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Les effets de la libéralisation agricole sur les économies des pays tiers méditerranéens

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AGRO II MODEL

AUTOMATIC TOOL FOR LIBERALISATION
SCENARIOS SIMULATION



Marseille, 4-6 December, 2003

“AGRO II” MODEL IDEA

- **To build up a reliable macro - econometric analysis for the quantitative measure of economic consequences (in MPC’s) of an eventual agricultural trade liberalization process with EU.**
- **Implementation of a Visual Basic (Excel) interface for an easy manipulation of the model to simulate tailored scenarios for every analyst, not just macro-econometric experts.**



PRESENTATION PLAN

- I.- Global description of “how the model works”: stages of the process, variables involved in each stage and technical links.**
- II.- Global presentation of the Visual Basic Interface usage.**
- III.-Some remarks about our Base Scenario: the case of cereals crops in Egypt.**
- IV.- Some conclusions**



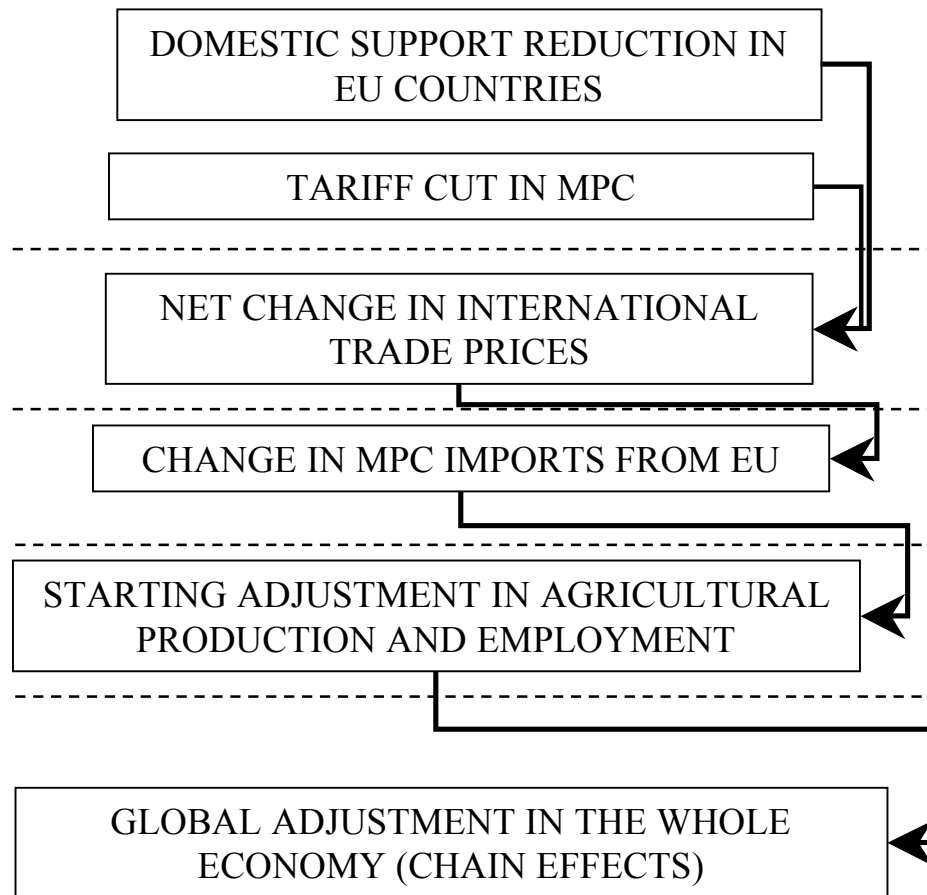
STARTING POINT

- **Agricultural trade between Mediterranean Partner Countries and EU will be liberalized sooner or later.**
- **This process will involve, essentially:**
 - **Bilateral trade barriers removal in MPC's**
 - **Domestic support reduction in EU**
- **The pattern and magnitude of the liberalization scenario can seriously affect the MPC's economies.**



MODEL GLOBAL DESCRIPTION

VARIABLES & CHAIN OF EFFECTS



TECHNICAL LINKS

- Connection between EU Domestic Support and international trade prices
- Detailed analysis of tariff level and structure in MPC's

