Econometric Analysis for the rural sector in Greek economy

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CONTENTS

SUMMARY

The rural sector constitutes a exceptionally important department of Greek economy, so much for his contribution in the growth of country, after it can and allocates comparative advantage in certain rural products, which are known as, Mediterranean, but also because of his big attendance in the employment and in the income, that nevertheless the continuous reduction of corresponding attendance of employment and consequently and continuously decreased mean of rate of attendance of rural sector in the employment, that is observed in the other countries of E. E., Greece continues him exceeding. Undeniably, a critical point is the importance and the enormous importance that has the rural sector in certain regions of country, so much with regard to the employment and the additionally of income, what the withholding of rural population in this regions amining at the protection of environment and the maintenance the cultural and natural heritage. The aim of this work is the analyse developments of the most basic ethnic sizes of Greek rural economy and to point out the most basic problems that this sector faces.

The work begins with a short historical retrospection and then follows the first chapter. they are presented: · the course of crude domestic rural product in interrelation so much with his rate of attendance in G. D. P., what concerning the crude domestic product of other sectors (secondary and tertiary), · the development of basic productive factors of rural sector, the development of productivity of labour capital and territory, rural income and the main characteristics of Greek rural population.

In the second chapter they will be analysed the elasticities of supply and demand, as for the price of main rural products and as for the income.

In the third chapter we will see the interrelation of employment for the production sponges

In the fourth chapter we will examine the elasticity of demand for fertilizers.

In chapter fifth we present the Cobb-Douglas model for the control if they exist declining or serial or constant output in rural sector.

In chapter sixth we will see the relation between rural consumption and rural income, the marginal propensity to consumption in rural sector, and forecasting.

In chapter seventh we present a macroeconomic model in closed economy.

This project was written as a dissertation in the fourth and the last year of my degree of Economic Science in University of Thessaly. This paper is only a part of the authentic dissertation. I tried to present only the parts which relating with econometrics .Of course, the analysis are adapted accordingly with the elements that were found, at that they do not cover in all the cases of study, the time period 1950-1998. the analysis it becomes accordingly with the elements that are found in availability, so much as for the effort of search in the internet, what as for the availability of books and elements in the library of University of Thessaly. The methodology that is followed is the statistical and econometric treatment of data Reason, for this work constituted the sensitisation to the rural population, because it is that unique social layer that maintains dance floor the traditions of our population, as moreover maintains the corresponding peasantry of other countries of Europe, which can contribute decisive in the maintenance of our cultural heritage and in the protection of environment, as well as in the distribution of our moral values, without however this means that it constitutes also obstacle to the development of our culture, that if is also this. If we contemplate better we will see that the rural sector constitutes the base of economy and our culture and this will be realised diachronically. It should it is still reported that the ten countries that emanate from the former real socialism and that entered already in the EU hardly recently possess important rate of employment in the rural sector and with important crude rural product. With few reasons work it constitutes motive to the future students not neglect the importance of rural sector and they must realise the importance that it has in our life and they should deal inquiringly with this.

HISTORICAL RETROSPECTION

As I reported above, the rural question today has great and topical economic and political importance. This is in effect particularly for Greece, where the peasantry is a essential factor of population '(this as concern certain regions of Greece, that do not have elect currently nothing else) and the political force. The basic reasons for the no-solution of rural problem were the dependence from the foreigner capital, that prevented the growth of local productive forces of country and the second reason is that urban class had been reconciled with feudal and slowest with the semi-feudal, privilege elements of our place. (Panitsidis 1984).The dependence, as it is known, begins with the issuing of loans of England to the Greek state. The English bankers fixed as one from the guarantees for these loans the national grounds. (Should say the national grounds were the ground that abandoned Turkish afterwards the release). English indeed they had sent also notification in the National assembly that took part on 29 August 1832, with which it was opposed in the discussion of question if it should or no to share the national grounds. Thus therefore, the Greek state put in the mortgage this ground against the debt that owed in the abroad.

In 1917-1932, that is to say in the years of interwar, became the first rural reform. The result was that were shared 18.126.461 acres of ground, that were belonging in the local squires and in their Turkish predecessors or were monasteries, ecclesiastical and exchangeable properties, in 130.000 families local small and poor farmers and in 145.127 rural families of refugees. Also, were shared in 28.000 families other 484.748 acres of ground, that emanated from draining extents in Macedonia. The reform was not completed, while it was realised an other reform in the decade 1950. The obligatory expropriations of interwar they limited decisively the semi-feudal residues, they created hundreds thousands individual rural exploitations, they facilitated the process of commercialisation and contributed in the surpassing as one degree, the delay that had caused the sovereign in the rural economy feudal way of production. Consequently, the product that was produced previously did not have social character. Somehow thus enter the bases for the movement and the growth of capitalistic way of production, that is extended with the deepening of social distribution of work and the specialisation of production in the rural economy. His delay is expressed with the cutting to pieces the lands and the rural exploitations, the relatively low degree of mechanisation, the relatively limited use of fertilizers, the insufficient electrification, the relatively low productivity of work, the low output with the square kilometre and the no orthogonal structure of cultures.

It is truth that the rural population shrinks constantly, particularly in the developed capitalistic countries. Of course in certain from them, as in England and in U.S.A. it had respectively reached in 1984 in the 1,8% and in the 4,5%, (Panitsidis 1984). This reduction is owed in the application of achievements of social-scientific revolution, in the infiltration of monopolistic capital in the rural production, in the engagement of rural economy with other economic activities, as are the industry of foods, the textile. In period 1981-1983 the active rural population in the countries of E. E. C. it hardly reached the 7% (mean). The rural question possessed one from the central places, so much the reagents, what the left political forces. The oppositions between the member states the E. E. C. are assembled round C.A.P., the prices, the subsidies, the structural changes, the Community budget, the Mediterranean programs and to a large extent in the regional policy. The greatest crises that passed the completion of E. E. C., so much in the past, what today, are connected with the problems of rural economy.

