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GOING EAST: EU ENLARGEMENT TO CENTRAL EUROPE, AND THE AGENDA 2000

Harald von Witzke, Dieter Kirschke, Hermann Lotze and Claudia A. Herok

University of Minnesota

University of Bologna	**University of Padova**
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University of Siena	**University of Alberta**

Going East: EU Enlargement to Central Europe, and the Agenda 2000.

Harald von Witzke*, Dieter Kirschke**, Hermann Lotze***
and Claudia A. Herok****
Humboldt University of Berlin, Germany

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Outline

* Humboldt University of Berlin, College of Agriculture and Horticulture, Luisenstr. 56, D - 10099 Berlin, phone: +(49)-30-20 93 62 33, fax +(49)-30-20 93 63 01, e-mail: hvwitzke@rz.hu-berlin.de
** Humboldt University of Berlin, College of Agriculture and Horticulture, Luisenstr. 56, D - 10099 Berlin, phone: +(49)-30-20 93 62 56, fax +(49)-30-20 93 63 01. e-mail: d.kirschke@rz.hu-berlin.de
*** Humboldt University of Berlin, College of Agriculture and Horticulture, Luisenstr. 56, D - 10099 Berlin, phone: +(49)-30-20 93 60 62, fax +(49)-30-20 93 63 01, e-mail: h.lotze@rz.hu-berlin.de
**** Humboldt University of Berlin, College of Agriculture and Horticulture, Luisenstr. 56, D - 10099 Berlin, phone: +(49)-30-20 93 61 50, fax +(49)-30-20 93 63 01, e-mail: c.a.herok@rz.hu-berlin.de

1. Introduction

The economic environment of agriculture in Europe has changed quite dramatically. Both political pressure in the Uruguay Round, mostly from the United States, and large budgetary expenditures under the Common Agricultural Policy have led to a significant change in the European Union initiated in 1992. The reform of the CAP has consisted of a number of important elements. They include:

- a stepwise reduction in support prices on most of the important EU markets,
- acreage set-asides as requirements for direct payments to farmers,
- a variety of supplementary measures, many of which motivated by environmental considerations.

When the European Union decided on further enlargement to include several countries in Central and East Europe it became clear that further reform was needed. The central political reason is that the EU would be unable to pay for the CAP in an even further enlarged European Union. Under the leadership of Agricultural Commissioner Franz Fischler the new CAP was staked out in several variations of what is refered to as the Agenda 2000.

In the remainder of this paper we will report on research results of several projects at Humboldt University which deal with these and the related issues.[1] First, we will discuss some of the economic implications of EU enlargement for Central Europe and then we will present some of the economic effects of the Agenda 2000. We will conclude with an assessment of likely policy scenarios tor the Common Agricultural Policy.

[1] Lotze and Herok (1997 and 1998); Kirschke et al. (1998).

2. EU Enlargement

The central decision has now been made to further expand the European Union to include countries in Central Europe and the set of candidates for membership has been identified. However, no firm time table has been set for when each country will actually join the European Union. In this paper, we have analyzed the economic effects of EU membership by the following seven countries in aggregate: Bulgaria, Czechia, Hungary, Poland, Romania, Slovakia, and Slovenia. The reason for the selection of this particular set of countries is rather pragmatic in that we have based our analysis on the GTAP model which aggregates those seven countries into one region.

Clearly, in these countries, agriculture is more important than in the present EU of fifteen member nations. Both, the share of agriculture in employment and in GNP are higher; and there is more agricultural land per capita available (table 1) than in the EU-15. Hence, it is not surprising that, in aggregate, these countries already have been close to or even above self sufficiency in the early 1990's on the many important markets (table 2). The adoption by CE-7 of the present CAP (after 1992 reform) would lead to enormous additional budgetary expenditures by the EU if they were to join in 2005 (table 3).