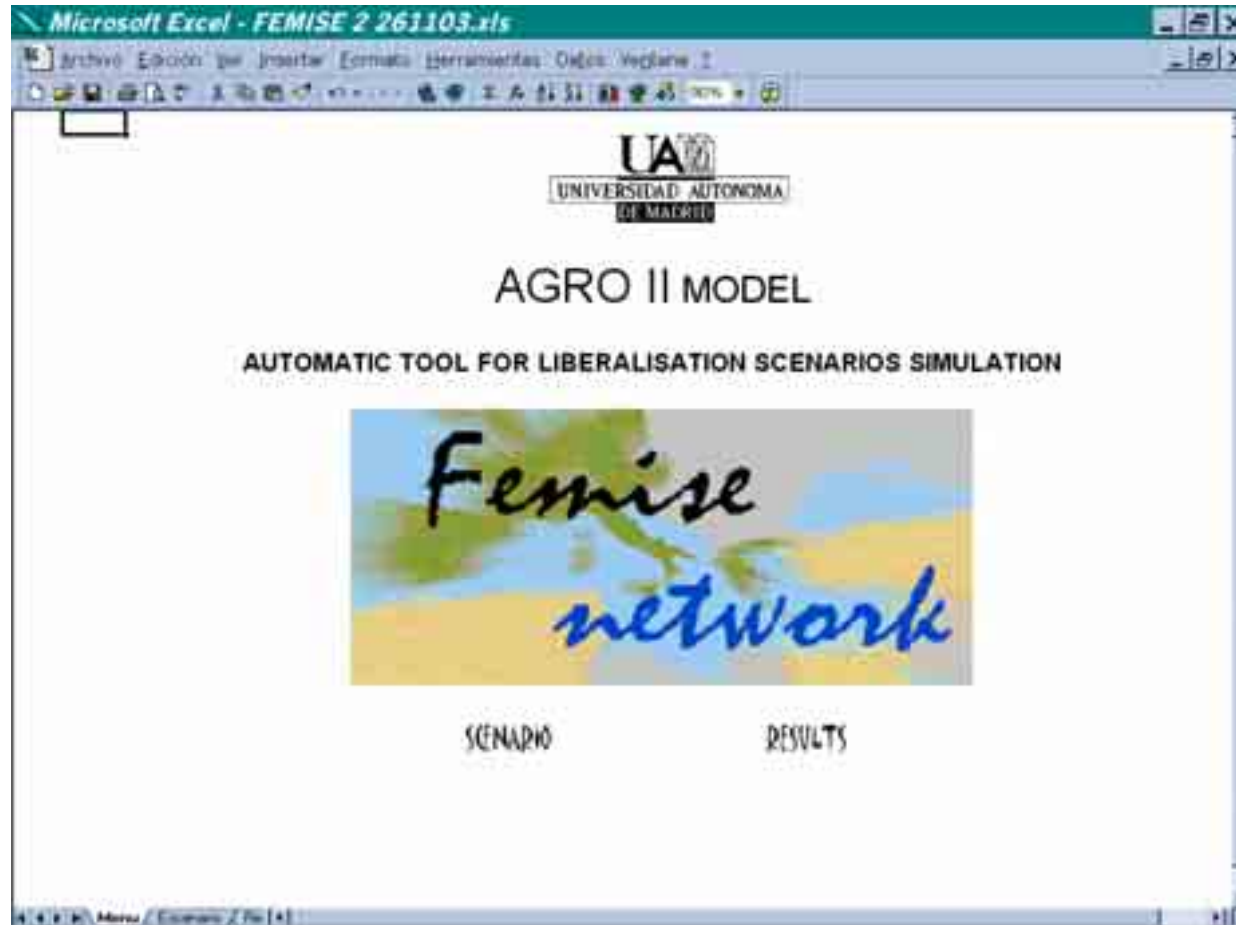
- Connection between international and EU-MPC bilateral trade prices

- Price / Import elasticity analysis for each country-product

- Connection between imports and sectoral employment and production

- Dinamization of employment series
- Dinamization of employment coefficients
- Dinamization of Value Added Prices
- Usage of IO Tables for chain effects computation (wage income, prices, value added, productivity, public incomes..)

VISUAL BASIC INTERFACE



VISUAL BASIC INTERFACE



WHICH IS THE TEMPORAL DESIGN OF SIMULATION: ACUMULATED, PROPORTIONAL OR PROGRESSIVE ?



