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POLICY ANALYSIS IN ALBANIAN AGRICULTURE USING A SECTOR MODEL

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ABSTRACT

Studying the agricultural price policy system under transition to market has merit from a theoretical, as well as a policy, point of view. The APAS (Agricultural Policy Analysis Simulator) model was developed for the agricultural sector of Albania. Three different policy simulations related with both the evolution of income and with prices were constructed. The simulation results of the model showed that the impacts of some policy options that can be introduced in the Albanian economy will probably impose important changes on production, consumption and on the self-sufficiency of the country.

KEYWORDS:

AGRICULTURAL POLICY, PRICE POLICY, TRADE POLICY, SIMULATION, ALBANIA

1. INTRODUCTION

After three years of economic decline between 1989 and 1992, the Albanian economy grew by 10% in 1993 and growth remained strong in 1994 and 1995. This remarkable turnaround followed the introduction of a wide-range of monetary, fiscal and structural reforms recommended by the IMF in mid-1992. These changes included the liberalisation of price and exchange controls, greater budget discipline, a tightening of the money supply and since July 1992, a floating exchange rate. Structural reforms included the privatisation of agricultural land and many small and medium-sized state-owned industries. A social safety net was also a key component of the reform. The result was considerably successful in stabilising macroeconomic conditions by the end of 1992. GDP increased by 11.4% in 1995 and there was an increase in agricultural production. Price inflation peaked in August 1992, when it touched a monthly rate of 45%. The monthly average was brought down to under 1% by the spring of 1995, and the annual rate fell to about 8%. The other immediate results are: a) the nominal exchange rate has remained relatively stable, b) both exports and imports continue strongly, c) unemployment has been falling since the end of 1992, dropping to 14% in 1995.

With the continuing contraction in the largely state-owned industrial sector, agriculture's share of GDP increased from 32% in 1989 to 55% in 1995. Some decline in this share is to be expected as agricultural output growth stabilises and industrial growth picks up. Since 1992, the agricultural sector has been growing again, and its output increased by a further 12% in 1995. In contrast with developments in many other CEECs, livestock production has

[1] Research assistance of Elias Mantzouneas is gratefully acknowledged.

recovered strongly, growing by 19% in 1995. Cow numbers in 1995 were 70% above 1989 levels and milk production doubled during that period. Crop output rose by 6%, although wheat and maize production fell again in 1995, amounting to only two-thirds of their 1989 levels. These changes in pattern of production are related to the dramatic structural changes that saw the collapse of large-scale farming and its replacement by some 470000 small farms (1.4 hectares on average), together with severe damage to the irrigation system. Agricultural earnings are 25-30% below the national average income, which at US$550 in 1994 was itself very low by the European standards. Again, in contrast to other CEECs, meat and milk consumption did not decline during the transition. In fact, in 1993 meat consumption per head was more than double the 1986 level and milk consumption was 40% higher. The very large share of average household income spent on food indicates that economic growth is constrained by weak domestic demand and activity needs to be more export oriented.

The importance of the trade liberalisation of CEEC is now largely analysed and their impacts studied. Faini and Portes (1995) study the impact of the opening of the trade of CEEC on the European Union while Koves and Marer (1991) and Boswoth and Ofer (1995) concentrate on the consequences of foreign sector liberalisation on the economies in transition. Albania is totally absent in the above studies, most probably due to lack of data and information as well as to the absence of a suitable tool for examining particular questions.

In order to construct a model for studying the process and the impact of price policy reform and price interventions in Albania, we aim to use the partial equilibrium approach and in particular a policy simulation model.

The primary purpose, of this research is to study the process and the impact of price policy reform and price interventions in Albania. The wider objective is to contribute to the knowledge of the transformation of the agricultural sector under transition from a socialist to a market economy and to expand our capacity for analysis of alternative price policies. In section two, the application of the model to the agricultural sector of Albania will be analysed, the properties of the model and the responses of the model to different policy options will be investigated. Finally, the concluding remarks will be presented.

