



**“WELFARE EFFECTS OF PARTIAL AND FULL
LIBERALIZATION OF INTERNATIONAL TRADE ON
AGRICULTURE IN UZBEKISTAN”**

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Outline

1. Introduction
2. Problem Statement and Objectives
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4. Results and Discussion
5. Conclusion and Suggestions

1. Introduction

- Agriculture sector is important for the region;
- The partial implementation of reforms such as privatization and liberalization of agricultural markets affect the development of agriculture and agricultural trade in Uzbekistan;
- Liberalization of agricultural trade provides important;
- Uzbekistan is to liberalize the economy and foreign trade was mainly concerned about;
- World Trade Organization (WTO) accession negotiations with Uzbekistan are still in progress, observer status.

2. Problem Statement

- Agricultural sector is still characterized by unsustainable production patterns;
- Agricultural institutions of the country are controlled to a large extent through government intervention;
- Government decides to grow cotton and wheat as well as fix the output prices;
- State requirements for cotton and wheat restrict land for other crops.

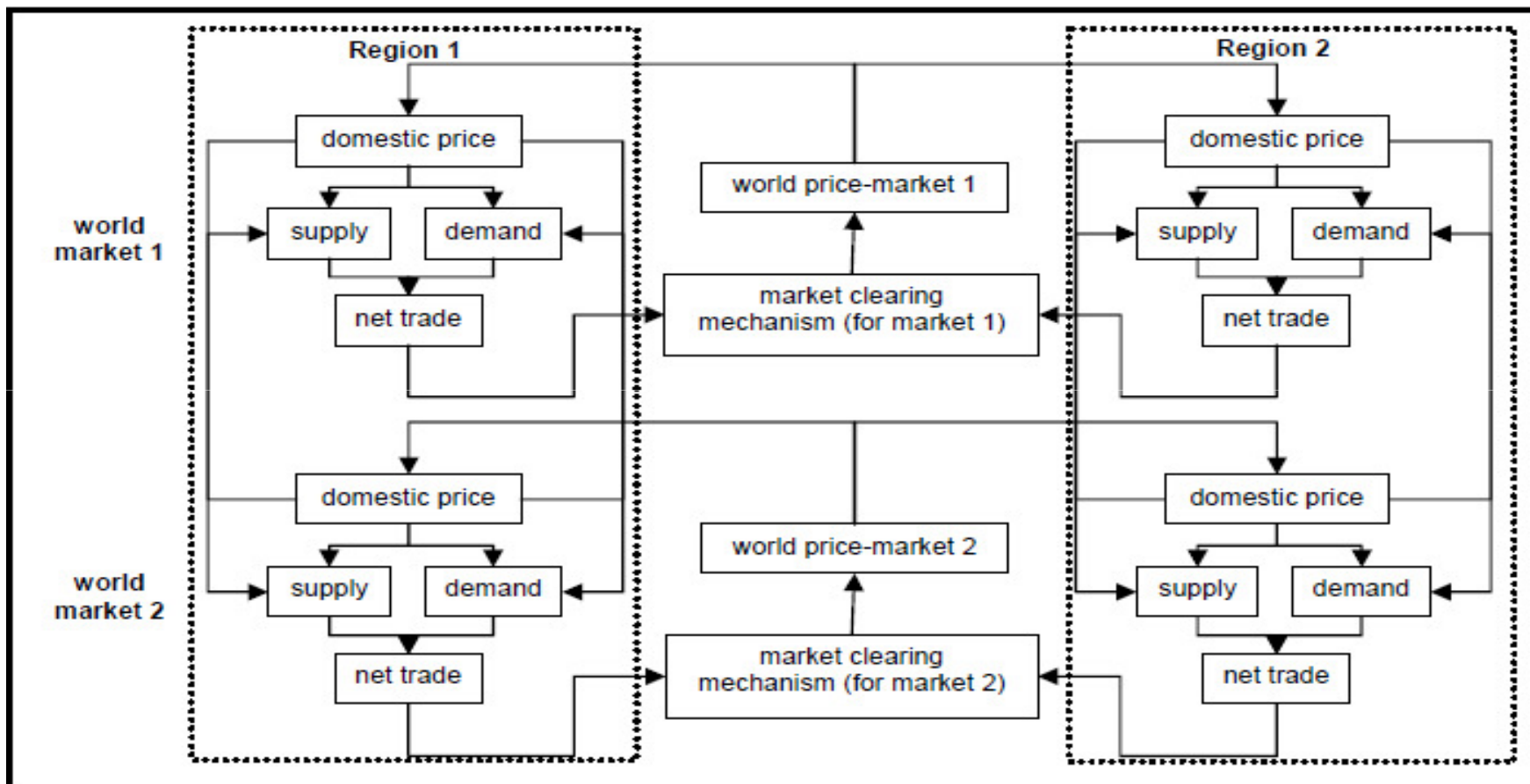
2. Objectives of the study