DECIDE FREELY THE IMPACT ON EMPLOYMENT OR LEAVE THE MODEL COMPUTE IT

ENDOGENOUS



PERCENT REDUCTION IN CURRENT EU DOMESTIC SUPPORT LEVELS



LEVEL OF TARIFF PROTECTION TO BE REMOVED IN MPC



POLITICAL DECISIONS

RESULTS

MODEL

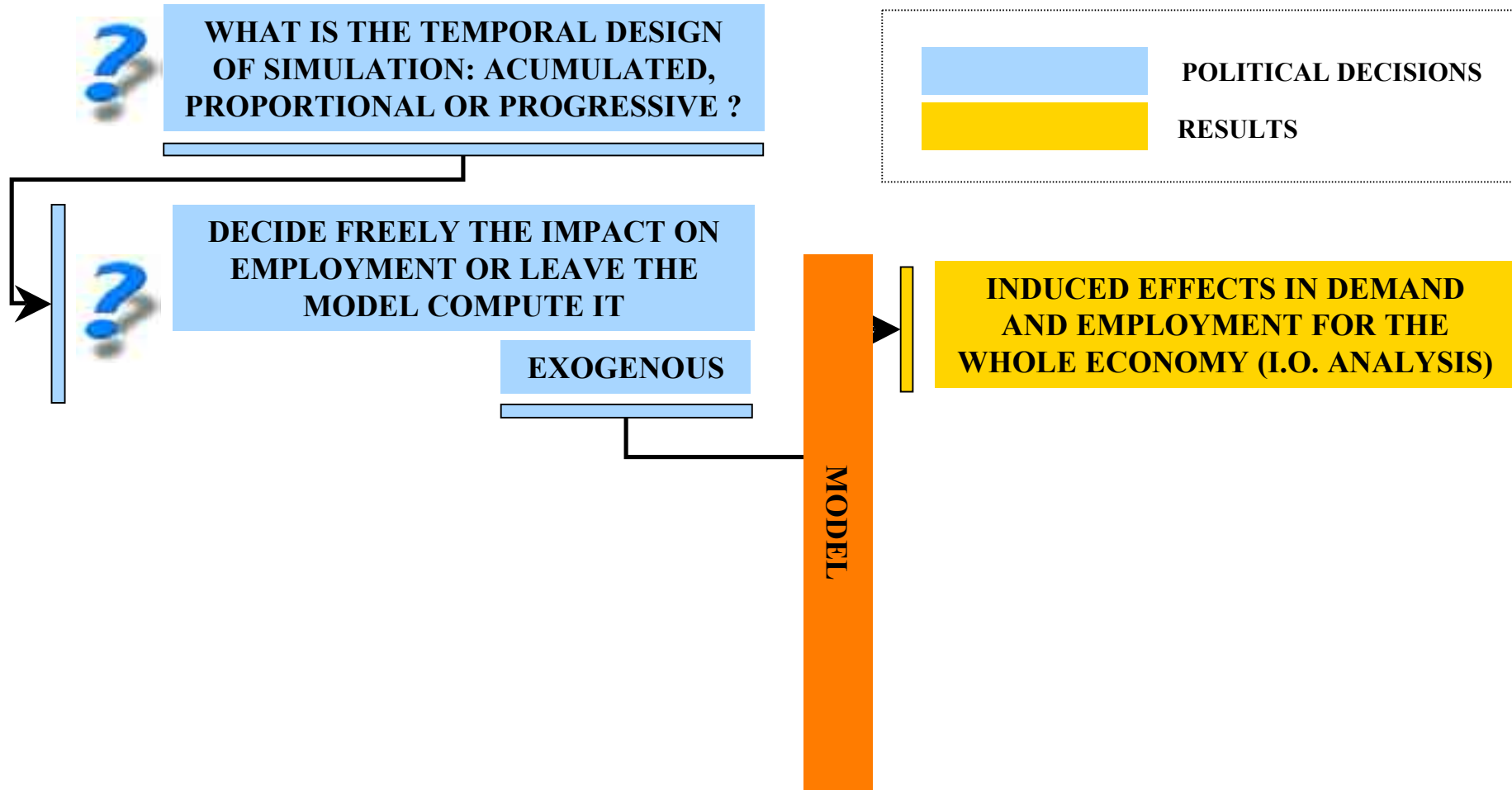
INDUCED EFFECTS IN DEMAND AND EMPLOYMENT FOR THE WHOLE ECONOMY (I.O. ANALYSIS)

EMPLOYMENT ADJUSTMENT

IMPORT CHANGES

NET TRADE PRICE MOVEMENT

VISUAL BASIC INTERFACE



VISUAL BASIC SCREENS

Political Decisions (first one)

