Agricultural market at the advent of the next WTO round - focus on dairy
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Agricultural Market at the Advent of the next WTO Round – Focus on Dairy

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IFCN Dairy Conference 2004 Braunschweig, 8th of June
Outline

- Introduction
- Approach: Global Trade Analysis Project (GTAP)
  - Extensions
  - Data base
- Simulations
- Results
  - Focus on dairy products and trade
  - Decomposition of results
  - Variation of simulations (H1, H2, H3)
- Summary and concluding remarks
Introduction

- WTO negotiations are still an ongoing topic with agriculture as a key action (single undertaking)
- The so-called Harbinson paper was the last one presenting quantitative figures
- What would have been the impact of the Harbinson proposal?
- And what are effects of single components of the proposal?
- Simulations are conducted for all agri-food products, but here the focus is on milk and dairy products
Global Trade Analysis Project (GTAP) - Model

- Interaction between agriculture and factor markets
- Integration of agriculture into intersectoral division of labour
Interaction between agriculture and factor markets

Integration of agriculture into intersectoral division of labour

Representation of EU, developed countries (IC) and developing countries (DC)

Representation of bilateral trade flows

Starting point of the analysis is the standard multi-regional general equilibrium model GTAP
GTAP - Database

- Base year 1997
- Sources of the GTAP - database:
  - national input-output-tables: users
  - bilateral trade flows: COMTRADE (UN)
  - Protection data: notifications of the WTO, PSE-values of the OECD, AMAD-database
- Database: 57 sectors, 76 countries, 5 factors
- Aggregation of WTO simulations
  - 23 regions: Germany, France, Ireland, CEECs, EU-12, USA, EBA-countries, ACP-countries, etc.
  - 19 sectors: detailed dis-aggregation of agri-food sectors, higher aggregation in non-agricultural sectors (other primaries, manufactures and services)
# GTAP – Regional aggregation – part 1

<table>
<thead>
<tr>
<th>Germany</th>
<th>GER</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>FRA</td>
</tr>
<tr>
<td>Ireland</td>
<td>Ire</td>
</tr>
<tr>
<td><strong>EU-12</strong></td>
<td><strong>EU12</strong></td>
</tr>
<tr>
<td>Belgium, Denmark, Finland, Greece, UK, Italy, Luxemburg, Netherlands, Austria, Portugal, Sweden, Spain</td>
<td></td>
</tr>
<tr>
<td><strong>Accession countries</strong></td>
<td><strong>CEECs</strong></td>
</tr>
<tr>
<td>Poland, Hungary, Bulgaria, Czech Republic, Malta, Rumania, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Cyrus</td>
<td></td>
</tr>
<tr>
<td><strong>USA</strong></td>
<td><strong>USA</strong></td>
</tr>
<tr>
<td>Canada</td>
<td><strong>CAN</strong></td>
</tr>
<tr>
<td><strong>Oceania</strong></td>
<td><strong>OCE</strong></td>
</tr>
<tr>
<td>Australia, New Zealand</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td><strong>INDO</strong></td>
</tr>
<tr>
<td>Malaysia</td>
<td><strong>MAL</strong></td>
</tr>
<tr>
<td>Brazil</td>
<td><strong>BRA</strong></td>
</tr>
<tr>
<td>India</td>
<td><strong>INDIA</strong></td>
</tr>
<tr>
<td>China</td>
<td><strong>CHINA</strong></td>
</tr>
<tr>
<td>Region</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EBA</td>
<td>Bangladesh, Rest of South Asia, Malawi, Mozambique, Tanzania, Zambia, Rest of Southern Africa, Uganda, Rest of Sub-Saharan Africa</td>
</tr>
<tr>
<td>Other ACP countries</td>
<td>Central America, Caribbean countries, Botswana, Zimbabwe</td>
</tr>
<tr>
<td>High Income Asia</td>
<td>Hong Kong, Korea, Taiwan, Singapore</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
</tr>
<tr>
<td>Rest of Former Soviet Union</td>
<td></td>
</tr>
<tr>
<td>Other Europe</td>
<td>Swiss, other EFTA</td>
</tr>
<tr>
<td>Other Asia</td>
<td>Philippines, Thailand, Vietnam, Sri Lanka</td>
</tr>
<tr>
<td>Northern Africa, Near East</td>
<td>Turkey, Rest of Middle East, Morocco, Rest of North Africa</td>
</tr>
<tr>
<td>Other Latin America</td>
<td>Mexico, Columbia, Peru, Venezuela, Rest of the Andean Pacts, Argentina, Chile, Uruguay, Rest of South America</td>
</tr>
<tr>
<td>Rest of the World</td>
<td>Croatia, Rest of SACU, Rest of the World</td>
</tr>
</tbody>
</table>

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### GTAP – Sectoral aggregation – part 2