Beyond however from the developed capitalistic countries exist also developing, where the rural question possesses fundamental importance and that his solution appears as essential condition the development and the growth of this countries. Indicatively it is reported that in the countries of Latin America, Africa, N. A. Asia, the Middle East of 55-60% population it is occupied in the rural economy. They face questions that they have they make with how it can increase itself the efficiency of agriculture and decrease itself the cost of production and how it can be incorporated the rural economy in the other economic activities, questions that faces also the Greek rural economy.

FIRST CHAPTER

A FIRST PICTURE IN THE DEVELOPMENT OF BASIC SIZES OF GREEK'S RURAL ECONOMY

Summary

In this chapter we present a general and concise picture of Greek rural economy. The analysis is clean descriptive, that becomes with the presentation of diagrams, and does not become no effort for systematic analysis of phenomena, because will be achieved this in the later stage. We will present the diachronic development of crude rural product which concerning the remainder sectors and their percentage attendance concerning the total crude product, the development of productivity, employment, agricultural instruments and the commercial balance of rural products, as well as the particular characteristics of Greek agriculture. (Here with regard to the terminology, in certain cases, depending on the circumstance, the terms "rural" and "agriculture", are considered synonymous).

1. THE DEVELOPMENT OF GROSS RURAL PRODUCT

The following diagram resulted with base the data of table 1 in the Annex 1, that presents G.R.P. (Gross rural product) in constant prices of year 1970. As we observe in diagram 1, we see that the tendency of G.R.P. is of course ascendant, but also we can observe that this tendency is more intense than in 1948-1975, while then the rhythm of rise is slowed down. Exist consequently two totals of data that it means that the G.G.P. can be separated in two periods. (This is also proved with the Chow Test, that his wider analysis presents in Annex 2 Department 1). The intense tendency of increase is observed until 1975 roughly. It is should however stressed that the G.R.P. does not only present increase, but in enough cases presents also reduction in absolute sizes. Years as 1950,.1952 and 1958, that front is completed the rural reform of 1923 (Kazakos, 2002)[1] began next in the decade 1950. Also, the G.R.P. marked reduction in 1960,.1968,.1976,.1977,.1979 and 1981. Existed critical years that vibrated particularly the side of offer either the villains harvests that was marked in 1972-1974 either because the petroleum crises that had as consequence the important increases of rural products and petroleum products that quadrupled in period 1973-1974 and were doubled in period 1979-1980, with result the reduction of rural income[2]. And then it follows in 1981 that Greece entered in the E.E.C.

As we see however in the following diagram the contribution of also three sectors in this diachronic course (diagram 2), as well as their percentage change in the total crude domestic product (diagram 3 and table 1 in the Annex 1).

1. Kazakos Panos, "**Between state and market, Economy and economic policy in postwar Greece 1944-2000**", pages 217-224.
2. Vavouras John, "**Economic Policy**" Publications Papazisi, Athens 1998, page 274.

DIAGRAM 1

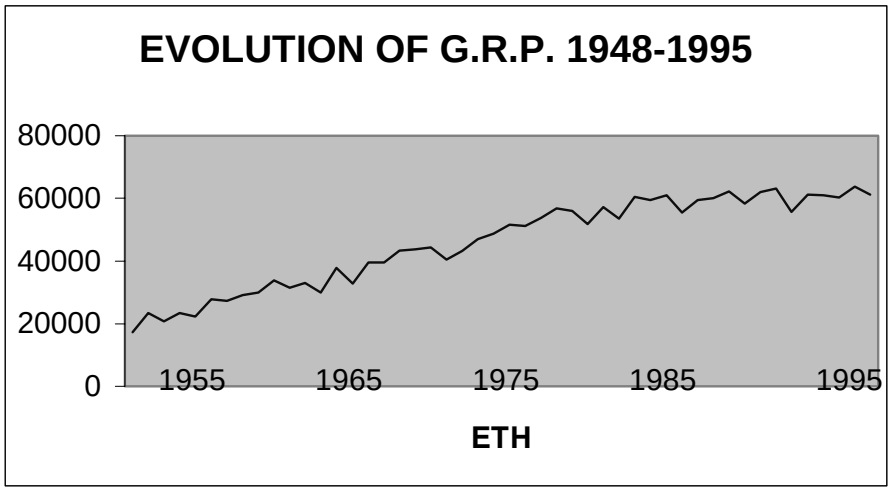
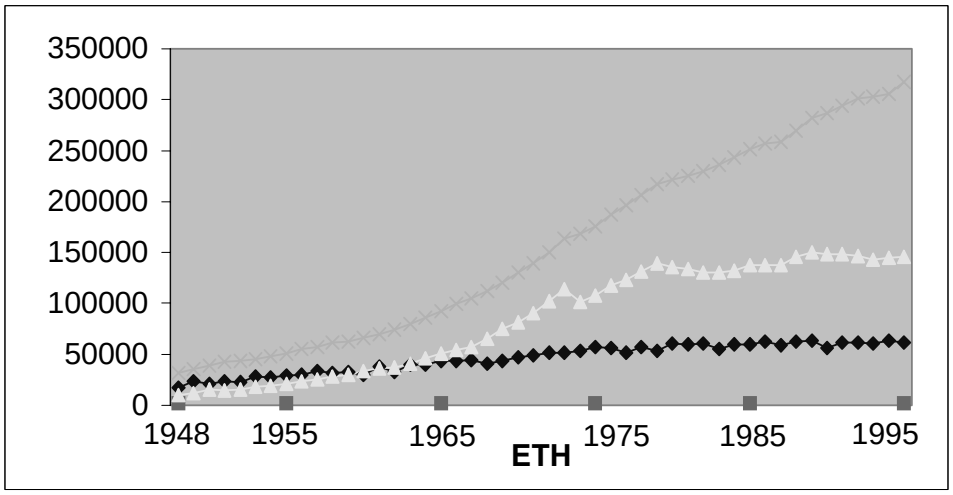