- Study of the evolution and structure of agriculture as an important part of the macroeconomic environment of Uzbekistan;
- Using partial equilibrium model AGRISIM to simulate different policy scenarios regarding the impact of liberalization on agriculture and agricultural trade in Uzbekistan;
- Analysis and evaluate the impact of liberalization on the development of agricultural production and trade in Uzbekistan;
- Developing of proposals for agricultural markets in Uzbekistan.

3. Methodology (I)

- Using the partial-equilibrium, net trade model AGRISIM (**A**gricultural **S**imulation **M**odel) the main objective of the study to attain;
- AGRISIM is a partial-equilibrium, multi-commodity, multi-market, and multi-region model;
- Model developed at the University of Giessen and IAMO, and is based on the "Static World Policy Simulation Model" (SWOPSIM) of the U.S. Department of Agriculture (USDA);
- Model programmed in General Algebraic Modeling System (GAMS).

Figure 1: Simplified structure of AGRISIM model (Meth. II)



Source: Roningen, 1977

3. Methodology (III)

Model regions

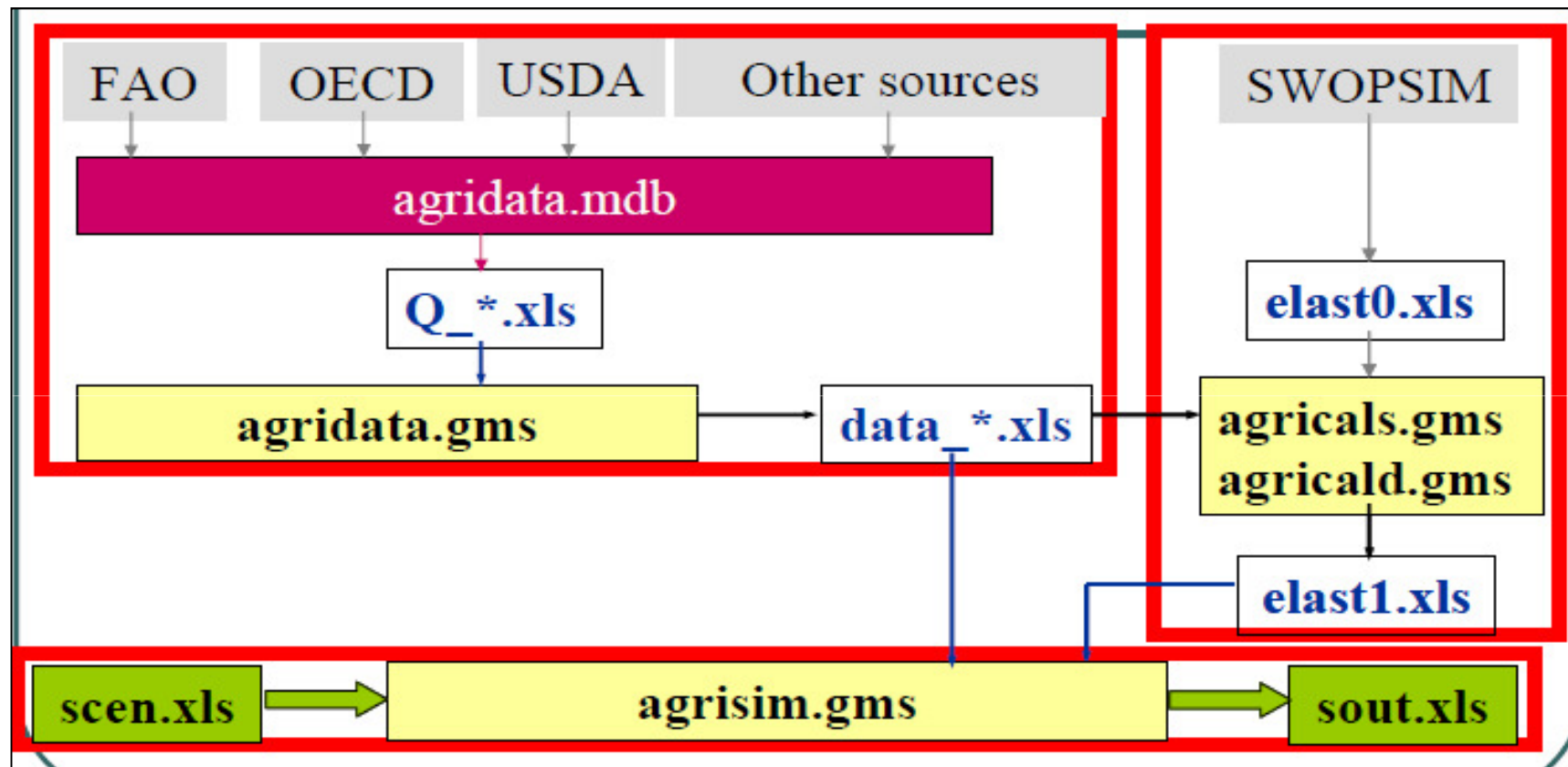
1. Australia
2. Brazil
3. Canada
4. China
5. Egypt
6. EU 27
7. India
8. Japan
9. Kazakhstan
10. Kyrgyzstan
11. Mexico
12. Rest of the World (ROW)
13. Russia
14. South Africa
15. Ukraine
16. USA
17. Uzbekistan
18. Tajikistan