2. IMPLEMENTATION OF A PARTIAL EQUILIBRIUM MODEL FOR THE AGRICULTURAL SECTOR IN ALBANIA

The APAS (Agricultural Policy Analysis Simulator) model was implemented for the agricultural sector of Albania. The main problem for the application of the theoretical model for this specific country is the absence of long time series data which would enable us to make econometric estimations of elasticities used in the model. In fact the absence of the estimated elasticities is not only due to the fact that long time series are not existent in Albania but also to the fact that the transition period is not long enough in order to realise econometric estimations. The solution adopted for the determination of the functional form of the equations, used in the model, was the calibration of the model using guestimates. In fact this is a commonly used method in many countries where there is poor statistical data and/or when the available statistical information is not reliable or insufficient. The elasticities used are "*guestimates*[2]" and the equations are calibrated as to their constant term. The model is disaggregated in four main product categories:

1. *agroindustrial crops*: tobacco (TOB), sugar beat (SBT).
2. *food crops*: wheat (WHE), maize (MAI), rice (RIC), potato (POT), dry beans (DBN),

[2] "Guestimates" in the sense that they are "borrowed" from elasticities of other similar models.

vegetables (VEG), barley (BAR), tomato (TOM),

3. *livestock products*: cattle meat (CMT), sheep and goat meat (SMT), pig meat (PMT), poultry meat (LMT), cow milk (CML), sheep and goat milk (SML).
4. *trees*: grapes (GRP), oranges (ORG), apples (APL), wine (WIN).

Moreover some simplifications were introduced in the original version of the model. This is due to the fact that it is extremely difficult to collect necessary data in order to implement the complete model. In fact the APAS model is a complete model of the agricultural sector which can be applied to a large number of countries (see Mergos et al. 1999a, Clapan et al. 1999, Stoforos et al. 1999 and Mergos et al. 1999b). Thus, the specific application to Albania requires some modifications. The solution adopted concerns the simplification of the model and its limitation to the real side of the agricultural sector. In fact, while price liberalisation is one of the most important factors of the economies in transition we were bound to consider the prices as exogenous in the functioning of the model and use the price reform as an instrument to evaluate its impacts on the real side of the agricultural sector. Thus, the model presented below considers only the agricultural demand and supply and its equilibrium. The latter is obtained through the adjustment of foreign trade. Price modification allows one to see how net exports are influenced and what the impacts on the self-sufficiency of the Albanian economy are. In this simplified form of the model there are 4 equations for each product: (i) land used, (ii) yield, (iii) total supply (this is an identity i.e. land used *yield) and (iv) the demand of the product. The disequilibrium between domestic supply and demand is cleared by net exports.

Table 1a: Elasticities of "Area Equations".

AREA										
AGROINDUSTRIAL	TOB	SBT							FER	Lagged
TOB	0,45								-0,40	0,4
SBT		0,27							-0,10	0,01
FOOD CROPS	WHE	MAI	RIC	POT	DBN	VEG	BAR	TOM	FER	
WHE	0,50								-0,70	0,1
MAI		0,25							-0,30	0,2
RIC			0,15						-0,50	0,55
POT				0,43					-0,45	0,2
DBN					0,28				-0,25	0,2
VEG						0,28			-0,30	0,9
BAR							0,25		-0,17	0,04
TOM								0,05	-0,13	0,001
LIVESTOCK	CMT	SMT	PPMT	LMT	CML	SML			MAI	
CMT	0,10								-0,08	0,6
SMT		0,28							-0,10	0,10
PPMT			0,03						-0,08	0,01
CML					0,11				-0,15	0,4
SML						0,28			-0,10	0,01
TREES	GRP	WIN							FER	
GRP	0,20								-0,20	0,4
WIN		0,15							-0,15	0,4

The equations for the evaluation of the cultivated area are dynamic, in the sense that they incorporate the impact of previous years. The estimated elasticities used in the model for the relative price range is between 0,03 and 0,5 (see table 1a). However, the range is minimised inside each group of products. For the trees, relative price elasticity ranges between 0,08 and 0,3; while for tobacco and sugar beats the corresponding elasticities are 0,45 and 0,27. As far as the real price of fertiliser is concerned, its elasticity ranges between 0,1 and 0,2 in most cases, with the tobacco, wheat, rice, potatoes and maize being the most notable exceptions[3].