DIAGRAM 2
DEVELOPMENT OF THREE SECTORS OF ECONOMY 1948-1995

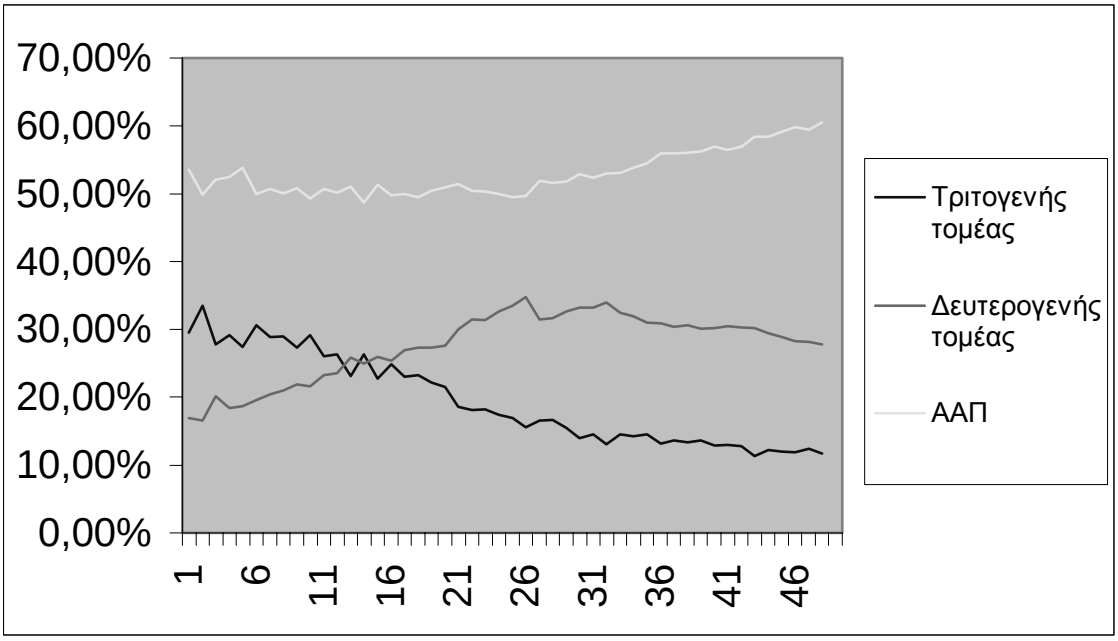


,where the lower line expresses the G.R.P., the intermediate product secondary sector and the higher product of sector of services.

In the diagrams 2 and 3 we observe the overwhelming supremacy that presents the sector of services and tends it still increases, compared to the total product that in absolute sizes is increased with very slow trend, presents however reduction in his percentage attendance as for the total crude domestic product. With regard to the AAP, as I reported and more, can it is increased in absolute sizes, even if it becomes with a lot of argon rhythm this increase, presents however always bigger reduction in his percentage attendance in the total crude product. Causes, as the enormous scientific and technical change that knew this sector, but also secondary, as the automation, phenomena that can explain itself with the intense urbanisation that knew our country the last years in Athens, Thessalonica and then Patra's, in which hyper-concentrating population commercial activities, services and capital[3], and that occupy

3. N. Hatzimjhalis "Regional Growth and Industrialisation", page 50.

DIAGRAM 3
PERCENTAGE ATTENDANCE OF THREE SECTORS OF ECONOMY IN THE TOTAL CRUDE DOMESTIC PRODUCT

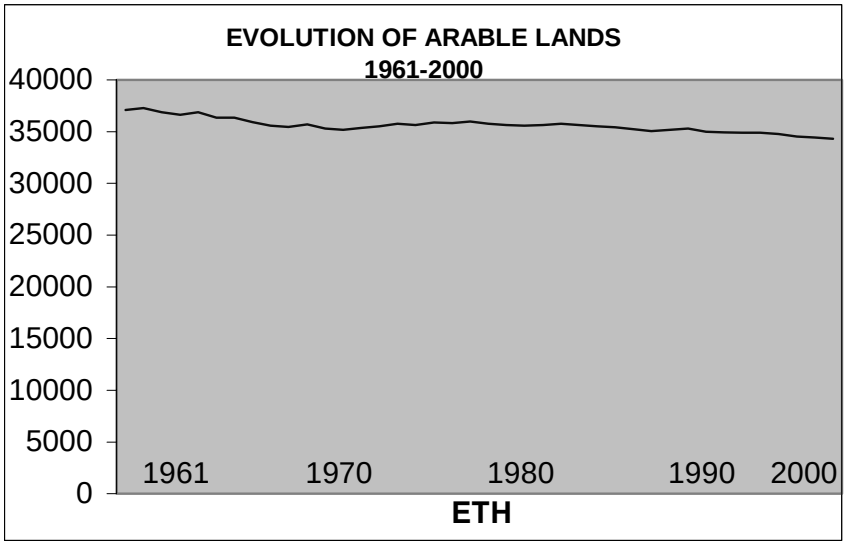


all the modern developed capitalistic societies, as the big unemployment, the pollution of environment, the noise pollution. Moreover he is not accidental that the last years object of attention constitute the regional finances, the economy of natural resources and the environmental finances. The conclusion is that in the developed western countries, as the gross product is increased the attendance of rural product are decreased, as precisely decreases itself and workforce that is occupied in the rural sector, as we will see now immediately.

