1. The structure of the data cube in CAPRI

Data Cube in CAPRI

- Parameter DATA(RU,COLS,ROWS,TIME)

	Activities	Farm- and market balances	Prices	Positions from the EAA
Outputs	Output coefficients	Production, seed and feed use, other internal use, losses, stock changes, exports and imports, human consumption, processing	Unit value prices from the EAA with and without subsidies and taxes	Value of outputs with or without subsidies and taxes linked to production
Inputs	Input coefficients	Purchases, internal deliveries	Unit value prices from the EAA with and without subsidies and taxes	Value of inputs with or without subsidies and taxes link to input use
Income indicators	Revenues, costs, Gross Value Added, premiums			Total revenues, costs, gross value added, subsidies, taxes
Activity levels	Hectares, slaughtered heads or herd sizes			
Secondary products		Marketable production, losses, stock changes, exports and imports, human consumption, processing	Consumer prices	

Data Cube in CAPRI

- Parameter DATA contains the basic farm balance information for the supply model
- Challenge:
  - Many data in CAPMOD are stored and later reload to save memory
  - Data cube depends on the regional resolution (MS includes Market Balance, Nuts2)
- For supply model we have a core
  - Calculation of EAA accounts (income, revenue, costs …)
  - Market balance

2. Calculation of important economic indicators

Market balance at MS level

- NETF = GROF-SEDF-LOSF-INTF

imports (*IMPT*) and production (*NETF*) =

sum of feed (*FEDM*) and seed (*SEDM*) use, human consumption (*HCOM*), processing (*INDM (industrial use),PRCM (processing primary products),BIOF (biofuels)*), losses (*LOSM*) and exports (*EXPT*)

Whereas Domestic use DOMM

= feed (*FEDM*) + seed (*SEDM*) use + human consumption (*HCOM*) + processing (*INDM (industrial use),PRCM (processing primary products),BIOF (biofuels)*) + losses (*LOSM*)

Economic accounts for agriculture: EAA

- *EAAG*, position from the Economic Accounts for Agriculture EAAG=GROF*UVAG -> product of production (*GROF*) times the gross unit value prices (*UVAG*) derived fro EAA
- UVAD= UVAG+CMRG -> Consumer prices (*UVAD*) are equal to producer prices (*UVAG*) plus a margin
- Income = Revenue – Costs + premium
- Income = for paying factors for land (own and rented land), labour and capital GVA

Exercise 2:

- Building the data cube:
- CAPRI\gams\ts_data_cube.gms

gamside: D:\public\gocht\2018\trunk_ex_ante\gams\gasmideGMS.gpr

File Edit Search Windows Utilities Model Libraries Help

p_NCNC_CONT

D:\public\gocht\2018\trunk_ex_ante\gams\ts_datacube.gms

allfromCAPRI.gdx | market_model.gms | sets.gms | ts_datacube.gdx | ts_datacube.gms | ts_datacube.lst

```
*******************************************************************************
$ontext

   CAPRI project
   GAMS file : tsdatacube.gms
   @purpose  : Understanding the syntax for filling data cube in CAPRI
   @author   : A. Gocht
   @date     : 07.06.18
   @refDoc   : CAPRI Documentation
   @seeAlso  : Capmod and reports\sol_simy
   @calledBy : standalone

$offtext
*******************************************************************************

* read in data cube from DK
sets orderdummy2/LEVL,income,gva,revenues,costs,premium,profit/

* we need to know the sets before loading during execution
$include 'sets.gms'

* load only those sets of importance from file1
set sRALL(RALL)/"DK000000"/;

* main data cube in CAPRI
parameter data(sRALL,*,*,*);

$ setglobal file_to_read "..\..\output\results\allfromCAPRI.gdx"

$iftheni exist  %file_to_read%

     execute_load '%file_to_read%' data;
$ else

$   abort file %file_to_read% missing.

$endif

* our new data cube with two first additional dim for a better grouping of the cube
parameter p_data(*,*,*,*,*,*);

* Yields of the output and input needs
     p_data("Activity","O",sRALL,MPACT,O,"Y")= data(sRALL,MPACT,O,"Y");
     p_data("Activity","I",sRALL,MPACT,I,"Y")= data(sRALL,MPACT,I,"Y");

* Level
     p_data("Activity","LEVL",sRALL,MPACT,"LEVL","Y")= data(sRALL,MPACT,"LEVL","Y");


* Calculate grof from yields tonnes and levels 1000 hectares or heads

     p_data("MarketB","O",sRALL,"GROF",O,"Y") =
              SUM(PACT_TO_O(MPACT,O), data(sRALL,MPACT,"LEVL","Y")*
                        data(sRALL,MPACT,O,"Y"))*0.001;
```

7: 1 Modified Insert

D:\public\gocht\2018\trunk_ex_ante\gams\ts_datacube.gdx

ts_datacube.gdx

Entry	Symbol	Type	Dim	Nr Elem
1	p_data	Par	6	861

p_data(*, *, *, *, *, *)

DK000000 Y

		Activity											
		SWHE	RYEM	BARL	OATS	MAIZ	OCER	RAPE	OOIL	OIND	NURS	FLOW	OCRO
LEVL	LEVL	565,763416295696	116,000558123597	623,510877953287	54,6400961594589	15,5205977917411	18,0249841100809	138,834820055178	15,7249650294977	0,142543340479612	3,24972826356678	2,57305944532368	14,9660709809053
O	SWHE	7725,17475140037											
	RYEM		6786,32821711454										
	BARL			6234,13605759407									
	OATS				5354,55758897274								
	MAIZ					7648,96437382718							
	OCER						6026,48615993484						
	RAPE							4484,67927838606					
	OOIL								972,046237351926				
	OIND									12,8581772602574			
	NURS										35702,452817756		
	FLOW											241793,036986589	
	OCRO												4478,19847507787
	MAIF												
	ROOF												
	OFAR												
	POTA												
	SUGB												
	TEXT												
	TOMA												
	OVEG												
	APPL												
	OFRU												
	GRAS												
	OANI												
	STRA	6180,1398011203	6107,69539540309	4987,30884607526	5890,01334787001		5423,83754394136						
	ARES	8034,18174145638	11536,7579690947	9039,49728351141	9102,74790125366	9790,67439849879	10245,0264718892	7399,72080933699					
	YCOW												
	YBUL												
	YHEI												
	YCAM												
	YCAF												
	YPIG												
	YLAM												
	YCHI												
	COMI												
	COMF												
	BEEF												
	PORK												
	SGMT												

Symbol search | Next | Prev

Reset | Squeeze defaults | Decimals | Search | Ordering: 3 6 | 2 5 1 4

Sort | Squeeze trailing zeroes | Max | Next | Prev | Data Colors | None

10:01
08.06.2018