[3] Area equations are identical for all products except for livestock where the price of fertiliser is replaced by the

Table 1b: Elasticities of "Yield Equations".

YIELD										
AGROINDUSTRIAL	TOB	SBT							FER	Lagged
TOB	0,22								-0,25	0,1
SBT		0,18							-0,22	0,4
FOOD CROPS	WHE	MAI	RIC	POT	DBN	VEG	BAR	TOM	FER	
WHE	0,03								-0,10	0,6
MAI		0,21							-0,20	0,6
RIC			0,20						-0,10	0,6
POT				0,20					-0,27	0,6
DBN					0,10				-0,70	0,1
VEG						0,15			-0,10	0,6
BAR							0,30		-0,50	0,2
TOM								0,32	-0,05	0,07
LIVESTOCK	CMT	SMT	PPMT	CML	SML				MAI	
CMT	0,10								-0,10	0,40
SMT		0,30							-0,10	0,50
PPMT			0,16						-0,20	0,10
CML				0,09					-0,10	0,30
SML					0,29				-0,10	0,20
TREES	GRP	WIN							FER	
GRP	0,18								-0,10	0,01
WIN		0,30							-0,17	0,01

Table 1c: Elasticities of "Demand Equations".

DEMAND										
AGROINDUSTRIAL	COT	TOB	SBT	SNF	SBN				INC	Lagged
TOB		-0,2							0,4	0,3
SBT			-0,05						0,4	0,2
FOOD CROPS	WHE	MAI	RIC	POT	DBN	VEG	BAR	TOM	INC	
WHE	-0,25								0,4	0,2
MAI		-0,55							0,25	0,1
RIC			-0,2						0,2	0,1
POT				-0,1					0,2	0,1
DBN					-0,2				0,2	0,2
VEG						-0,1			0,4	0,2
BAR							-0,3		0,35	0,1
TOM								-0,1	0,3	0,1
LIVESTOCK	CMT	SMT	PPMT	LMT	EGG				INC	
CMT	-0,4								0,7	0,5
SMT		-0,4							0,55	0,5
PMT			-0,3						0,55	0,5
LMT				-0,3					0,6	0,5
EGG					-0,2				0,2	0,5
TREES	GRP	ORG	APL	WIN					INC	
GRP	-0,4								0,6	0,5
ORG		-0,3							0,5	0,5
APL			-0,35						0,55	0,5
WIN				-0,4					0,6	0,5

Relative price elasticities in "yield equations" lie between 0,03 to 0,3 (see table 1b). However the large majority of the elasticities is between 0,15 and 0,30. This number for the relative price elasticity is most usually encountered in the agricultural products of most developing countries.

price of maize and barley as these two products are the main food crops of livestock.

2.1 Policy Simulations

The advantage of having a model is to use it for two purposes: (i) first, to be able to make forecasts and (ii) second and more importantly, to have the possibility to evaluate the impacts of different shocks. While the first utility of econometric models was highly criticised, as to the possibility of accurately forecasting economic phenomena, the second use keeps its credibility constant and its use steadily increasing. The model constructed for the agricultural sector of the Albanian economy was used for the evaluation of different exogenous shocks in this specific sector of the economy. As it has already been mentioned in this simplified version of the model prices are exogenously determined due to lack of sufficient data and to the fact that price reform is the main policy option to be analysed in the paper. Another important economic evolution in transition economies is economic growth. In order to consider these questions, we derived three different policy simulations related with both the evolution of income and of prices. The first scenario is related to a successful developing effort of the Albanian economy thus increasing the income by more than the percentage assumed in the baseline, and the second scenario assumes that in the course of price liberalisation, relative prices undergo a significant change i.e. that the general level of prices (consumer prices) increases more than the agricultural prices. This may be due to either an involuntary increase in the price of manufactured products (increase in the wage rate) and/or increase in the imported prices (faster depreciation of the currency). Furthermore, an acceleration of the price of services can be considered as another source of inflationary expectations. Finally we assumed that there is a sharp increase in the price of the fertiliser affecting both the cultivated area and the yield.