2. THE DEVELOPMENT OF BASIC PRODUCTIVE FACTORS OF RURAL SECTOR

The ground is generally essential for the plant and animal production. In the case of bought forages element of cost of production constitutes only the necessary ground for the agricultural installations and the essential space between and round them (Kitsopanidis George 1990). From the bellowing diagram we observe that the total extent that is used in the rural production presents a relatively constant course with a simultaneous light reduction the last years. It should however is marked that the greatest percentage of cultivated extents is drying extents, while a small percentage is irrigated. Important however that should it is stressed is that from this total extents that are decreased they are drying ,while those that are increased are irrigated, that it means that as long as they are increased the irrigated extents can mean increase of production, facilitation in the way of production, make that we will more extensively see in later phase, always in connection with the plant production.

DIAGRAM 4



Thus, therefore, as a first picture we see how many a lot was increased the percentage of irrigated extents as for total cultivated extents, concerning drying extents. When in 1962 the drying extents occupied the 86,04%, they reached in point to occupy in 2000 the 57,68%, while on the other hand the irrigated extents in the interval of forty years they were hyper-tripled. These tendencies will continue being in effect.

TABLE 1

YEARS	Cultivated extent	Irrigated extent	% Irrigated	Drying extent	% Drying
1962	37264	5203	13,96%	32061	86,04%
1971	35715	7927	22,20%	27788	77,80%
1980	36011	9606	26,68%	26405	73,32%
1990	35084	11950	34,06%	23134	65,94%
2000	34289	14510	42,32%	19779	57,68%

* Sources:
1.Rural Bank of Greece, Address of Studies and Planning Department of Statistics Athens 1985
2. FAO.

When we use the term work we mean the human work, after the work of instruments is included in the elements of capital. Consequently, from side of work, element of cost of production of agricultural products constitutes the wage of utilisation. In the case of foreigner work, as element of cost are received the overwhelmed wage in the workers and in the case of familial work as cost are received the calculated wage for the work that they offer the members of family. From this side the capital is separated in constant and variable. The variable capital is entire the value of variable capital, as the seeds, the fertilizers, the medicines, the forages, the fuels and the lubricants, etc, and the interest of variable capital for the time interval from his engagements in the productive process up to the harvest and the disposal of agricultural product. As element of cost of production is not received entire the value of constant capital, as are the land reclamation work, the agricultural manufactures, the multiannual plants and animals, the instruments and the tools, but the annual expenses of this. In the category of annual expenses, are included the damping, the maintenance, the premiums and the interest, as well as the tax of production, the irrigatory dues, the veterinarian and the medicines. (Kitsopanidis 1990). From diagram 5 we observe that the employment in the rural sector marks always more constant reduction, while in diagram 6 we observe swift increase of tractors in the decade 1970, up to the decade 1990, while in 1995 roughly it presents a very faint increase. Slowed down increase mark the threshing machines until 1989, while later from 1990 and later

they present relative reduction. Similar situation present also the machines of milk up to in 1988, while in 1989 they show important increase up to in 1996, then they are decreased until finally stabilised in the 14.000 for years 1999 and 2000.

DIAGRAM 5

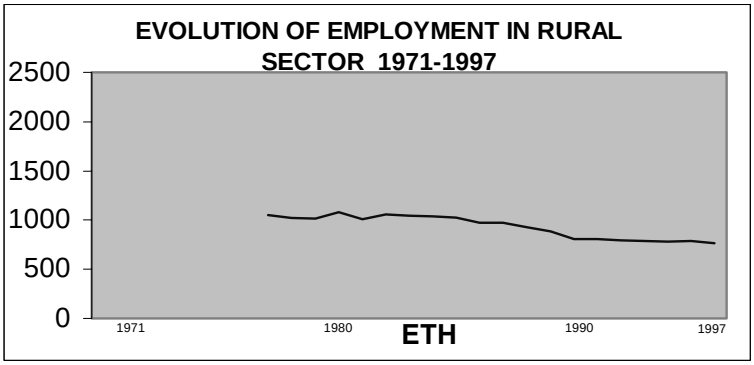
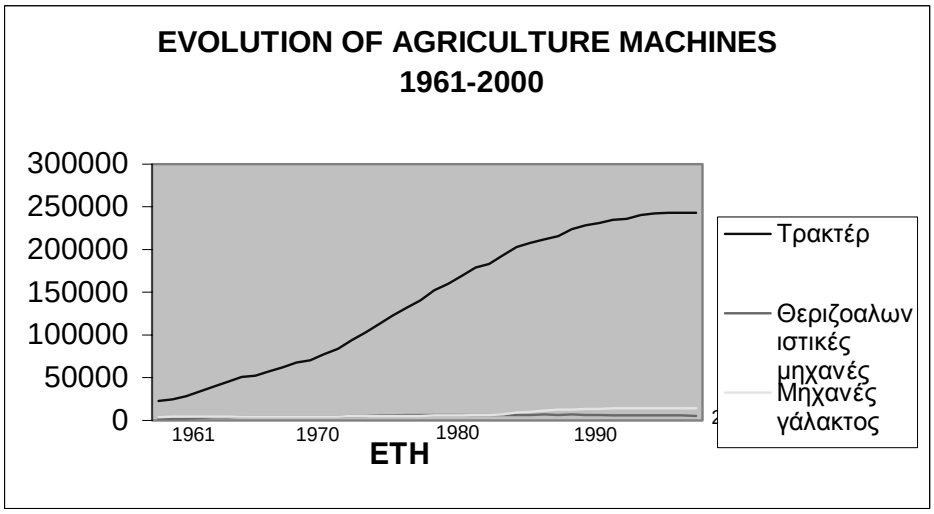