2.1. The Model

As mentioned above, we have used the GTAP model to analyze the economic implications of EU enlargement. GTAP is a CGE model which has been used widely in the analysis of issues in international agricultural trade and policy. Structure and properties of the GTAP model have been discussed in great detail elsewhere (e.g. Hertel, 1997). The model specification used here distinguishes: 10 regions and 10 industries (four in agricultural, three in the food industry, and three other sectors) (table 4). We have analyzed EU membership in 2005 by CE-7 under two CAP scenarios, namely partial and complete liberalization. Each policy scenario has been analyzed alternatively under the assumption of either slow or fast GNP growth. Partial liberalization encompasses a replacement of the various direct payments based on the extent of individual animal and crop production by a uniform subsidy on land use. Moreover, mandatory land set-asides are discontinued and border protection in dairy, beef and sugar is reduced by 10 per cent. Domestic production quotas and all other market regulations remain unchanged. Complete liberalization includes the abolishment of all domestic production quotas, set-asides, and border protection in food and agriculture plus the replacement of present direct payments by a subsidy on land as under partial liberalization.

The slow-growth scenario is based on the past per capita GNP growth in the European Union (2.5 per cent per year). The fast growth scenario assumes per capita GNP growth rates in line with those characteristic of the Asian tiger nations until recently (5.1 per cent).

The enlargement of the European Union is modeled as follows:

- Production and consumption are projected to 2005 for all model regions.
- All CE-7 countries become full members in 2005 with no transition period. Before that, they pursue the policy presently employed.
- When they become EU members, all internal trade barriers are removed both within CE-7, and between CE-7 and EU-15.
- Border protection of the EU is applied to CE-7 as well as all internal CAP market regulations.
- The dairy and sugar production quotas have been set at actual pre-membership levels.
- The subsidy on agricultural land for CE-7 has been set at 75 per cent of the local land rent, i.e. approximately 43 ECU/ha.

2.2. Model Results

The change in bilateral trade flows between the model regions, resulting from EU enlargement and the slow growth assumption is shown in table 5. As one would expect the central effects under both policy scenarios are growing trade flows, predominantly in food and agricuture, within CE-7 and between CE-7 and EU-15. These trade effects are clearly more pronounced under partial than under full liberalization.

The underlying price changes in CE-7 are exhibited in table 6. Generally, input and goods prices would increase under partial liberalization while the picture is somewhat mixed under complete liberalization.

World welfare would increase through EU enlargement. There would be major welfare gains in the EU-15 and CE-7 while most other regions would suffer losses. The major exception is the former Soviet Union which would improve her welfare position.

It is also interesting to note that EU-15 gains more from complete than from partial liberalization while the opposite is true for CE-7. This is intuitively plausible because prices would increase in food and agriculture and CE-7 already is or would become a net exporter.

The budget effects of EU enlargement are exhibited in table 7. They are not generated endogenously within the model. Rather, we have used the relative changes in production and in the value of protection, and applied them to official statistics on the EU budget in the initial situation.

As can be seen in table 7, budgetary outlays by EU-15 would decline under the policy scenarios analyzed here, with complete liberalization leading to stronger reductions than partial liberalization. CE-7 would end up receiving net transfers from EU-15 of about ECU 5 billions under both partial and complete liberalization.

3. Agenda 2000 - The new CAP

3.1. The Model

The Agenda 2000 reform proposal has been modified several times. At the time of writing this paper (August 1998), the Agenda 2000 proposes the following (see also table 9):

- Further reduction in support prices;
- Uniform compensatory payments on animal production and acreage. Exceptions are grains and oilseeds. For these crops the payments vary according to soil quality, plus there are set-aside requirements in place;
- Voluntary idling of land is possible for up to 33 per cent of total acreage;
- A limit on total payments per farm.

A detailed description of the Agenda 2000 provisions is exhibited in table 8. Particularly the payment limitation has been controversial. While it would affect only few large farms in most of the EU member countries, it would apply to many farms in the new federal states of Germany, and eventually to a lot of farms in the prospective new EU members. Therefore, we have analyzed the economic effects of the Agenda 2000 with and without payment limitation.

Regional focus is on the new federal states of Germany. Most of these farms are still in the process of adjusting to a market economy and the CAP. Therefore, the first step of our analysis consists of modeling the continuing adjustments in East Germany's agriculture under the present CAP. This will serve as a reference scenario for the analysis of the effects of the Agenda 2000.

3.2. Model results for Germany's New Federal States

The model has a modular structure. It consists of a farm-level module, an aggregation module and a sector-level module. The model is recursive in nature in that policy changes determine changes in factor input and production on the farm level. They then are aggregated to reflect the sectoral changes, which in turn, generate price changes. The price changes then are fed back into the farm level module (figure 1).