a. Basic Scenario

In order to test the model results, we constructed a baseline scenario which is based on our own assumptions concerning the developments in the agricultural sector of the Albanian economy . The assumptions adopted are simple and they do not aim at representing the possible evolution in the Albanian[4] economy which are still very uncertain. The baseline scenario covers the 1996-2000 period; the main assumptions are as follows:

Price increase of agricultural products	4,0% p.a.
Price increase of fertiliser	4,5% p.a.
Population growth	0.73 p.a.
Income growth	4,0% p.a.
Inflation rate decreasing from	10% to 6% till 2000.

The above assumptions are identical for all agricultural products.

b. Income Increase by an additional 2%

In the first policy scenario we assume that the reforms undertaken in Albania are successful, thus increasing the income rate of growth by 6% instead of 4%. The acceleration of the growth in Albania will leave unaffected the supply of agricultural products but will increase the corresponding demand. According to simulation results, the rate of growth in the demand of agricultural products varies between 2% and 11,5%. The most important increase concerns the livestock products where income elasticities are relatively high.

The income increase will not have a direct or indirect effect in the total supply of agricultural products. In fact, the simplified version of the model used here, assumes that there is no impact of income on agricultural production and consequently the rise in demand will increase total imports and reduce self-sufficiency of the Albanian economy.

[4] These assumptions and the corresponding results should be considered as working hypotheses and not reflecting any macroeconomic developments.

c. Increase in fertiliser price by 2%

Table 2: Effects of increase in income by 2%

TOTAL DEMAND					
	1996	*1997*	*1998*	*1999*	*2000*
AGROINDUSTRIAL					
TOBACCO	0,76	1,77	2,85	3,97	5,10
SUGAR BEAT	0,76	1,69	2,66	3,64	4,63
FOOD CROPS					
WHEAT	0,76	1,69	2,66	3,64	4,63
MAIZE	0,48	1,01	1,54	2,08	2,62
RICE	0,38	0,80	1,23	1,66	2,09
POTATOES	0,38	0,80	1,23	1,66	2,09
DRY BEANS	0,38	0,84	1,32	1,80	2,29
TOTAL VEGETABLES	0,76	1,61	2,48	3,35	4,23
BARLEY	0,67	1,41	2,16	2,92	3,69
TOMATOES	0,57	1,21	1,85	2,50	3,15
LIVESTOCK					
CATTLE MEAT	1,34	3,39	5,83	8,51	11,35
SHEEP AND GOAT MEAT	1,05	2,65	4,55	6,63	8,81
PIG MEAT	1,05	2,65	4,55	6,63	8,81
POULTRY MEAT	1,15	2,9	4,98	7,25	9,65
EGGS	0,96	2,41	4,13	6,01	7,98
TREES					
GRAPES	1,15	2,9	4,98	7,25	9,65
ORANGES	0,96	2,41	4,13	6,01	7,98
APPLES	1,05	2,65	4,55	6,63	8,81
WINE	1,15	2,9	4,98	7,25	9,65