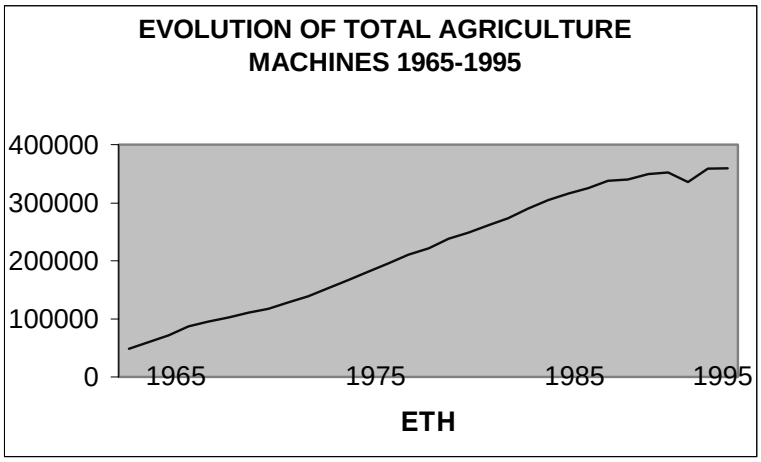
DIAGRAM 6



The blue line presents the tractors, the pink line presents the threshing machines and finally the yellow line presents the milk machines.

Generally however the total picture of agricultural instruments have ascendant tendency in the time period that we examine. Important it is that we included only three goods of agricultural instruments, while very well exist also other, as electrically driven pumps, mechanically-driven pumps, rockets of watering. For this reason in diagram 7 appears evidently the ascendant tendency of total of agricultural instruments.

DIAGRAM 7



The important error and problematic element are that we receive each factor as homogeneous. Actually however this is not in effect, because exist differences from year in year, but also depended from type of culture in culture. Change in the number of acres can mean change in the quality of territory[4] as that enormous weakness of statistical inventories of ground is the not discrimination of most fertile from those of most fertile. Exists enormous difference if the region is mountainous or flat. The importance of this discrimination stresses also the Marx in the Capital[5], that Marx characterizes as differential revenue. Also, the form and the number of employment are not similar in all the types of cultures, but differ from type in type, but also depended from the type of production. Other number is occupied in the agriculture and in the livestock-farming, other in the fishery and other in the forestry

Important offence constitutes even the not discrimination threshing machines, with regard to the horsepower and the type.

Because is sure that in the big cultures is more interest and is more efficient the use of big, in horsepower, threshing machines, while in the small cultures is reasonable the use of, small in horsepower, threshing machines. Essential element in the employment constitutes even the sex, the age, the experience, the education.

4. Lianou, Damianou, Mergou, Demousi, and Katranidi "Rural Economy", B Publication, Athens 1998, pages 636.

5.K. Marx, the Capital, Third volume, Modern Season, Athens 1978.

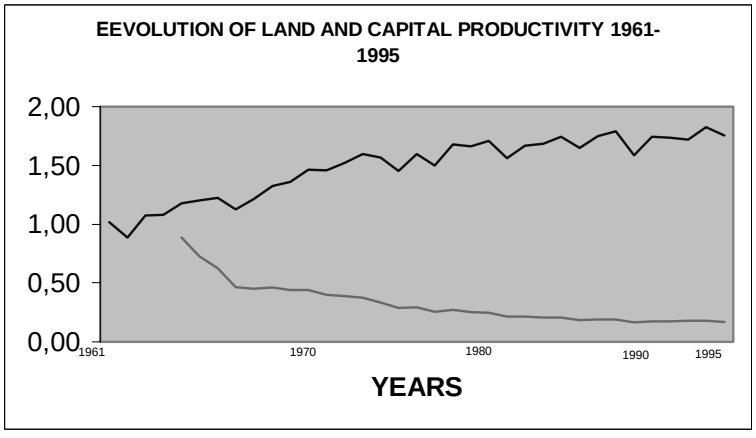
3. THE DEVELOPMENT OF PRODUCTIVITY

The productivity that is usually examined is that of labour, land and capital. Is not nothing other despite from the medium product of labour, land and capital. Hence, if Y = the product, L = the labour, T = the land or the territory and K = the capital, then the productivity of each factor are fixed as follows:

$$\frac{Y}{L} \qquad \frac{Y}{T} \qquad \frac{Y}{K}$$

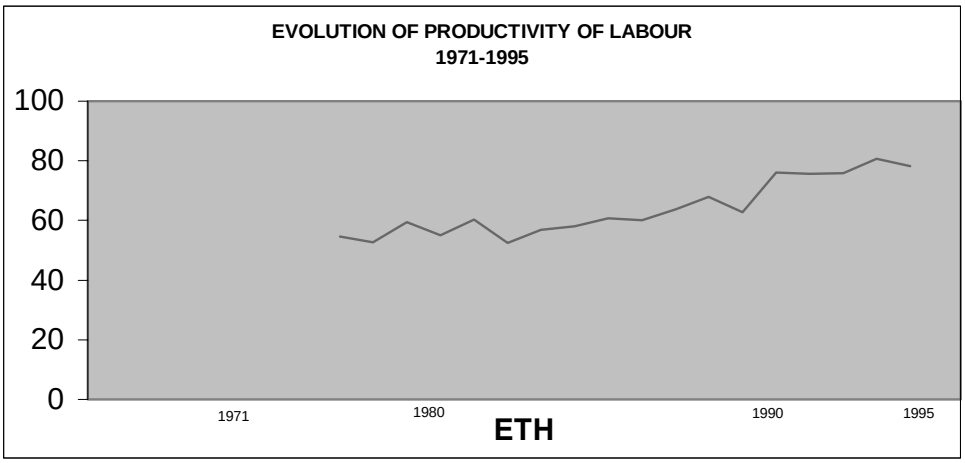
respectively. From the table 3 of Annex 1 results the following diagram. The bellow blue line in DIAGRAM 8 expresses the development of productivity of land, which resembles exceptionally with that of G.R.P., that we saw in the diagram 1.It presents constant ascendant tendency, with parallel reductions in certain time intervals. On the contrary, the productivity of capital presents bending tendency. (pink line in Diagram 8). As we do not forget however that this indicators measure the total of land and the total of items. As, I pointed out previously, this is fault because the quantities that it receives the statistical inventory concerns only the agriculture and concretely the plant production, while the rural sector and consequently the rural product that we take here, concerns also veterinary surgeon and forestry, but also the piscatorial production. From this side the indicator of productivity of capital results from the total of items of agricultural instruments and no from their type. The same phenomenon precisely is in effect also for the productivity of labour, after it is measured in thousands occupied. It does not examine consequently the fact that the hours of work can differ from year in year, but also can differ from type in type of culture or with regard to the plant production (other hours of labour and number of workers is required, for example, for the culture, the harvest of tomato and other for the olive), or is depended if we are concerning about the agricultural production or piscatorial. Diagram 9 portrays the course of development of productivity of labour. The indicator presents augmentative tendency with intense dimensions afterwards the 1980. Consequently, what is observed is that at the same time with the ascendant tendency of indicator of productivity of labour exists reduction of employment. Hence, with less workers is produced more product. However this does not mean that the workers became more productive.