For the farm level analysis we have defined 21 farms of different size, soil quality and production mix (table 9). To aggregate the farm level variables to represent the sector at large the individual farm level results are combined such that they best reflect the reference scenario. In essence, the aggregation procedure minimizes the weighted squared difference between a variety of variables in the reference scenario and the aggregate.

The sector-level module considers both input and goods markets. Nine goods are included which together represent more than 95 per cent of the value of production in East German Agriculture. They are bread grains, feed grains, oilseeds, legumes, potatoes, sugar beets, dairy, beef, and pork.

The changes in production are modeled on both the regional and the EU level. The EU production changes determine the world price changes. On markets on which world prices prevail in the EU, the world price changes are fed back into the model. On markets in which EU support prices are above international levels, the new world prices are used to determine budget revenue or expenditures (figure 2).

On the input side we consider adjustments in intermediate inputs, capital investments, labor, and land. As adjustment in the size of the farm usually occurs through renting or letting of agricultural land, ownership change in land is not considered. All prices of inputs are exogenous except the price of rented land, which is determined by changes in supply and demand in the new federal states.

The results on the sector level are exhibited in table 10. Farm income is defined as revenue minus costs of inputs which are not owned by the enterprise. It represents income of factors owned by the farm enterprises plus residual profits. As becomes evident, average farm incomes would not be affected much by the Agenda 2000 when there are no payment limitations. The income effect of reductions in support prices are on aggregate compensated by increasing direct payments and adjustments in factor inputs. As expected, farm incomes would decline by more than one third when payment limitations are introduced; and of course, direct payments would go down by one third.

The effects of the Agenda 2000 on selected input markets are exhibited in tables 11 and 12. While land and labor input would hardly be affected without payment limitations, they would change significantly when payment limitations are introduced. Labor input would decline by 10 per cent while crop land would be reduced by almost 30 per cent. Some of the crop land would be converted, however, into permanent pasture. Under this scenario the price of rented land would decline significantly; on poor soils the rental price would go down to close to zero.

The various farm types would be affected quite differently with payment limitations, however, as can be seen in table 13. In smaller farms income would grow. This is due to the fact that large farms rent out land at the lower new market price such that smaller farms could expand their acreage - usually until they reach the maximum payment. In larger farms incomes would decline; in some cases it would even be negative.

The land market module considers only continuous changes in individual farm acreage. Of course, the dramatic decline in incomes of large farms would create an enormous incentive for discontinuous changes in farm size by splitting up operations to avoid payment limitations.

All in all, the Agenda 2000 in its presently proposed form would have a very small overall effect while additional payment limitations would have significant negative effects on the large farms which are characteristic for much of the East of Germany. Therefore, many of the regions in the prospective new member countries of the European Union in Central Europe would be affected by payment limitations. Hence, one can expect that under such a policy regime large farms in those countries would be split into smaller units as well. Consistent with the experience with program payment limitations in the United States one can expect that they do not work well for limiting overall payments or transfers to individual farm households but they certainly would act to reduce average farm size.

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Table 1: Selected variables for some Central European Countries and the European Union, 1994

Country	Population (millions)	Per Capita GNP (PPP $)	Per capita agricultural land (ha)
Bulgaria	8.4	4,380	0.53
Czechia	10.3	8,900	0.32
Hungary	10.3	6,080	0.48
Poland	38.5	5,080	0.38
Romania	22.7	4,090	0.44
Slovakia	5.3	.	0.30
Slovenia	2.0	.	0.15
CE-7	.	.	.
EU-15	371.3	17,898	0.23

Source: World Bank, 1996; FAO, 1996.

Table 2: Value of production, export shares and self-sufficiency in seven Central European Countries (CE-7), 1992

Central European Countries (7)	Value of production		Export share %	Self-sufficiency
	Mio. 1992 US $	% of total		
Wheat	1,789	0.42	4.52	0.92
Other grains	2,565	0.60	7.30	0.99
Other crops	17,588	4.08	6.26	0.94
Livestock	18,567	4.31	5.24	1.03
Meat products	12,583	2.92	9.41	1.07
Dairy products	4,107	0.05	11.73	1.07
Other food products	21,698	5.04	7.25	0.94
Beverages and tobacco	8,507	1,97	5.15	0.92
Fisheries and forestry	5,040	1.17	10.70	1.07
Energy, minerals etc.	17,883	4.15	12.66	0.79
Textiles and cothing	24,.400	5.66	29.96	0.98
Other processed primary prod.	60,642	14.08	19.11	0.98
Industry	53,656	12.46	33.33	0.85
Services	181,753	42.19	7.28	1.04
TOTAL	430,777	100.00	.	.

