What if meat consumption would decrease more than expected in the high-income countries?

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The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission
European prospects for meat
(JRC-IPTS + DG AGRI + 100+ experts)

- EU per capita meat consumption levelling off
- Rising per capita meat consumption in low-income countries
- An increase in EU meat production + exports

At the same time:
- Reduction of per capita meat consumption in specific sub-groups
- Spreading "Low meat consumption" messages in medias, NGO's, political arena
- Official nutrition recommendations (Sweden, United Kingdom, the Netherlands and the USA)

2 alternative scenarios exploring a "lower meat consumption trend"

"What if..." approach to assess impacts on agricultural commodity markets developments at global and European level
Aglink-Cosimo: the model used for the simulations

- Recursive-dynamic, partial equilibrium, Supply-Demand model of world agriculture
- OECD’s Aglink + FAO’s Cosimo sub-modules

Simulates the production, consumption, price and trade of
- 93 agricultural commodities
- 44 individual countries and 12 regions
- 40 world market clearing prices
- 36000 equations, most of them "double-log": \( \log(Y) = \xi \cdot \log(X) + \beta_0 + \log(R) \)

Meat consumption modelled as the total food use (FO) of meat products

\[
\log \left( FO_{c,r,t} \right) = c + \sum_c \xi_{FO,c,cp} \cdot \log \left( \frac{CP_{c,r,t}}{CPI_{c,r,t}} \right) + \xi_{FO,c,gdp} \cdot \log \left( \frac{GDP_{r,t}}{POP_{r,t}} \right) + \log \left( POP_{r,t} \right) + \text{trend} + \log \left( R_{CI} \right)
\]

CP: consumer prices  \( c \): commodity
CPI: consumer price index  \( r \): region
GDP: gross domestic product  \( t \): time
POP: population
Assumptions of the alternative scenarios per capita meat consumption

Scenario 1: Lower meat consumption with no protein compensation
Scenario 2: Lower meat consumption with partial protein compensation

SC 1 and SC 2:
- 11% relative to the baseline by 2024 in North America, Europe and Oceania
- 5% relative to the baseline by 2024 in Brazil, Mexico and Argentina

SC 2: Partial protein compensation with
- Cereals (+5%)
- Dairy products (+5%)
- Oilseeds and pulses (+2%)
- Eggs (+5%)

Meat consumption modelled as the total food use (FO) of meat products

\[
Log(FO_{c,r,t}) = c + \sum_{c}^{c} \xi_{FO_c,CP_c} \cdot Log\left(\frac{CP_{c,r,t}}{CPI_{r,t}}\right) + \xi_{FO_c,GDP} \cdot Log\left(\frac{GDPI_{r,t}}{POP_{r,t}}\right) + Log(POP_{r,t}) + trend + Log(R_{CR,r})
\]

CP: consumer prices
CPI: consumer price index
GDP: gross domestic product
POP: population
c: commodity
r: region
t: time
Outputs of the Aglink-Cosimo model: EU and Global domestic prices

Scenario 1: Lower meat consumption with no protein compensation

Evolution of EU meat domestic price index in scenario 1 (Base 100 = 2005-07)

Impact of the scenario 1 on the world price for different meat (% difference to the baseline in 2024)

Source: Aglink-Cosimo model
**Outputs of the Aglink-Cosimo model:**
Production & Consumption, Imports & Exports

**Scenario 1: Lower meat consumption with no protein compensation**

EU supply balance sheet for the meat markets in 2024
(Y axis: change in 1000T relative to the baseline, labels: % change relative to the baseline)

- **Poultry**
  - Production: -4.9%
  - Imports: -16.6%
  - Consumption: -10.5%
  - Exports: +47.5%

- **Pig meat**
  - Production: -4.2%
  - Imports: -14.9%
  - Consumption: -10.8%
  - Exports: +47.2%

- **Beef and veal**
  - Production: -8.3%
  - Imports: -18.5%
  - Consumption: 10.2%
  - Exports: +37.4%

- **Sheep meat**
  - Production: -1.8%
  - Imports: -48.2%
  - Consumption: -11.0%
  - Exports: +3.4%

Source: Aglink-Cosimo model

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Outputs of the Aglink-Cosimo model:
Grain prices and Feed cost index

EU domestic and world prices for crops and EU feed cost index
(Difference to baseline in % change, 2024, scenario 1 and scenario 2)

Contradictory market signals

- EU domestic demand
- Profitability of meat production
- EU domestic prices
- EU dom. feedstuff price
- Incentive to produce

Source: Aglink-Cosimo model
Outputs of the Aglink-Cosimo model: dairy market

**Dairy products price**
(Difference to baseline in % change, 2024)

**EU Cow inventory**
(Difference to baseline in % change, 2024)

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**Competition on beef and veal meat markets**

in sc. 2 with partial protein compensation:

↑ Demand for dairy produce
↓

New market for **dairy farmers**

... at the expenses of **suckler-cow producers**
Is the CAP 2014-2020 providing policy tools to smooth the transition for livestock producers in the 2 alternative scenarios?

**Beef and veal, and Sheep and Goat sectors**

**Recoupling possibilities for direct payments:** livestock and protein sectors (EU 1307/2013)

- Beef and veal = 40+\% total voluntary coupled supports in 2014/15
- Sheep and Goat ≈ 12\% total voluntary coupled supports in 2014/15

**Supports to grazing systems** in line with "less-but-better" messages

- Direct payments redistribution for internal convergence
- LFAs and ANCs
- Agri-environment-climate measures
- Labelling and quality schemes

**Pig and Poultry:** less policy tools

**All farming systems:** Supports to sectorial restructuration

**Uncertainties:** ≠ implementation of CAP instruments among MS (design of RDPs)

CAP post 2020?
Status of this study = Explanatory research
High level of uncertainties on future pathways

Further research areas:
• Enlarge the commodity scope of the model (Fish, Fruits and Vegetables)
• Conversion of physical quantities into nutritional units (calories, nutrients equivalent)
• Integration of environmental indicators (coupling the model with an agro-economic module??)
Main messages of the scenario analysis

• A reduction of per capita meat consumption by 11% in high-income countries and 5% in Mexico, Argentina and Brazil would have an impact on global meat market, with stronger consequences on EU markets, even taking into account leakage effects.

• Beef and Veal would be the most affected sector in case of protein compensation with milk and dairy produce among other.

• The CAP 2014-2020 presents policy tools to smooth the transition for ruminant breeders but their implementation will be diverse among Member States.

• Less options are available for poultry and pig breeders.
Thank you for your attention

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