DIAGRAM 8



May be the utilisation of more fertilizers cause these results. An other script is that the biggest part of rural product it is produced from great size rural enterprises, what they have the possibility of organising better their production with right management and they have the opportunity of having more efficient economic results.

DIAGRAM 9



4. THE CHARACTERISTICS OF GREEK RURAL POPULATION

A basic characteristic of Greek rural sector, that it differentiates considerably from the corresponding sectors of other countries of E. U. (European Union) is the nature of rural exploitation. When we were reported in the term “rural' exploitations” mean the control by one or more, individual or legally, aiming at the maximisation of profit. Substantially it is a form of enterprise with all the particular characteristics and the peculiarities that it presents. Thus therefore a characteristic in the Greek rural economy is that the exploitation it has mainly familial character and in most cases the Greek farmers they are not possessed by the passion of continuously continuous maximisation of profit, but satisfy also in the acquisition of satisfactory level of income. An other very basic characteristic of is multi-piece exploitation, that means the culture in different geographic points. From this fact involves higher cost of production and time, because the transport from the one geographic part in the other causes bigger use of fuels, but also deterioration, particularly when these parts are found in enough big distances between them. This phenomenon naturally can be solved with the redistribution or the voluntary or obligatory, where redistribution is the reallocation of agricultural ground in the farmers, after first are realised the conjunction of all their parcels and the acquisition of one or a lot few parcels, that their size is equal to the total extent of all parcels that possesses the each farmer. The Greek farmers however have reserves, because as I reported above for the importance of fertility of territory, and they doubt for the quality of territory that will be given to them. So for this reason should become systematic research and comparison of grounds. Consequently, multi-piece agricultural exploitations present the following problems:

a. Increased expenses and high cost of transport. The farmer is forced to cover also big total distances so that it cultivates a certain extent. This involves bigger use of fuels, deterioration of wheels, over-function of agricultural threshing machines.
b. Wastefulness of time, after it is forced to go to various parcels, while it could cultivate in a part with result the reduction of time of work.
c. Difficulty of supervision of production, because, when the production is assembled in a extent, then this means that exists the possibility for more effective control, concerning the production that is allocated in 5 or even 6 parcels (according to the E.S.S.G. in 1971 the mean of multi-piece agricultural exploitations was 7 parcels with 5 acres of ground each one. Table 2 below gives a concise picture). E.S.S.E (Ethnic Statistical Service of Greece).
d. The investment for the manufacture of individual land reclamation work is problematic It is reasonable that when the production is allocated in various pieces of ground, it renders also impossible the investment for the

manufacture of land reclamation work, since it involves their high cost of realisation.

TABLE 2
SIZE OF RURAL EXPLOITATIONS

	1971	1971	1981	1981	1991	1991
Scale of acres	Number In thousands	Extent in Thousands acres	Number In thousands	Extent in Thousands acres	Number In thousands	Extent in Thousands acres
1-9	226	1135	238	1102	221	1067
10-49	594	7026	541	13821	436	10592
50-99	164	10926	150	10043	124	8414
100-199	43	5530	47	6590	54	7263
200 Και άνω	9,7	2432	14	4697	17	6177
Σύνολο	1037	35863	990	35455	852	33514
Μέσο μέγεθος	34,6		35,8		39,3	

*** SOURCE: Rural Bank Greece, Address of Studies and Planning Department of Statistics Athens 1985**

As we can see from the table 2, prevails the maintenance of small exploitations, the order of size from 1-9 acres. This can be also explained with the multi - employment of farmers, that means that their main employment is certain other than that of agricultural and practises the rural activity as additional for their income or can happen also opposite, they are occupied and elsewhere, apart from the agricultural activity and they practise simultaneously some other profession. From the other side we observe that in 1971 the agricultural exploitations higher than the 100 acres were 53 acres roughly, while in 1991 they were increased in the 71 acres. The same thing is in effect if we take into our consideration the cultivated extent. A relative reduction they presented the medium size of rural exploitations, the 10-99 acres, that from 758 acres that were in 1971, were decreased in 560 1991. 2001 the number of cultivated acres reached in the 808 acres roughly and the medium extent of parcel were 7 str.[6]