3. Methodology (IV)

Model Commodities

Nr.	Crop products	Nr.	Animal products
1	Wheat	10	Milk
2	Coars	11	Beef meat
3	Maize	12	Pork meat
4	Rice	13	Poultry meat
5	Sugar	14	Eggs
6	Cotton	15	Mutton and Goat meat
7	Soybean		
8	Oilseeds		
9	Tobacco		

Figure 2: Structure of AGRISIM model and their inter-connections (Methodology V)



Source: According to Borresch, 2005

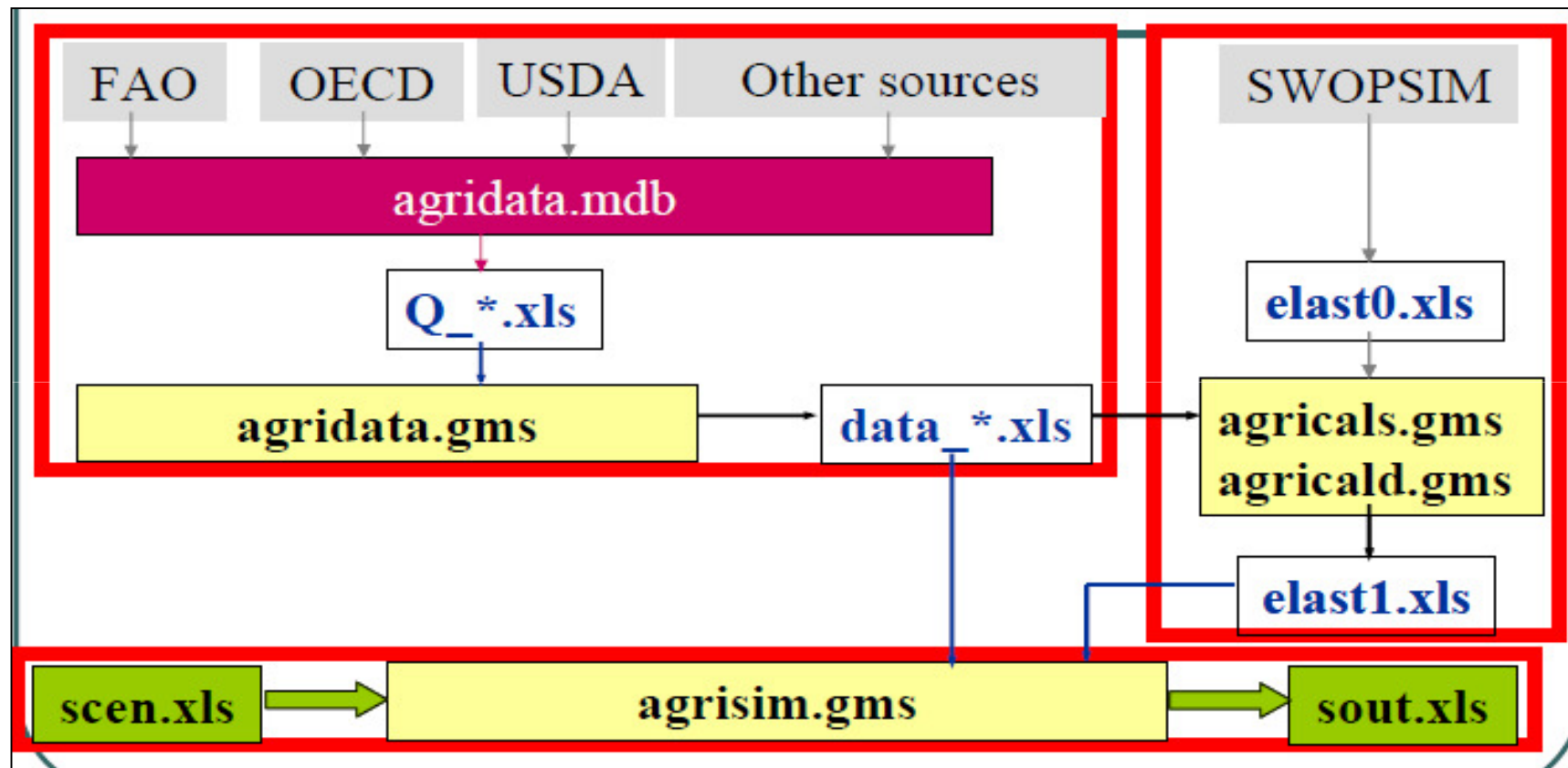
3. Data Base and Sources (I)

1. **Q_FPOP** = Population statistics
2. **Q_FPRO** = Productions statistics (*LEVL, PROD, SEED*)
3. **Q-FBAL** = Product Balance (*PROD, DNAD, NTRA*)
4. **Q_EDIT** = EDITED (*FGP, WMP, NRP*)
5. **Q-EXCH** = Exchange Rates (USD against national currency)
6. **Q_PSE** = PSE (*Producer support estimate*) data of OECD
7. **Q_CSE** = CSE (*Consumer support estimate*) data of OECD

3. Data Base and Sources (II)

Needed data	Sources
Amounts	FAO, USDA, Ministry of Agriculture data base, national statistic data base
Population	FAO, UN, Committee of Statistics data base
Prices	World Bank, OECD – Statistics, national data
Policy Information	OECD - Statistics
	other sources
Exchange Rates	World Bank
	Central and National Banks of countries

Figure 2: Structure of AGRISIM model and their inter-connections (Methodology VI)



Source: According to Borresch, R. (2005): Quantitative economic modeling for policy analysis.

Scenario

The formulation of the scenario is:

Reduction of the Input subsidies (*for cotton and wheat*) in Uzbekistan (UZB) + Reduction of the positive and negative Nominal Rate of Protections (NRP) in UZB

(NRP/2 partial Liberalization and NRP=0 full Liberalization in UZB).

It can be called as partial (50%) and full (100%) liberalization scenario.

Nominal Rate of Protection (NRP)

$$NRP = 100 \cdot (p_i - p_w) / p_w$$

in %

P_i – Domestic Price

P_w – World Market Price

Source: Herrmann and Teuber, 2010

4. Results and Discussion

The results involve changes in production, yield, consumption (*demand*), net trade, prices (*domestic and world market prices*), subsidies, trade levies, state budget and welfare (*producer and consumer surplus*)

Table 1: Effects of partial (50%) and full (100%) Liberalization on Production (PROD) and Demand (DNAD) in % against Baseyear