Source: Frandsen et al., 1996.

Table 3: Changes in expenditures to compensatory payments and export subsidies, EU-15 and CE-7, mio. 1992-dollars (1992-2005)

	EU-15	CE-7
Wheat	-947	5,011
Other grains	-924	8,090
Other crops	-130	740
Livestock	-4	1,014
Meat products	-359	2,134
Dairy products	191	296
Other food	-23	3
Beverages and tabacco	-47	3
Total	-2,242	17,290

Source: Frandsen et al., 1996

Table 4: Model regions and industries

Model regions	Model industries		
EU-12	Agriculture	Wheat	(wht)
Austria/Finland/Sweden		Other grains	(gro)
CE-7		Non-grain crops	(ngc)
Australia/New Zealand		Livestock products	(olp)
Canada	Food Industry:	Meat products	(met)
USA		Milk products	(mil)
Japan		Other food products	(ofp)
Former Soviet Union (FSU)	Other Sectors:	Primary products**	(opp)
Asia		Manufactures	(mnfcs)
All other countries		Services	(svces)

* Mainly Latin America and Africa.
** Mainly Forestry, Mining and Energy.

Table 5: Changes in bilateral trade flows after EU enlargement in 2005 under the slow growth scenarios (in percent)

plib_s	**to →** **↓ from**	**EU-15**	**CE-7**	**FSU**	**ROW**
Agriculture/Food Other sectors	EU-15	-2.8 -0.7	113.6 18.5	0.2 0.5	-0.1 -0.2
Agriculture/Food Other sectors	CE-7	89.6 29.5	65.4 3.1	-0.6 -5.4	7.8 -5.1
Agriculture/Food Other sectors	FSU	-2.3 -0.9	-17.1 8.1	-2.5 0.8	-0.3 -0.9
Agriculture/Food Other sectors	ROW	-1.8 -0.5	-7.7 6.0	0.4 0.8	1.0 0.0
lib_s	**to →** **↓ from**	**EU-15**	**CE-7**	**FSU**	**ROW**
Agriculture/Food Other sectors	EU-15	0.1 -0.8	47.6 16.8	0.3 0.3	-0.2 -0.2
Agriculture/Food Other sectors	CE-7	-1.0 35.0	47.4 7.1	2.1 -1.1	0.1 -1.2
Agriculture/Food Other sectors	FSU	-0.5 -1.0	14.5 7.4	-0.2 0.5	-0.7 -0.9
Agriculture/Food Other sectors	ROW	0.2 -0.6	16.7 4.5	0.1 0.6	-0.6 0.1

Source: Lotze and Herok, 1997.

Table 6: Changes in domestic output prices and factor prices in CE-7 after EU integration in 2005 (in percent)

	plib_s	***plib_f***	***lib_s***	***lib_f***
land (market price)	337.8	333.4	240.1	232.4
land (producer price)	14.1	14.3	-12.2	-13.4
labor	3.0	3.1	1.9	2.1
capital	2.2	2.4	2.1	2.3
Wht	4.0	4.0	-1.8	-1.7
Gro	3.0	3.1	-2.3	-2.1
Ngc	7.5	7.5	-2.4	-2.3
Olp	5.5	5.6	-2.1	-1.8
Met	17.3	17.4	5.6	5.9
Mil	62.9	64.6	-0.7	-0.5
Ofp	19.1	19.4	0.9	1.2
Mnfes	1.1	1.3	0.1	0.4
Svces	2.2	2.4	1.1	1.4
Opp	4.9	5.1	3.4	3.6

Source: Lotze and Herok, 1997.