SELF SUFFICIENCY					
	1996	*1997*	*1998*	*1999*	*2000*
AGROINDUSTRIAL					
TOBACCO	-0,03	-0,06	-0,09	-0,13	-0,16
SUGAR BEAT	-0,01	-0,02	-0,03	-0,04	-0,05
FOOD CROPS					
WHEAT	-0,01	-0,02	-0,03	-0,04	-0,05
MAIZE	-0,03	-0,06	-0,08	-0,11	-0,13
RICE	0,00	0,00	0,00	0,00	0,00
POTATOES	-0,01	-0,02	-0,03	-0,03	-0,04
DRY BEANS	-0,01	-0,03	-0,05	-0,06	-0,08
TOTAL VEGETABLES	0,00	-0,01	-0,01	-0,02	-0,02
BARLEY	-0,03	-0,05	-0,08	-0,11	-0,13
TOMATOES	-0,01	-0,02	-0,03	-0,04	-0,04
LIVESTOCK					
CATTLE MEAT	-0,02	-0,05	-0,09	-0,12	-0,15
SHEEP AND GOAT MEAT	-0,03	-0,08	-0,13	-0,18	-0,24
PIG MEAT	-0,03	-0,08	-0,13	-0,18	-0,22
TREES					
GRAPES	-0,02	-0,05	-0,07	-0,10	-0,13
WINE	-0,01	-0,03	-0,05	-0,07	-0,08

The price of fertiliser is an important element in the determination of the cultivated land and the yield of each product. An increase in the price of fertiliser, other things being equal, will reduce both the cultivated area and the yield, while demand will remain unaffected. In this policy scenario, we assume that there is an additional increase in relative price by 2% each year. The impact of the increase in the price of fertilisers is to increase production cost and

reduce supply because prices are not adjusted. The reduction of supply ranges between 1,23% (in 2000) for cow milk up to 9,54% for dry beans.

The reduction of total supply in all agricultural products, which is the combined effect of both the reduction of the area and yield, will result in the reduction of self-sufficiency[5] of the Albanian economy which in some cases is worsened by 0.34 points.

Table 3: Effects of 2% increase in the price of fertiliser.

	AREA					YIELD					TOTAL SUPPLY				
	1996	*1997*	*1998*	*1999*	*2000*	*1996*	*1997*	*1998*	*1999*	*2000*	*1996*	*1997*	*1998*	*1999*	*2000*
AGROINDUSTRIAL															
TOBACCO	-0,76	-1,80	-2,96	-4,15	-5,34	-0,47	-0,99	-1,51	-2,03	-2,54	-1,22	-2,78	-4,42	-6,09	-7,74
SUGAR BEAT	-0,19	-0,38	-0,57	-0,76	-0,95	-0,42	-1,00	-1,64	-2,30	-2,97	-0,60	-1,37	-2,20	-3,05	-3,89
FOOD CROPS															
WHEAT	-1,32	-2,75	-4,17	-5,57	-6,95	-0,19	-0,49	-0,86	-1,27	-1,70	-1,51	-3,23	-5,00	-6,77	-8,54
MAIZE	-0,57	-1,24	-1,94	-2,63	-3,32	-0,38	-0,98	-1,71	-2,52	-3,37	-0,94	-2,21	-3,62	-5,09	-6,58
RICE	-0,94	-2,39	-4,09	-5,91	-7,77	-0,19	-0,49	-0,86	-1,27	-1,70	-1,13	-2,87	-4,91	-7,10	-9,34
POTATOES	-0,85	-1,86	-2,89	-3,92	-4,94	-0,51	-1,33	-2,32	-3,42	-4,57	-1,36	-3,16	-5,15	-7,21	-9,29
DRY BEANS	-0,47	-1,04	-1,62	-2,20	-2,77	-1,32	-2,75	-4,17	-5,57	-6,95	-1,78	-3,76	-5,72	-7,65	-9,54
TOTAL VEGETABLES	-0,57	-1,64	-3,14	-5,02	-7,20	-0,19	-0,49	-0,86	-1,27	-1,70	-0,76	-2,12	-3,97	-6,22	-8,78
BARLEY	-0,32	-0,66	-0,99	-1,32	-1,65	-0,94	-2,06	-3,21	-4,35	-5,47	-1,26	-2,71	-4,16	-5,61	-7,03
TOMATOES	-0,25	-0,57	-0,91	-1,25	-1,60	-0,09	-0,20	-0,30	-0,40	-0,50	-0,34	-0,76	-1,20	-1,65	-2,09
LIVESTOCK															
CATTLE MEAT	-0,15	-0,39	-0,69	-1,02	-1,36	-0,19	-0,45	-0,75	-1,05	-1,36	-0,19	-0,45	-0,75	-1,05	-1,36
SHEEP AND GOAT MEAT	-0,38	-0,79	-1,21	-1,62	-2,04	-0,38	-0,94	-1,60	-2,30	-3,01	-0,38	-0,94	-1,60	-2,30	-3,01
PIG MEAT	-0,15	-0,30	-0,46	-0,61	-0,76	-0,38	-0,79	-1,21	-1,62	-2,04	-0,38	-0,79	-1,21	-1,62	-2,04
COW MILK	-0,28	-0,68	-1,12	-1,58	-2,04	-0,19	-0,44	-0,70	-0,96	-1,23	-0,19	-0,44	-0,70	-0,96	-1,23
SHIP MILK	-0,38	-0,76	-1,14	-1,52	-1,89	-0,38	-0,83	-1,30	-1,76	-2,23	-0,38	-0,83	-1,30	-1,76	-2,23
TREES															
GRAPES	-0,38	-0,91	-1,49	-2,09	-2,71	-0,19	-0,38	-0,57	-0,76	-0,95	-0,57	-1,28	-2,05	-2,84	-3,63
WINE	-0,28	-0,68	-1,12	-1,58	-2,04	-0,32	-0,64	-0,96	-1,28	-1,60	-0,60	-1,32	-2,07	-2,84	-3,60