Products	PRODUCTION (in %)		DEMAND (in %)	
	50%	100%	50%	100%
Cotton	5,07	8,98	-4,32	-6,95
Wheat	1,80	3,61	2,03	2,10
Coars	36,04	82,71	-5,90	-9,83
Maize	5,46	13,44	2,82	3,01
Rice	2,04	3,50	-5,26	-9,73
Oilseeds	0,01	0,01	8,37	13,63
Soybean	-0,01	-0,01	6,22	9,78
Sugar	-0,49	-1,01	0,65	0,38
Tobacco	17,96	27,29	-20,93	-28,51
Milk	3,40	5,90	-4,14	-8,06
Beef meat	-1,07	-3,10	0,27	0,44
Mutton goat	-4,94	-10,22	3,11	6,94
Pork meat	-7,98	-18,08	0,73	3,28
Poultry meat	-7,67	-25,43	0,69	9,42
Eggs	-2,32	-4,48	0,07	1,67

Source: own calculation using AGRISIM, 2014

Table 2: Effects of partial (50%) and full (100%) Liberalization on Net Trade (NTRA) in thousand tons and in %

	BY	50%	100%	50% to 100% in %
Cotton	949	1.020	1.073	- 5,2
Wheat	-380	- 445	- 378	15,0
Coars	-27	15	64	- 340
Maize	-2	1,2	13	- 1.041
Rice	-8	7,6	20	- 168
Oilseeds	-17	- 103	- 159	- 55
Soybean	-12	- 14	- 15	- 9
Sugar	-450	- 452	- 451	0,2
Tobacco	5	11	14	- 26
Milk	-8	312	590	- 89
Beef meat	-1	- 8,2	- 20	- 139
Mutton goat	0	- 6,0	- 13	- 113
Pork meat	-7	- 8,5	- 11	- 26
Poultry meat	-7	- 9,2	- 16	- 66
Eggs	0	- 2,5	- 7	- 161

Table 3: Effects of partial (50%) and full (100%) Liberalization on Farm Gate Price (FGP) and Border Price (BP) against Baseyear

Products	FGP (in %)		BP (in %)	
	50%	100%	50%	100%
Cotton	38,85	77,19	-0,44	-0,76
Wheat	10,28	20,09	-0,02	-0,06
Coars	70,21	135	-0,04	-0,07
Maize	12,11	24,85	-0,04	-0,07
Rice	13,92	26,25	-0,01	-0,01
Oilseeds	0,03	0,05	0,03	0,05
Soybean	-0,05	-0,08	-0,05	-0,08
Sugar	-2,90	-6,03	-0,00	-0,00
Tobacco	199	397	-0,00	-0,00
Milk	23,99	47,74	-0,05	-0,09
Beef meat	-9,27	-20,65	0,01	0,02
Mutton goat	-14,42	-28,73	0,08	0,19
Pork meat	-15,17	-35,56	-0,00	-0,00
Poultry meat	-11,76	-41,38	-0,01	0,00
Eggs	-4,19	-9,90	-0,00	0,00

Source: own calculation using AGRISIM, 2014

Table 4: Effects of partial (50%) and full (100%) Liberalization on Welfare in Uzbekistan

Welfare Indicators	Amount in Million US\$	
	50% Lib.	100% Lib.
Producer rent	730	2004
Consumer rent	-193	-326
State Budget	-204	-510
TOTAL WELFARE	333	1168

Source: own calculation using AGRISIM, 2014

5. Conclusion and Suggestions (I)

A full liberalization in the Uzbek agricultural sector has shown positive impacts which are following:

- A significant increase in production and producer prices, especially for products that previously had negative NRP;
- The elimination of administrative prices for the major crops (wheat and cotton) leads to an expansion of the cotton areas and reduction of wheat land;
- Demand is increasing by the import price reductions, especially for animal products;
- With the increase of production and prices, it comes with most products to a trade status change from import to export case;
- The foreign trade prices for the imported goods fall significantly;

5. Conclusion and Suggestions (II)

- It can be concluded that Uzbek agriculture and agricultural trade can be developed well with liberalization;
- Agricultural markets liberalization is needed to provide appropriate incentives to farmers which motivate to farmers in processing of agricultural products;
- State procurement quotas for wheat and cotton should be reduced or vanished;
- The farmers should have the freedom to sale their products and prices for these products should be liberalized.



**Thank you
for your Attention!**