TFEIP Workshop October 2006
Capri Baseline

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What is CAPRI ?

- A "multi-purpose" modeling system for EU's agriculture, *allows to analyze*
  - Agricultural policies *(administrative prices/tariffs/preferential agreements/premiums/set aside/quotas)*
  - Environmental policies *(standards/market solutions)*
  - Changes in exogenous drivers *(population/inflation/exchange rates/consumption behavior/technical progress)*
- *with respect to*:
  - supply/demand/trade flows
  - hectares/herd size/yields/input use
  - Producer & consumer prices, income indicators
  - Environmental indicators
  - Welfare effects
- Type in Google "CAPRI BONN" => website with downloadable documentation

CAPRI data base

- **National database**
  - Main input source is Eurostat
    (area statistics, farm and market balances, Economic Accounts for Agriculture, Agricultural prices ..)
  - Builds up "complete and consistent" time series for EU27 + Western Balkan,
  - for activity levels, market balances and economic accounts
- **Regional database**
  - Takes data at Member State level (CoCo results) as given
  - Main input sources:
    - REGIO domain from Eurostat
    - Data on CAP from DG-AGRI
    - Engineering information (animal requirements etc.)
  - Gives regionalised data including fertilizer and feed distribution

Coverage and purpose of baseline

- Purpose
  - Reference point for impact analysis with CAPRI
  - Supplements DG Agri prospects with regional dimension
  - Input to other models (RAINS, SEAMLESS, MITERRA)
- Includes market balances, prices, areas, inputs
- Coverage is global (almost 30 regions) but
  - Activity data (and emissions…) only for EU27, Western Balkan, Norway.
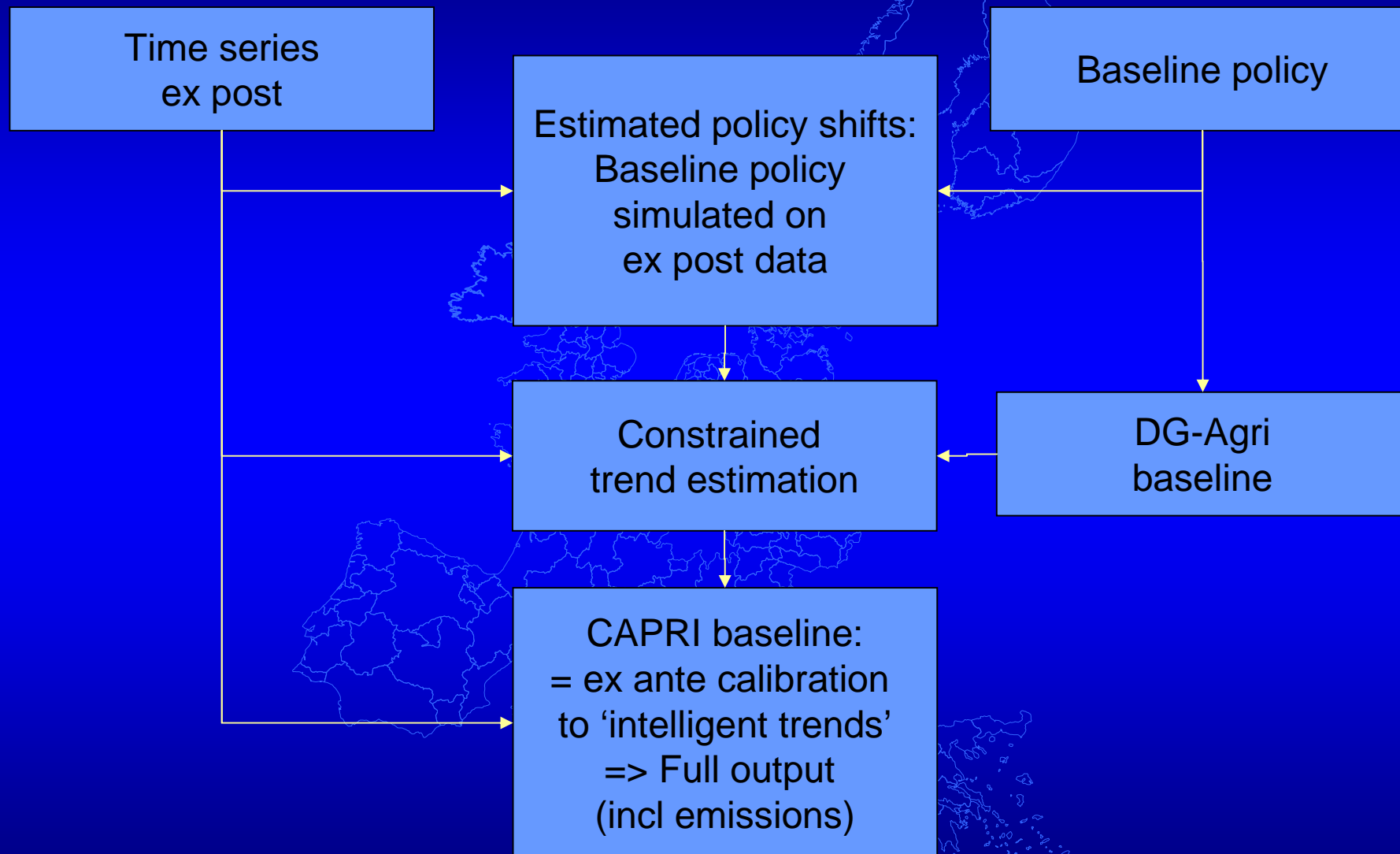- Time horizon up to 2030 but most often medium term (10 years)