Table 7: Budget Effects of an EU enlargement in 2005 under various policy scenarios (in Mill. 1992 ECU)

EU-15	***1996***	***plib_s***	***plib_f***	***Lib_s***	***lib_f***
Direct payments[a]	18 677				
Export subsidies	7 060	5 385	5 299		
Import tariffs	-864	-1401	-1 362		
Land subsidies		16 511	16 511		
Subtotal	24 873	20 495	20 448	16 511	16 511
Other expenditures[b]	19 174	17 257	17 257	8 300[d]	8 300[d]
Other revenues[c]					
Total	42 760	37 108	37 061	24 811	24 811
CE-7					
Output subsidies	104				
Export subsidies		853	1 180		
Import tariffs	-768	-591	-660		
Land subsidies		5 837	6 884	5 837	6884
Subtotal	-665	6 098	7 404	5 837	6 884
Other expenditures[b]	n.a.	n.a.	n.a.	n.a.	n.a.
Other revenues[c]	n.a.	n.a.	n.a.	n.a.	n.a.
Total	-665	6 098	7 404	5 837	6 884
Contribution to EU budget[e]		1 454	2 038	1 407	1 979
Net transfer from EU-15		4 645	5 366	4 430	4 906

[a] Compensation, set-aside and animal payment from the 1992 CAP reform
[b] Market intervention, guidance funds, food aid refundds, accompanying measures; not available for CEEC-7
[c] Sugar levies; not available for CEEC-7
[d] Under complete liberalization „other expenditures“ are defined as guidance funds and minimum intervention stocks
[e] Calculated as 0.65 percent of regional GDP

Source: Kirschke et al; EU Commission 1997; Lotze und Herok, 1998.

Table 8: The EU's Agenda 2000 proposals used in the model calculations

Arable Crops:	• Direct payments between 295 and 400 ECU/ha for grains and oilseeds according to soil quality (between 324 and 440 ECU/t for legumes) • Sugar quotas maintained • Compulsory set-aside rate reduced to zero, but voluntary set-aside possible up to 33 per cent of total acreage with same compensation as for grains and oilseeds.
Beef Products:	• Intervention price cuts by 30 per cent • Once-only premium for bulls at 363 ECU per head • Annual premium for suckler cows at 212 ECU per head.
Dairy Products:	• Intervention price cuts by 10 per cent • Milk quotas maintained at current levels • New annual premium for dairy cows at 212 ECU per head.
Limit for Total Direct Payments:	• 121 000 ECU per farm.

The Agenda 2000 has been modified several times since it was initially proposed. This is the version of the Agenda 2000 of the EU Commission at the time of writing this paper (mm-dd-yr).

Table 9: Model Farms

		Farm type		
Farm size	**Soil quality**	**Cash crops**	**Livestock**	**Crops/Livestock**
Small	Poor	x	FBKLA x	-
	Medium	x	FBKLB x	-
	good	x	-	-
Medium	Poor	x	x	-
	Medium	x	x	-
	good	x	-	-
Large	Poor	x	x	x
	Medium	x	x	x
	good	x	x	x

Table 10: Sector Level Effects of the Agenda 2000

Variable	**Reference scenario**[1)]	**Percent changes: Agenda 2000 w/o payment limitations**	**Percent changes Agenda 2000 with payment limitations**
gross margin	1 461	+ 1	- 22
direct payments to farmers	643	+ 11	- 33
farm income	245	+ 1	- 37

Source: Own computation.

Table 11: Sector-level Effects in selected factor inputs (per cent change)

	Agenda 2000 w/o payment limitations	**Agenda 200 with payment limitations**
Labor	3	- 10
Crop land	0	- 29
Permanent pasture	1	12

Source: Own computation

1) DM per hectare of agricultural land.

Table 12: Sector-level Effects on the Price of Rented Land

	(DM/ha) base scenario	**Agenda 2000 w/o payment limitations**	**Agenda 2000 with payment limitations**
Crop land			
• poor quality	165	125	0
• medium quality	359	358	136
• good quality	528	581	475
Permanent pasture			
• poor quality	154	102	0
• medium quality	154	138	98
• good quality	154	138	101

Source: Own computation

Table 13: Effect on Farm Income in Selected Model Farms

Farm type	Soil quality	Base scenario	Farm Income Agenda 2000 w/o payment limitation	Agenda 2000 with payment limitation
family farm; cash crops; 300 ha	poor	63,145	83,277	144,980
	medium	90,199	94,325	132,215
	good	154,177	164,389	209,031
limited partnership; cash crops; 600 ha	poor	173,114	210,464	190,130
	medium	240,741	229,754	180,692
	good	327,444	334,379	235,254
farm corporation; cash crops; 1,500 ha	poor	202,045	296,671	-138,361
	medium	366,947	410,859	-174,093
	good	713.418	752,282	132,371
family farm; livestock; 170 ha	medium	44,798	44,815	53,985
Corporate farm; livestock; 1,272 ha	medium	281,472	204,378	-408,010
Corporate farm; mixed crops/ livestock; 1,500 ha	medium	334,691	314,454	-320,998