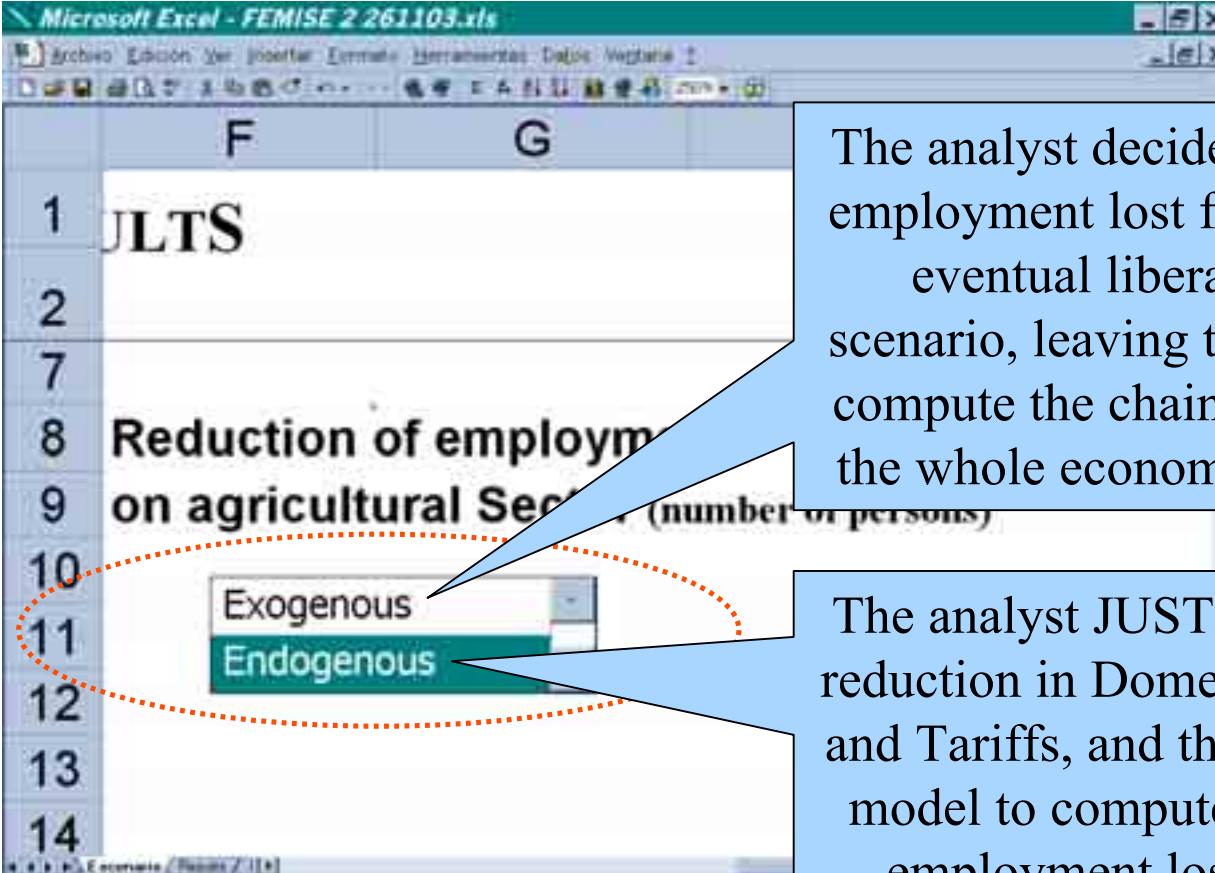
The screenshot shows a Microsoft Excel spreadsheet titled 'Microsoft Excel - FEMISE 2 261103.xls'. The spreadsheet has columns labeled A, B, and C, and rows numbered 1 through 15. In row 1, column A, the text 'FEMISE' is visible. In row 2, column A, the text 'SCENARIO' is visible. In row 12, column B, the text 'Proportional (7 years)' is visible. In row 13, column B, the text 'Progressive (7 years)' is visible. In row 14, column B, the text 'Accumulated' is visible. A blue box highlights the three radio button options. A red dotted oval encircles the 'Accumulated' option. Two blue callout boxes provide additional information: one points to the 'Accumulated' option, and the other points to the 'Proportional (7 years)' option.