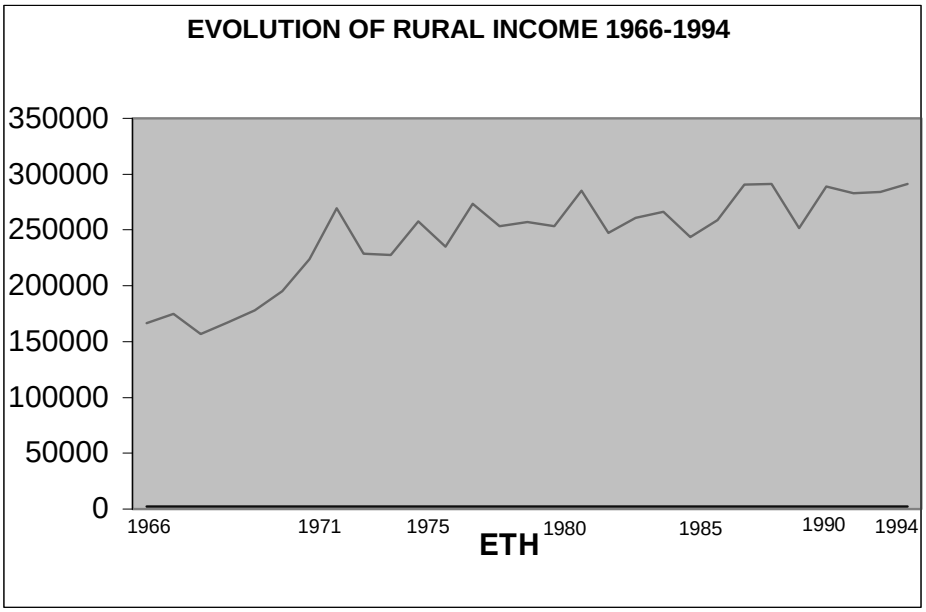
Generally the management of exploitation and work are assembled in the head, that is the father, and in the remainder members of family. The main characteristics of the leaders of rural exploitations are that they have low educative level, concerning the other productive sectors of economy. In 1981, the 12,2% of

6. Statistical yearbook of E.S.S.G 2001.

workforce had age higher the 64 years and the 66% had age higher the 44 years, percentages that express intense ageing of population. Also, the leaders do not allocate business dexterity. These elements imply low expectations for important increase of sector. In this point is important to mention that the growth of sector is supported too much in the force and the organisation of rural cooperatives

5. DEVELOPMENT OF RURAL INCOME

DIAGRAM 10



From diagram 10 we observe that the rural income presents a relative ascendant course with intense fluctuations. In the time period that we examine, that is to say 1966-1994, the rural income it showed increase 74,5%. Of course, the rural income it can be also constituted from that part that receives householders of productive factors that are not farmers, as the rents of ground that are overwhelmed in the householders that do not deal with the production, or householders agricultural threshing machines, that are holders of big agricultural exploitations and that consequently deal with the rural production, but simultaneously rent also agricultural threshing machines in other smaller cultivators and naturally this means additional income. As we saw the rural income showed important increase in time period 1966-1994, while also the rural income per occupied presented also this big increase, in the same time period, that was 51,8%.

Here we could say that the distribution of agricultural exploitations at cultivated extent determines also in some degree the distribution of rural income. This however is erroneous impression, because the economic importance of ground and incomes differs considerably between the regions and cultivates[7] Because other value has the ground that has bigger fertility than the value where ' has some other ground with smaller fertility.

Still, the cultures that are near in the markets can have bigger value, because as we know the rural products they are heavy, and consequently as long as bigger are the weight of merchandise, so bigger is the cost of transport. Exists that is to say proportional relation. Consequently, as long as more near the products in the market, so much smaller the cost of transport, with result also the increase of competitiveness. Also, an other good example is the Zagora of Pelion[8]

7.Lianou, Damianou', Mergou, Demousi, and Katranidi "Rural Economy", B Publication, Athens 1998, pages 650-651.

8.Pelion is a mountain very near in the town of Volos of State Magnesia. Is a great lace for vacations as much for the winter as much for the Summer, because there are beautiful beaches in Pelion. There are almost 25 villages in Pelion and one of them is the beautiful Zagora.

Concretely Zagora abstains 50 kms from the city of Volos and the city of Serres abstains 80 kms from the city of Thessaloniki. Because of the infrastructures of road network, the distance Serres - Thessalonica, becomes finally smaller, with regard to the time horizon. Moreover, which is the size of production of Zagora and which is of Serres and second how great is the size of market of Volos, in which are addressed the producers of Zagora, and how great is the size of market of Thessaloniki, in which are addressed the producers of Serres. The market of Thessaloniki is overwhelmingly much bigger, so that roll up bigger quantities and the rural products they become more competitive, which means greater benefits for the consumers.

SECOND CHAPTER

DEVELOPMENT OF PRODUCTION, PRICES, ELASTICITIES OF SUPPLY AND DEMAND OF RURAL PRODUCTS

1.CEREALS

From the table of 4 Annex 1 we see that the production of hard wheat was increased with annual mean 36,6% and the price of producer at 15,7%. On the contrary the production of tender wheat is decreased with annual mean 23%, roughly, after it presented important increase in 1982, while afterwards it marked certain fluctuations until in 1998 it reaches in levels of production lower from them in 1961. This reduction of production of tender wheat is owed in the following reasons. According to the regulation of E.E.C. 1586/1986, is applied the issuing of aid of 1327. Drachmas with the square kilometer for the hard wheat and concerning that the cost of production is the same both on the two types of cultures, contributed finally in the extension of culture of hard wheat. Also, the important extension of culture of sunflower, and the transfer of irrigated extents that was cultivated with tender wheat in other more dynamic cultures, as the maize, they justify the reprocess of culture of tender wheat. Indeed, the swift increase of sunflower at years 1986-1987 (see TABLE 4 ANNEX 1) and with medium annual increase 143,7%, contributed considerably also in the reduction of production of barley, as affected considerably also the hard wheat in the development of barley. The barley had an important medium annual reduction, 25,37% roughly. The maize increased period 1961-1998 at 663,7%, with medium annual increase 6% almost. Of course, the distribution and using of simple hybrids constitute the important source for the production of product of maize of most excellent quality for the starch industry. The maize however has high cost of production and in order to avoided it is recommended an increase of cultivated extents (KE.P.E. Reports 25, Athens 1991) something however that appearred to become, after the cultivated extent in 1961 was 1.947.730 and in 1998 was 2.100.000. Of course, the maize has favorable conditions, after the E.E.C.. is deficit. The production of oat is increased with annual mean 2,4%, while the rye presents mean annual increase is 7,32%. In any case, important increase of production, at the year of integration of Greece in the E.E.C., marked the maize, since the E.E.C. is presented insufficient and the hard wheat basic product for the production of pastas, bread and forages. From the other hand the insignificant course of oat and rye, declares that the specific cereals did not constitute never serious role and important motive in the economy of producers. The rice presents also this small annual medium increase of 2,7%. In following table is presented the short-run and long-run elasticities of cereals as for the price per type, which the analysis of, is mentioned in department 2, Annex 2.