CAPRI baseline approach

- Technological constraints and policy shifts are incorporated

- Integration of DG-AGRI Baseline

- Uses some econometrics on time series data

- But incorporating expert information

  – to supplement and check formal modelling

- Disaggregation to NUTS II

Overview on CAPRI baseline process

Time series ex post

Baseline policy

Estimated policy shifts: Baseline policy simulated on ex post data

Constrained trend estimation

DG-Agri baseline

CAPRI baseline: = ex ante calibration to 'intelligent trends' => Full output (incl emissions)

Policy shift content

Current CAPRI baseline policy shifts for:

- Decoupling of CAP premiums

  (degree specific for each MS)

- Decided changes in milk quotas

Still in policy scenarios (incorporated in future baselines):

- EU sugar reform of 2006

- Outcome of WTO negotiations

- Accession of Bulgaria and Romania

What are the constrained trends?

- Set of simultaneous trend values for key data

- Gives key input for complete CAPRI baseline
  (incl input allocation, emissions, parameters ...)
  and RAINS

- Integrates DG-AGRI baseline

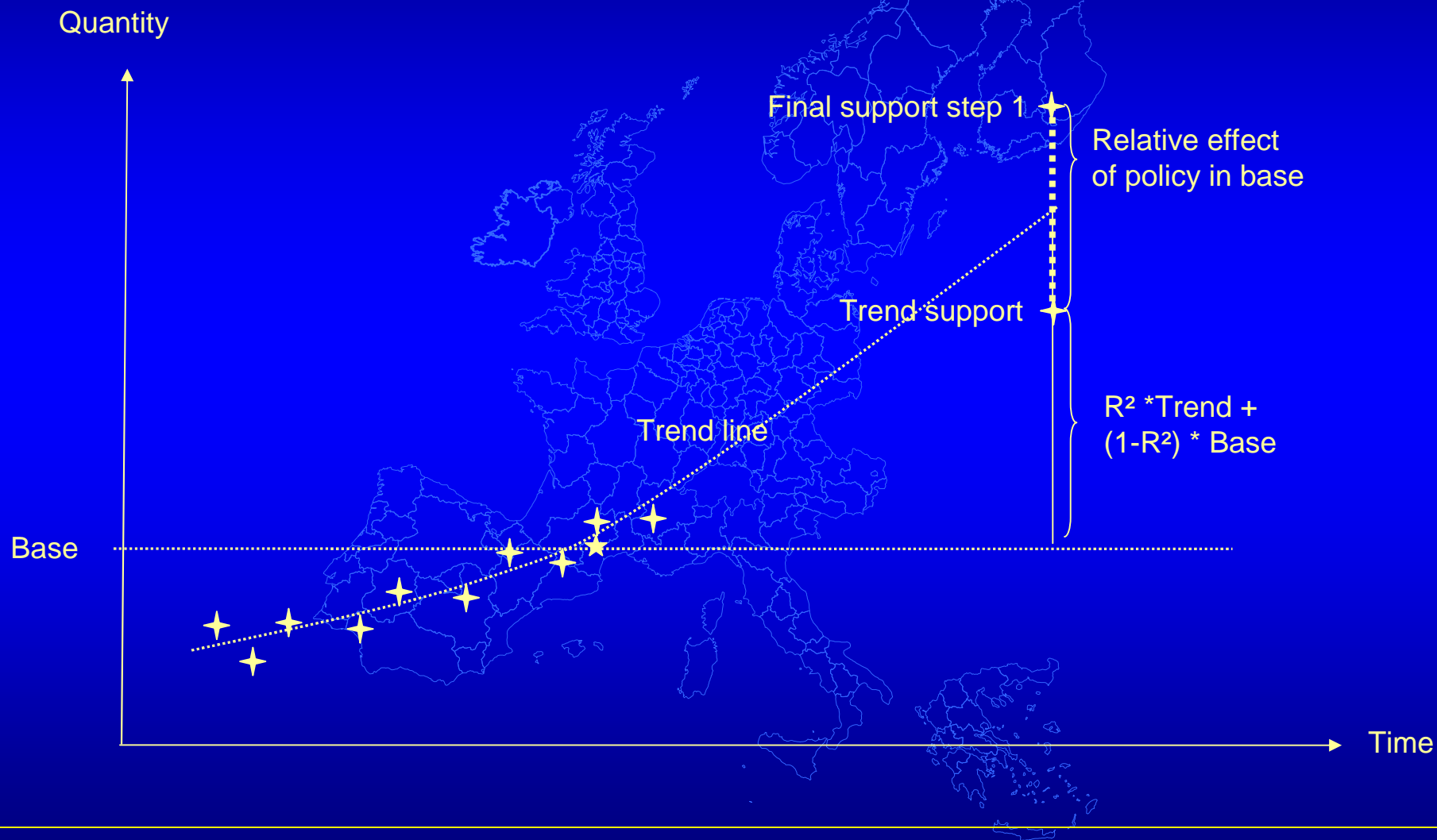- Includes many constraints linking agricultural
  variables

Estimation procedure I

- **Step 1**
  - Estimate independent trends *(Variable = a + b*time**c)*
  - => Usually contradictory, often negative first shot estimates
  - But R^2 gives some information on reliability
  - Target values for Step 2:
    (*R^2*trend estimate + (1-R^2*base year value))*(1+policy_shift)*
  - Motivation of average: no-change as null hypothesis

- **Step 2**
  - Minimize difference to supports, weighted with variance of error term of unconstrained trend line