	SELF SUFFICIENCY				
	1996	*1997*	*1998*	*1999*	*2000*
AGROINDUSTRIAL					
TOBACCO	-0,04	-0,10	-0,15	-0,21	-0,26
SUGAR BEAT	-0,01	-0,01	-0,02	-0,03	-0,04
FOOD CROPS					
WHEAT	-0,02	-0,04	-0,06	-0,07	-0,09
MAIZE	-0,05	-0,12	-0,20	-0,27	-0,34
RICE	0,00	0,00	-0,01	-0,01	-0,01
POTATOES	-0,03	-0,07	-0,11	-0,15	-0,19
DRY BEANS	-0,06	-0,13	-0,20	-0,27	-0,33
TOTAL VEGETABLES	0,00	-0,01	-0,02	-0,03	-0,04
BARLEY	-0,05	-0,11	-0,16	-0,21	-0,26
TOMATOES	-0,01	-0,01	-0,02	-0,02	-0,03
LIVESTOCK					
CATTLE MEAT	-0,01	-0,01	-0,02	-0,03	-0,04
SHEEP AND GOAT MEAT	-0,02	-0,04	-0,07	-0,10	-0,12
PIG MEAT	-0,01	-0,03	-0,04	-0,06	-0,07
TREES					
GRAPES	-0,01	-0,02	-0,03	-0,04	-0,05
WINE	-0,01	-0,01	-0,02	-0,03	-0,03

[5] The self-sufficiency is expressed in absolute differences, whereas the impact on supply and demand is expressed in relative differences.

d. Acceleration of inflation rate by 2%

The last policy simulation is concerned with the acceleration of inflation in Albania. In fact, the assumption made in the baseline scenario, considers a decreasing rate of inflation during the period studied. Inflation rate started at 10% and is estimated to end up at 6% by 2000. In the policy scenario studied here we assumed that the deceleration of the inflation rate is not fully successful thus leading to an additional increase in prices by 2 points per annum.

