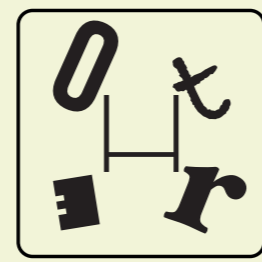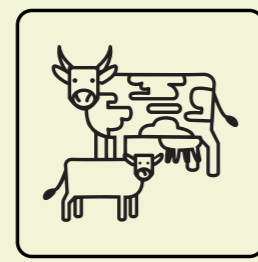# Economic Result Decomposition in Agriculture Based on FADN

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## Research question

- Can be calculated the economic results of the agricultural sector of the Czech Republic based on FADN data for selected aggregated groups (crop production, livestock production, others)?

## Project goal

Decomposition methodology of economic results and automation of calculation

### Sub-goals

- research of domestic and foreign sources
- methodology proposal
- indexes from annual sample survey
- automation of calculations and streamlining of repeated calculations
- methodology verification

## Necessity

- The reality of economic results by type of production.
- Economic results of 2022 = successful year => query: segment these results using available data (also forecast data) by type of production (discrepancy of economic results between crop and livestock production was expected).
- Allocation of economic results forecast.

### What data do we have?

- Extrapolated data from the FADN database (the weights of individual enterprises are used in the processing of data aggregation for a group of agricultural enterprises).

- FADN standard result = detailed production value by individual commodity groups => we can breakdown production for further calculations into individual parts of crop, livestock and other production (a special approach is needed for forage crop production due to the breakdown of production and the relevant costs of this production).
- Sample survey on costs and revenues of agricultural products of IAEI (approx. 300 agricultural farms from all regions of the Czech Republic) provides indexes for selected items of crop, livestock and other productions. It is an input parameter for the distribution of farming overheads and external factors of legal persons from the FADN database. For natural persons, a different procedure is required based on the ratio of the values of production group companies.

## Methodological procedures

### INDIVIDUAL FARMS

| Standard Result | | |
|---|---|---|
| Crop production | Livestock production | Other |
| **Total output**<br>Total output crops<br>Sum (SE140 … SE200)<br>! SE195 Forage crops (only sales – coef. 0,25) | **Total output**<br>Total output crops<br>SE195 Forage crops (coef. 0,75)<br><br>Total output livestock<br>Sum (SE216 … SE251) | **Total output**<br>Other output<br>SE256 |
| **Total inputs**<br>Total intermediate consumption<br>(Total specific costs = sum (SE285 … SE300)<br>+ Total farming overheads*) | **Total inputs**<br>Total intermediate consumption<br>(Total specific costs = sum (SE310 … SE332)<br>+ Total farming overheads*) | **Total inputs**<br>Total intermediate consumption<br>(Total specific costs = SE281 - sum (SE285 … SE300 + SE310 … SE332)<br>+ Total farming overheads*) |
| + Depreciation<br>+ Total external factors* | + Depreciation<br>+ Total external factors* | + Depreciation<br>+ Total external factors* |
| Subsidies** | Subsidies | Subsidies |

\* Total farming overheads and Total external factors calculation:
Relevant standard output indicators for crop and livestock production are first counted according to production groups. The sum is the calculated for each indicators in the given production group. Shares are then calculated from the absolute values for production groups. Coefficient for other production group is calculated from share of specific costs for other gainful activities.

\*\* Subsidies are divided for a given production group according to its specification.

### LEGAL ENTITIES

| Standard Result | | |
|---|---|---|
| Crop production | Livestock production | Other |
| **Total output**<br>Total output crops<br>Sum (SE140 … SE200) | **Total output**<br>Total output crops<br><br>Total output livestock<br>Sum (SE216 … SE251) | **Total output**<br><br>Other output<br>SE256 |
| **Total inputs**<br>Total intermediate consumption (Total specific costs = sum (SE285 … SE300)<br>+ Total farming overheads*) | **Total inputs**<br>Total intermediate consumption (Total specific costs = sum (SE310 … SE332)<br>+ Total farming overheads*) | **Total inputs**<br>Total intermediate consumption (Total specific costs = SE281 - sum (SE285 … SE300 + SE310 … SE332)<br>+ Total farming overheads*) |
| + Depreciation<br>+ Total external factors* | + Depreciation<br>+ Total external factors* | + Depreciation<br>+ Total external factors* |
| Subsidies** | Subsidies | Subsidies |

\* Total farming overheads and Total external factors calculation:
Relevant standard output indicators for crop, livestock and other production are calculated for legal entities using the output coefficients from the sample survey.

\*\* Subsidies are divided for a given production group according to its specification.

### Composition of production, costs, farm net value added - first outputs from the model



2022f - forecast
Source: FADN CZ, IAEI

Legend: Crop production, Livestock production, Other production