  - Subject to a set of constraints

Estimation procedure Ia

Quantity

Final support step 1

Relative effect of policy in base

Trend support

R^2 *Trend + $(1-R^2)$ * Base

Trend line

Base

Time

Estimation procedure II

- Constraints for step 2 :
  - Production = activity levels * yields
  - Closed market balances
  - Area balances
  - Young animal balances
  - Fat and protein balances for dairy products
  - Energy and protein balances in animal sector
  - Consumer prices = producer prices plus margins
  - Consumer expenditures = prices * quantities
  - …

Estimation procedure III

- **Step 2**
  - technically consistent and includes an estimate of policy shifts but no external expert information =>

- **Step 3**
  - Currently only DG Agri (for EEA study also FAO...)
  - Aggregated Step 2 is compared to DG Agri => gives expert correction of 'supports' and new results

- **Additional framework for disaggregation to NUTSII level, fixing Member State results**

What are the problems?

- Manpower cannot be fully replaced: detailed checking of results needs to be improved
  - CAPRI network needs to substitute for consultation process ('melting down' process)
- DG-AGRI baseline has limitations
  - auxiliary assumptions necessary for disaggregation to Member states and regions
  - does not cover all products and activities => for those only constrained trends and policy shifts as basis of projections
- Policy shifts derived from base year are second best
  - Administrative prices may be irrelevant at future higher world prices
  - But feasible (no simultaneous forecast and impact analysis)