Table 4: Effects of 2% increase in the general price level

	AREA					YIELD					TOTAL SUPPLY				
	1996	*1997*	*1998*	*1999*	*2000*	*1996*	*1997*	*1998*	*1999*	*2000*	*1996*	*1997*	*1998*	*1999*	*2000*
AGROINDUSTRIAL															
TOBACCO	-0,09	-0,22	-0,36	-0,51	-0,66	0,05	0,11	0,18	0,24	0,3	-0,04	-0,1	-0,18	-0,27	-0,36
SUGAR BEAT	-0,31	-0,62	-0,93	-1,24	-1,56	0,07	0,17	0,29	0,41	0,53	-0,23	-0,44	-0,64	-0,84	-1,04
FOOD CROP															
WHEAT	0,36	0,76	1,17	1,59	2,01	0,13	0,33	0,58	0,86	1,16	0,49	1,10	1,76	2,47	3,20
MAIZE	0,09	0,20	0,31	0,43	0,55	-0,02	-0,05	-0,08	-0,12	-0,17	0,07	0,15	0,23	0,31	0,38
RICE	0,63	1,63	2,84	4,18	5,62	-0,18	-0,47	-0,82	-1,22	-1,64	0,45	1,15	1,99	2,91	3,88
POTATOES	0,04	0,10	0,16	0,21	0,27	0,13	0,33	0,59	0,87	1,18	0,17	0,43	0,74	1,09	1,45
DRY BEANS	-0,05	-0,12	-0,19	-0,26	-0,33	1,09	2,31	3,56	4,85	6,16	1,03	2,18	3,37	4,58	5,82
TOTAL VEGETABLES	0,04	0,10	0,20	0,33	0,48	-0,09	-0,23	-0,41	-0,61	-0,82	-0,05	-0,13	-0,21	-0,28	-0,35
BARLEY	-0,14	-0,29	-0,45	-0,60	-0,76	0,36	0,8	1,26	1,73	2,2	0,22	0,50	0,81	1,12	1,43
TOMATOES	0,14	0,33	0,54	0,75	0,96	-0,49	-1,01	-1,54	-2,08	-2,61	-0,34	-0,68	-1,01	-1,34	-1,67
LIVESTOCK															
CATTLE MEAT	-0,04	-0,09	-0,17	-0,25	-0,33	0,00	0,00	0,00	0,00	0,00	-0,04	-0,09	-0,17	-0,25	-0,33
SHEEP AND GOAT MEAT	0,04	0,08	0,12	0,16	0,20	0,00	0,00	0,00	0,00	0,00	0,04	0,08	0,12	0,16	0,20
PIG MEAT	0,09	0,18	0,27	0,37	0,46	0,07	0,15	0,23	0,32	0,40	0,16	0,33	0,51	0,69	0,86
COW MILK	0,07	0,17	0,29	0,41	0,53	0,02	0,04	0,07	0,09	0,12	0,09	0,22	0,36	0,50	0,65
SHIP MILK	0,04	0,07	0,11	0,15	0,19	0,02	0,04	0,06	0,09	0,11	0,05	0,11	0,17	0,23	0,29
TREES															
GRAPES	0,00	0,00	0,00	0,00	0,00	-0,14	-0,29	-0,44	-0,59	-0,74	-0,14	-0,29	-0,44	-0,59	-0,74
WINE	0,00	0,00	0,00	0,00	0,00	-0,23	-0,47	-0,71	-0,95	-1,19	-0,23	-0,47	-0,71	-0,95	-1,19

