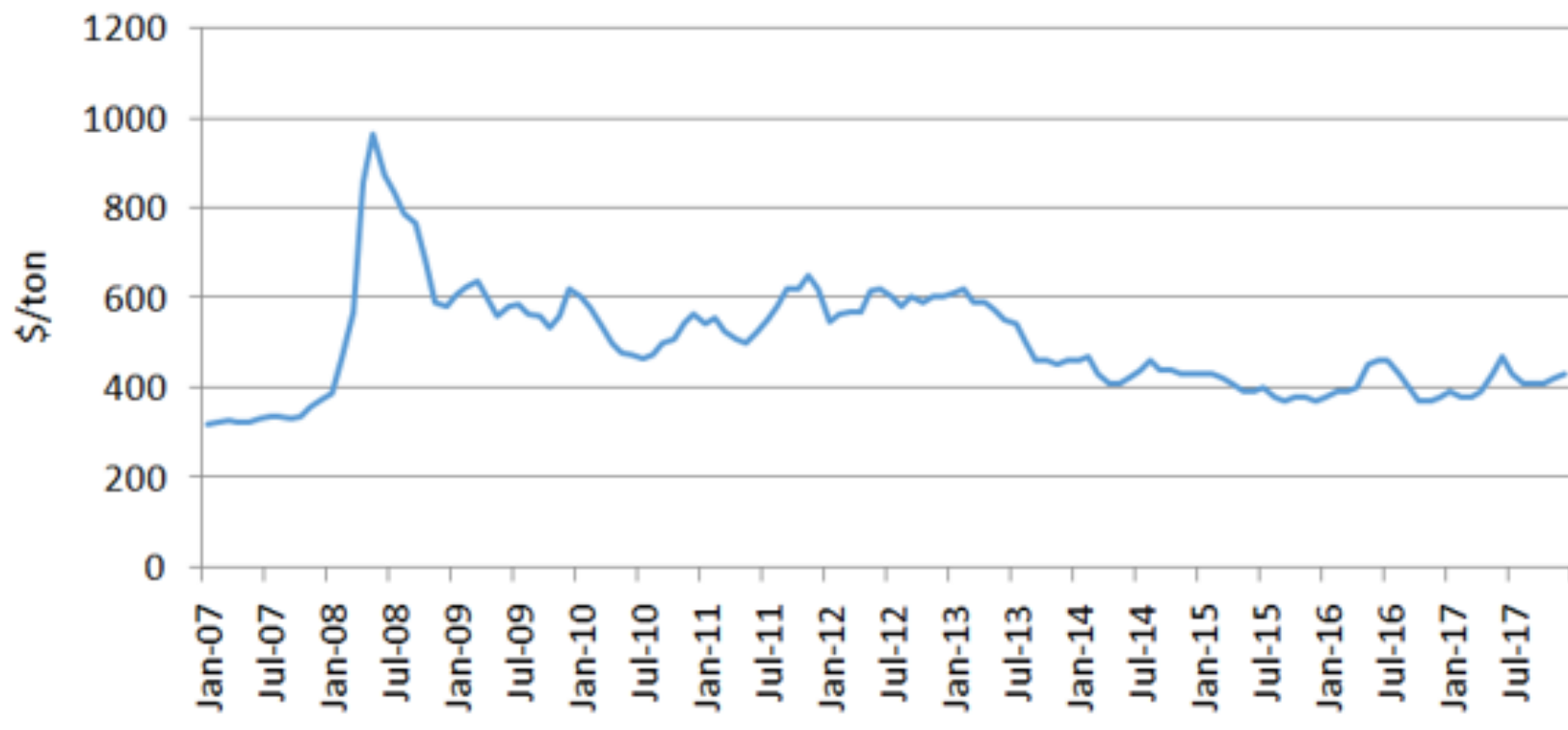
- In the last decade commodity markets have shown a strong **price volatility** → particularly between **2007-2010** price trends firstly increased significantly, and then dropped.
- The drivers of this volatility were (Headey, 2011):
  - increase in **petrol** prices → production and trade costs
  - increase in **biofuel** demand
  - changes in Asiatic **consumption patters**
  - low R&D in agriculture and **yield stability**
  - low **stocks**
  - **macro-economic** issues (low US dollar value, futures market, etc.) and financial **speculation**
  - drought
  - export restrictions





# Agriculture – Price volatility

## Rice - price trend at world level



Source: Jackson Son & Co. data (f.o.b. Bangkok, White Rice, Thai 100% B second grade)

Monthly prices, milled rice Thai



# Agriculture

- **natural and agricultural landscape**

Following the OECD definition: '**Multifunctionality or multifunctional agriculture** are terms used to indicate generally that agriculture can produce **various non-commodity outputs in addition to food.**'

The working definition of multifunctionality used by the OECD associates multifunctionality with **particular characteristics** of the agricultural production process and its outputs:

- (i) the existence of **multiple commodity and non-commodity outputs** that are jointly produced by agriculture; and that
- (ii) some of the non-commodity outputs may exhibit the **characteristics of externalities or public goods**, such that markets for these goods function poorly or are non-existent.

*Source: Agricultural Policies in OECD Countries: Monitoring and Evaluation 2000: Glossary of Agricultural Policy Terms, OECD.*



# Agriculture – Short food supply chain

- **Short food supply chain** is a term that describes a broad range of food production-distribution-consumption configurations, such as farmers' markets, farm shops, collective farmers' shops, community-supported agriculture, solidarity purchase groups. More in general, a food supply chain can be defined as "**short**" when it is characterized by **short distance or few intermediaries** between **producers** and **consumers**.
- in general, these include different typologies:
  - direct sales/farm shops
  - farmers' markets
  - e-commerce
  - door-to-door selling
  - small processing
  - pick-your-own
  - solidarity purchase groups
  - restaurant supply
  - milk vending machines
  - farm stays/agritourism



# Agriculture – Short food supply chain

- **Factors that influence consumer preferences (Carbone, 2004)**
  - **Lower number of steps** from production to consumption  
→ higher degree of freshness, sensorial and nutritional properties
  - **Higher transparency on product origin** → direct relation with producers
  - Higher level of **trust** of producers → higher purchase frequency → quality warranty
  - **Lower prices**
  - **Support to small local businesses**



# Agriculture – Short food supply chain

- **Benefit for farmers:**
  - **Increase of value added** → farmers process and sell own raw materials instead of selling to processors → increase of profitability especially for small farms
  - **Direct relation with final customer** → higher **trust** → sale stability
  - **Increased product quality and liability** of producers
- Farmers become an active agent with respect to consumers → knowledge of consumer needs and preferences and target-oriented communication
- Need for entrepreneurial skills, know-how, guarantee of food safety standards, reputation



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**Grazie per l'attenzione!**