Source: Own calculation

Figure 1: Structure of the Agricultural Sector Model

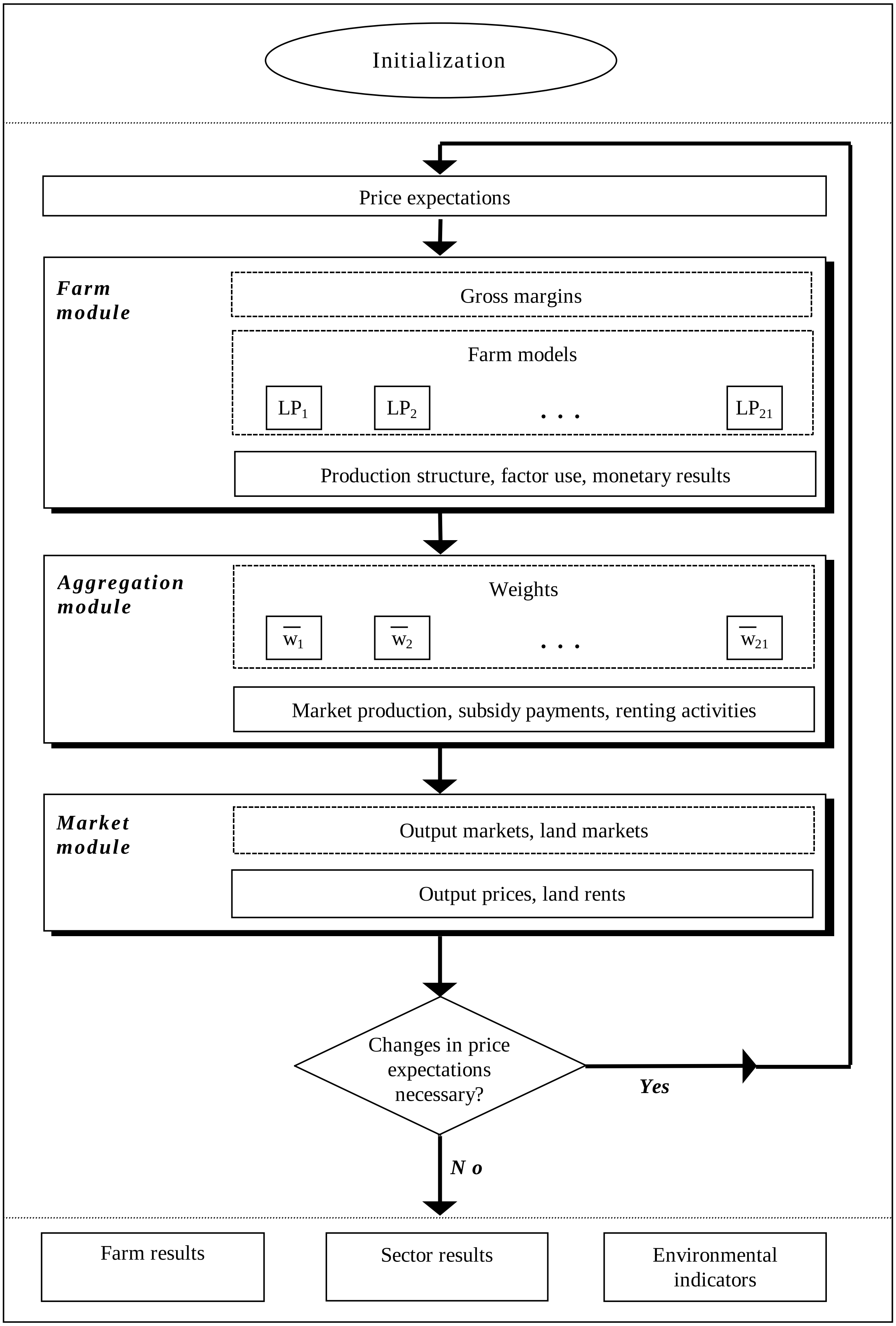

Figure 2: The market module