	TOTAL DEMAND				
	1996	*1997*	*1998*	*1999*	*2000*
AGROINDUSTRIAL					
TOBACCO	0,36	0,84	1,35	1,88	2,42
SUGAR BEAT	0,09	0,20	0,31	0,43	0,55
FOOD CROPS					
WHEAT	0,45	1,00	1,58	2,16	2,76
MAIZE	1,00	2,11	3,26	4,44	5,63
RICE	0,36	0,76	1,17	1,59	2,01
POTATOES	0,18	0,38	0,59	0,79	1,00
DRY BEANS	0,36	0,80	1,26	1,73	2,20
TOTAL VEGETABLES	0,18	0,38	0,59	0,79	1,00
BARLEY	0,54	1,15	1,77	2,40	3,03
TOMATOES	0,18	0,38	0,59	0,79	1,00
LIVESTOCK					
CATTLE MEAT	0,72	1,82	3,13	4,57	6,08
SHEEP AND GOAT MEAT	0,72	1,82	3,13	4,57	6,08
PIG MEAT	0,54	1,37	2,34	3,41	4,53
POULTRY MEAT	0,54	1,37	2,34	3,41	4,53
EGGS	0,36	0,91	1,56	2,26	3,00
TREES					
GRAPES	0,18	0,45	0,77	1,12	1,49
ORANGES	0,36	0,91	1,56	2,26	3,00
APPLES	0,36	0,91	1,56	2,26	3,00
WINE	0,18	0,45	0,77	1,12	1,49

SELF SUFFICIENCY					
	1996	*1997*	*1998*	*1999*	*2000*
TOBACCO	-0,03	-0,06	-0,09	-0,13	-0,16
SUGAR BEAT	-0,01	-0,02	-0,03	-0,04	-0,05
WHEAT	0,00	0,00	0,00	0,00	0,00
MAIZE	-0,05	-0,11	-0,16	-0,21	-0,25
RICE	0,00	0,00	0,00	0,00	0,00
POTATOES	0,00	0,00	0,00	0,01	0,01
DRY BEANS	0,02	0,05	0,07	0,10	0,12
TOTAL VEGETABLES	0,00	0,00	0,00	-0,01	-0,01
BARLEY	-0,01	-0,03	-0,04	-0,05	-0,06
TOMATOES	-0,01	-0,02	-0,02	-0,03	-0,04
CATTLE MEAT	-0,01	-0,03	-0,05	-0,07	-0,09
SHEEP AND GOAT MEAT	-0,02	-0,04	-0,07	-0,10	-0,14
PIG MEAT	-0,01	-0,03	-0,05	-0,07	-0,09
GRAPES	-0,01	-0,01	-0,02	-0,03	-0,03
WINE	0,00	-0,01	-0,01	-0,02	-0,02

The acceleration of inflation has an impact on both the demand and supply of agricultural products. Concerning demand, the reduction of the relative price will increase consumption of agricultural products. The consumption increase varies from 0,55% (sugar beat) to 6,08% (cattle meat and sheep and goat meat).

The impact of the rise in the general level of prices on total supply may be either positive or negative. In fact, the consumption deflator influences the own relative price of the agricultural product and the real price of the fertiliser; the former has a positive sign while the latter has a negative impact. The total impact of the increase in the general level of prices will be the sum of the two elasticities. The simulation results show that there will be a reduction of total supply for tobacco, sugar beat vegetables, tomatoes, cattle meat, grapes and wine while supply of all other products will increase.

3. CONCLUSIONS

There has been an international activity concerning the use of quantitative methods for analysing the consequences that spring from the evaluation and the reformation of agricultural policies. In Albania, unfortunately, no continuous efforts have been made towards this direction. In this paper an effort to create a simulation model for analysing the effects of various agricultural policies for the case of Albanian agriculture, is presented.

Except for the programming models, the two most common methodologies are those of partial and general equilibrium models. In this paper we have selected the partial equilibrium approach because it can give more specific answers to issues such as: external trade, income etc.

Up to now, modelling experience has showed that the construction of such a model is possible without considerable cost. The model that has already been constructed may constitute an effective tool for the analysis of agricultural policy measures. Even if the model presented in this paper is a simplified version of a complete model for the agricultural sector of an economy, it can serve as a first step for the construction of the whole version of the model. In fact the simulation results of the model showed the impacts of some policy options that can be introduced in the Albanian economy and we analysed the impact of an accelerated growth of the Albanian economy. Further developments of the model should

consider the endogenisation of prices and the explicit introduction of the exchange rate policy by introducing the impact of the exchange rate in the determination of the imports and exports as well as in the determination of the market price.

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