The inputs and outputs of the model will be aggregated in a single year

The inputs and outputs of the model will be proportional distributed in a basis of a 7 years scenario

VISUAL BASIC SCREENS

Political Decisions (second one)



The screenshot shows a Microsoft Excel window titled 'Microsoft Excel - FEMISE 2 261103.xls'. The spreadsheet has columns labeled 'F' and 'G' and rows numbered 1 to 14. Row 1 contains the text 'ULTS'. Row 8 contains the text 'Reduction of employment on agricultural Sector (number of persons)'. A dropdown menu is open over cell G11, showing two options: 'Exogenous' and 'Endogenous'. The 'Endogenous' option is highlighted in green. A red dotted oval encircles the dropdown menu. Two blue callout boxes with white text provide context for the analyst's decision.

The analyst decides the initial employment lost following an eventual liberalization scenario, leaving the model to compute the chain - effects in the whole economy OR.....

The analyst JUST decides the reduction in Domestic Support and Tariffs, and then leave the model to compute the initial employment lost and the follow-on effects.

VISUAL BASIC SCREENS

Political Decisions (third one)

The analyst decides the percent reduction of current Domestic Support for each class of agricultural good.

Group	Products	Scenario	Ba
100	Oats	44.93%	44.93%
1003	Barley	44.93%	44.93%
10	Maize	44.93%	44.93%
1001 - 1101	Wheat	44.93%	44.93%
1507	Soybean Oil	44.93%	44.93%
1701	Sugar	44.93%	44.93%
0402 - 0405	Milk & Butter	44.93%	44.93%

VISUAL BASIC SCREENS

Political Decisions (fourth one)

Microsoft Excel - FEMISE 2 261103.xls

ESTIMATED TARIFFS AD-VALOREM BY CATEGORY (PU-PTM)

Group	Products	Scenario	Min	Max
0402	MILK AND CREAM, CONCENTRATED OR CONTAINING ADDED SUGAR OR OTHER SWEETENING MATTER	10,7%	3,4%	18,0%
0405	BUTTER AND OTHER FATS AND OILS DERIVED FROM MILK	34,0%	33,3%	34,7%
0701	POTATOES, FRESH OR CHILLED	16,7%	16,7%	16,7%
1001	WHEAT AND MESLIN	17,3%	1,4%	17,3%
1003	BARLEY	16,0%	5,5%	16,0%
1101	WHEAT FLOUR	13,0%	13,0%	13,0%
150T	SOYABEAN OIL AND ITS FRACTIONS, WHETHER OR NOT REFINED (EOL), CHEMICALLY MODIFIED	10,0%	11,5%	16,0% - 17,7%
1701	CANE OR BEET SUGAR AND CHEMICALLY PURE SUCROSE, IN SOLID FORM	21,0%	19,3%	21,0% - 22,4%
2008	FRUITS, NUTS AND OTHER EDIBLE PARTS OF PLANTS, PREPARED OR PRESERVED	47,6%	47,0%	47,6% - 47,6%

The analyst decides the level of tariff protection to be removed in the MPC for each class of agricultural good.