<table>
<thead>
<tr>
<th>GTAP Sector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHEAT</td>
<td>Wheat</td>
</tr>
<tr>
<td>OCER</td>
<td>Other Cereals</td>
</tr>
<tr>
<td>OSEEDS</td>
<td>Oilseeds</td>
</tr>
<tr>
<td>RSUG</td>
<td>Sugar beets, sugar cane</td>
</tr>
<tr>
<td>RICE</td>
<td>Paddy rice</td>
</tr>
<tr>
<td>FRVEOC</td>
<td>Fruit, vegetables, other crops</td>
</tr>
<tr>
<td>CATTLE</td>
<td>Cattle, sheep, goats, horses</td>
</tr>
<tr>
<td>OTHANM</td>
<td>Other animals</td>
</tr>
<tr>
<td>MILK</td>
<td>Raw milk</td>
</tr>
<tr>
<td>PRIMA</td>
<td>Other primaries</td>
</tr>
<tr>
<td>BEEF</td>
<td>Beef</td>
</tr>
<tr>
<td>OTHMEAT</td>
<td>Other meat</td>
</tr>
<tr>
<td>OILS</td>
<td>Oils and Fats</td>
</tr>
<tr>
<td>DAIRY</td>
<td>Dairy products</td>
</tr>
<tr>
<td>OFOOD</td>
<td>Other Food</td>
</tr>
<tr>
<td>SUGAR</td>
<td>Sugar</td>
</tr>
<tr>
<td>DRTOB</td>
<td>Drinks, Tobacco</td>
</tr>
<tr>
<td>MANU</td>
<td>Manufactures</td>
</tr>
<tr>
<td>SVCS</td>
<td>Services</td>
</tr>
</tbody>
</table>

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Extensions of the GTAP model

- Instruments of the CAP (Common Agricultural Policy)
  - Milk- and sugar quotas ("complementarity approach")
  - Set-aside (adjustment of productivity)
  - Direct payments (animal and area premiums modelled as factor subsidies of land and capital)

- EU – Budget
  - Components of the European Agricultural Guidance and Guarantee Fund (EAGGF - section: guarantee)
  - Representation of endogenous net transfer payments

- Projection-module for adjustments within the economic environment

- No explicit representation of non-EU policies
Simulations

Baseline


- Projections
- Projections, Agenda 2000
- Projections, EU-Enlargement EBA
- Projections Decoupling

Comparison of results

Scenario


- Projections
- Projections, Agenda 2000
- Projections, EU-Enlargement EBA
- Projections, Decoupling
- WTO: Doha Round
Simulations of the Doha-Round concerning agri-food trade

<table>
<thead>
<tr>
<th></th>
<th>H1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market access margins</td>
<td></td>
</tr>
<tr>
<td>Export Subsidies</td>
<td>-100%</td>
</tr>
<tr>
<td>Domestic Support</td>
<td>-60% IC</td>
</tr>
<tr>
<td></td>
<td>-40% DC</td>
</tr>
</tbody>
</table>

IC = Developed countries; DC = Developing countries
HARBINSON-Proposal for Market Access: Reduction of notified tariffs

Developed countries (5 years)

<table>
<thead>
<tr>
<th>Tariff rate</th>
<th>Average reduction</th>
<th>Minimum reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 90%</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>15% &lt; 90%</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>&lt;15%</td>
<td>40%</td>
<td>20%</td>
</tr>
</tbody>
</table>
HARBINSON-Proposal for Market Access:
Reduction of notified tariffs

Developing countries (10 years)

Tariff rate

- > 120%
- 120% < 60%
- 60% < 20%
- < 20%

Reduction (%)

- Average reduction
- Minimum reduction
Changes in global exports – scenario H1 vs. base (Mio. €)
Changes in global exports – scenario H1 vs. base (%)
Changes in exports and imports of dairy products – scenario H1 vs. base (Mio. €)

- Exports
- Imports
Changes in exports and imports of dairy products – scenario H1 vs. base (Mio. €)
Changes in trade balances of dairy products – scenario H1 vs. base (Mio. €)

changes in trade balance = changes in FOB export values minus changes in CIF import values
Decomposition of total results

- Simulation results (e.g. implementation of the Harbinson proposal H1) will be decomposed in partial effects
  - Identification of important contributions to the total results
  - Support for comprehension and interpretation of results

- Important: partial effects can cancel out each other!
Decomposition - EU-27:
change in total balance of dairy products

-1000 -750 -500 -250 0 250 500 750 1000 1250 1500 1750 2000

total effect

negative effect of tariff cuts concerning imports from third countries to third countries on trade balance of the EU

- tariffs (third country, third country)
- tariffs (EU, third country)
- export subsidies (third country, EU)
- export subsidies (third country, third country)
- export subsidies (EU, third country)
Decomposition - EU-27: change in total balance of dairy products

negative effect of tariff cuts concerning imports from third countries to the EU on trade balance of the EU
Decomposition - EU-27: change in total balance of dairy products