VISUAL BASIC SCREENS

OUTPUT possibilities

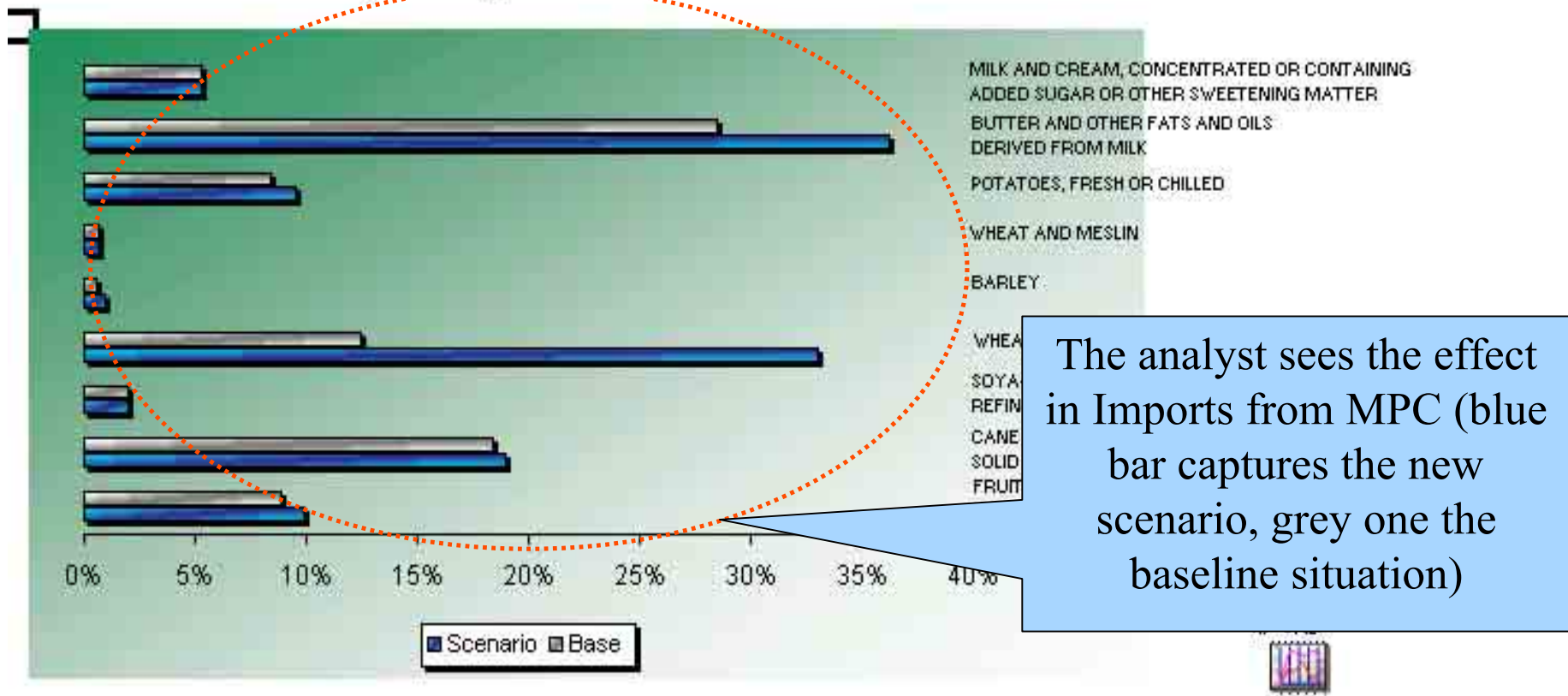
- **Trade prices movements**
- **Imports adjustment**
- **Direct effect in agricultural production**
- **Demand induced effect in agricultural production**
- **Direct and induced effects in the Added Value for the whole economy**
- **Direct effects in agricultural employment**
- **Demand induced effects in agricultural employment**
- **Total effects in the employment for the whole economy**



VISUAL BASIC SCREENS

Example: OUTPUT=Import Increase

II. Increase of Imports of Agricultural Products



EGYPT BASELINE SCENARIO

Some Remarks - INPUTS

- Time design: **ACUMULATED**
- Initial employment adjustment: **ENDOGENOUS**
- Products covered: **ALL**
- Domestic Support Reduction: **44,93 % (Dec.2002)**
- Tariff Cuts: **100 % of current Ad-Valorem Levels**



EGYPT BASELINE SCENARIO

Some Remarks - RESULTS

- 1. EU proposal of reduction in Domestic Support in EU, about 44,9%, doesn't compensate the removal of current level of Tariff protection in Egypt....**
- 2. ... so, there exists a negative net effect in bilateral trade prices (between 5% and 37% depending on the product considered)**
- 3. That structural change in prices levels leads to an increase in egyptian imports form EU (from 12% in cereals, or 9% in milk, to 28% in sugar)**

EGYPT BASELINE SCENARIO

Some Remarks - RESULTS

- 4. This increasing imports leads to significant employment losses in essential crops production: (170.000 producers or 458.000 if agricultural dependent population is considered).**
- 5. The economic effect in terms of agriculture added value is not very relevant but just due to the relative low level of productivity in the agricultural sector**



EGYPT BASELINE SCENARIO

Some Remarks - RESULTS

6. **The effects in the rest of Non-Agricultural Economy seems not relevant in terms of Employment (around 20.000 employees) or Value Added, reflecting a low level of connection between agriculture and the rest of the sectors.**
7. **An eventual (and very possible) change in the value of current price – import elasticity following a protection removal (let say an increase of 20% over current estimated values for all the products) can notably change the results, increasing the employment lost to 250.000 agricultural producers.**



SOME CONCLUSIONS ABOUT THE TOOL

- 1. The Visual Basic interface is a valuable tool for policy makers and can be easily use to simulate different liberalization scenarios**
- 2. The tool provides enough detail to see the main costs and benefits in MPC'S of each kind of scenario but the econometric model that feeds the application can be used to technically complete the simulation**
- 3. The interface is individually designed for 5 different countries and around 10-15 groups of products and so on, the results can be modified-analized with enough detail.**