Positive effect of tariff cuts concerning imports from the EU to third countries on trade balance of the EU.
Decomposition - EU-27: change in total balance of dairy products

- positive effect of export subsidy cuts concerning exports from third countries to third countries on trade balance of the EU

- tariffs (third country, third country)
- tariffs (EU, third country)
- export subsidies (third country, third country)
- export subsidies (EU, third country)
Decomposition - EU-27: change in total balance of dairy products

Positive effect of export subsidy cuts concerning exports from third countries to the EU on trade balance of the EU.
Decomposition - EU-27: change in total balance of dairy products

The bar chart illustrates the components contributing to the change in the total balance of dairy products in the EU-27. The negative effect of export subsidy cuts concerning exports from the EU to third countries on the trade balance of the EU is highlighted.

The chart shows:
- Yellow bars: Tariffs (third country, third country)
- Red bars: Tariffs (EU, third country)
- Blue bars: Export subsidies (third country, EU)
- Green bars: Export subsidies (EU, third country)

Each category is represented with bars of different colors and lengths, indicating their impact on the total balance.
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Decomposition – Oceania (OCE):
change in total balance of dairy products

The only negative effect is tariff cuts concerning imports from the EU to third countries on trade balance of Oceania.
Decomposition – USA: change in total balance of dairy products

Negative effects are tariff cuts concerning imports from the EU to third countries and cuts of export subsidies between third countries on the trade balance of USA.
Decomposition - Japan: change in total balance of dairy products

negative effects are tariff cuts concerning imports between third countries and tariff cuts concerning imports from the EU to third countries on trade balance of Japan
Decomposition – North Africa and Near East (MEDNE): change in total balance of dairy products

Negative effects are tariff cuts concerning imports between third countries and tariff cuts concerning imports from the EU to third countries on trade balance of North Africa and Near East.
Decomposition – Everything But Arms region (EBA): change in total balance of dairy products

Negative effects are tariff cuts concerning imports between third countries, tariff cuts concerning imports from the EU to third countries and export subsidy cuts concerning exports from EU to third countries.
Decomposition – Other ACP countries (OACP):
change in total balance of dairy products

Negative effects are tariff cuts and export subsidy cuts concerning exports between third countries.

Positive effect is export subsidy cuts concerning exports from EU to third countries.
Decomposition – Brazil (BRA): change in total balance of dairy products

A positive effect is export subsidy cuts concerning exports from EU to third countries.
Decomposition – Other Latin America (OLA): change in total balance of dairy products

negative effects are tariffs cuts

positive effects are export subsidy cuts

- tariffs (third country, third country)
- tariffs (EU, third country)
- export subsidies (third country, EU)
- export subsidies (third country, third country, third country)
- export subsidies (EU, third country)

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Decomposition – High Income Asia (HICAS): change in total balance of dairy products

negative effects are tariffs cuts

positive effects are export subsidy cuts

-100 -50 0 50 100

tariffs (third country, third country)
tariffs (EU, third country)
export subsidies (third country, EU)

export subsidies (third country, third country)
tariffs (third country, EU)
Decomposition – Indonesia: change in total balance of dairy products
Changes in quantities and prices – scenario H1 vs. base (%)
Changes in income (%) *
Qualification

- Intervention prices, TRQs and exogenous export subsidies
- political “update” in third countries
  - Representation of RTAs
  - Differences between bound and applied rates, “water" in tariffs
  - Explicit modelling of agricultural policies in third countries
- Changes in availability of factor endowments
- Sensitivity analysis
Summary

The Harbinson proposal would have the following impacts:

- World trade increases in all regions and in most agri-food products including dairy products.
- Positive net trade effects in trade balance of dairy products are expected in Oceania, EU-27, high income Asia, Malaysia, other Latin America, FSU and China.
- When the trade balance effects of dairy products are decomposed:
  - In the EU-27, positive effects of the tariff cuts concerning imports from EU to third countries are dominating negative impacts of tariff cuts concerning imports from third countries to the EU and to third countries as well as cuts of export subsidies concerning exports from the EU to third countries. Production quotas are binding, but producer prices will decline.
  - In Oceania, nearly all effects are positive. Production and prices will increase.
Summary

- In the USA, dominating negative effects are tariff cuts concerning imports from the EU to third countries and cuts of export subsidies between third countries. Due to production increases in other areas, milk production declines and prices increase.
- In Japan and North Africa and Near East, tariff cuts on imports are the most important effects. Prices and production decline.
- In the EBA region, preference erosion takes place. Prices and production decline.
- In Brazil, nearly all effects are negative, but high production increases in other agri-food sectors lead to higher prices. Nevertheless, production of milk declines.
- In other Latin America, positive effects of export subsidy cuts are dominating. Prices and production increase.

An overall positive income effect is expected in Brazil, Oceania, other ACP countries, other Latin America, Indonesia, the USA and Canada.
Thank you for your attention