TABLE 3

CEREALS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
Tender Wheat	-0,099	-0,3
Hard Wheat	0,366	0,5
Maize	0,029	0,38
Barley	-0,150	-0,76
Oat	0,104	0,25
Rye	0,103	0,97
Rice	0,0518	0,225
Sunflower	0,18	1,35

It is sure that will make us surprise the existence of negative elasticities of supply as for the price. All we know that the economic theory that as long as is increased the supply is increased also the price. Can this be in effect in the industrial products, or in the services, it does not follow however that it is also in effect in the rural products. For example unfavorable meteorological can destroy important part of harvest with result the reduction of supply, that will cover the needs of population, it will lead to the reduction of rural income. From other certain the reduction of supply has as result the reduction of supply curve to left with result the increase of price. Of course, if from one side the supply is negative and the demand for the particular product is inflexible, means that in case of reduction of price of product the correspondence of consumers can be very small. The short-run elasticity of tender wheat as for the price is –0,099 and long-run is –0,3. This fact could be explained with base the logic, no unfavorable meteorological, but in the base of conditions of economy, the protectionism and the extension of competition. As I reported previously, the tender wheat succeeded from the sunflower, and it is outshined by the hard wheat. We saw that the aid that gave the E.E.C. for the hard wheat (issuing of aid with the square kilometer 1.327,6drachmas.) with the simultaneous suppression from the E.E.C. of price of minimal quality (Regulation EEC 2062/1981) in which it is included and the production of tender wheat of Greece, they led also to the above results. The same thing precisely is in effect also for the barley, with short-run elasticity –0,150 and long-run –0,76. The elasticities present very big negativity. The reasons are, as precisely and in the case of tender wheat, the extension of culture of hard wheat and sunflower. This means that these productions are not more economic efficient, with result a lot producers abandon this type the culture and they are delivered in more efficient and profitable. Thus therefore it could be increased the price of producer, but very producers abandon this production of culture, and perhaps the production of this culture attribute and is more interest only for the big rural exploitations. Moreover, the EEC is surplus in barley (KEPE, Reports 25, Athens 1991), therefore is excluded the conditions for exports to Europe. The barley can be disposed for the production of forages and for the brewery.

The hard wheat with short-run and long-run elasticity 0,366 and 0,5 respectively, confirm all more that I reported. Make of worthy report is that Greece at years 1983-1985 had null imports of hard wheat, while in years 1986-1987 had hardly 15 and 10 thousands tones respectively, when in 1983 it had exports 634 thousands tones. In any case the wheat can be constitute still favorable product in Greek agriculture. May be demand is big, after it constitutes raw material for the production of flour and then for the production of bread, because certain countries of Europe do not consume satisfactory quantities of bread, the bread however constitute basic product for other countries of E. E., as Greece, Italy, Spain and Portugal. Still, the wheat constitutes raw material for the production of pastas, but also for the production of forages, as I reported more, which means it can be strengthened the sector of transformation for the production of forages, that then the sector of transformation will supply primary with the benefit of forages.

The sunflower presents most important elasticities -0,18 and 1,35- with δ=0,139, which means that exists very big adaptation. The sunflower constitutes big motive for their producer, after in a case of increase price of producer at one unit the production is increased at 1,35, the price of that is to say elasticity is flexible. This of course does not mean that it is also essentially good, after should the sunflower be adapted in the demand that is shaped thus, so that are not created surpluses.

From their side, the rice and the maize, present inflexible prices, as the oat with prices to oscillate in the same roughly levels, while particular exception constitutes the rye, that while I had reported that does not constitute important product for the producers, nevertheless it has important long-run elasticity. This can be developed, or even be developed already with the changes of our diet and with the needs of diet that apply the modern persons, with the consumption of bread and pancake of rye that constitutes basic elements of diet.

Basic regulation E.E.C. 1717/1975 for the organization of market cereal's sector includes the basic beginnings for the arrangement of prices, interventions in the internal market, the arrangement of exchanges with third countries. The institutional prices are:

1. Indicative price

2. The price of intervention
3. The price of import for baking tender wheat
4. The price of threshold.

These prices are determined each year, usually in April, for the tender and hard wheat. For the barley, the maize and the rye concern a concrete quality type for each product and are in effect for all the states-member. With Regulation E.E.C. 1418/1976 are established the basic provisions of common organization of market on the rice and the institutional prices that are forecasted are:

1. Price of intervention
2. Indicative price
3. The price of threshold.

Generally, with regard to the case of wheat, so much hard, what soft, should, in my opinion, the cereal policy be engraved in the frames of national program of growth of agriculture. The characteristics of agricultural exploitations, as multi-piece exploitations , the arrangement of smallholding and existing hereditary right, do not constitute elements for fertile and dynamic growth of sector. So in this case, and not only, the contribution of cooperative is most important, for which we will speak to other capital. The maize and the sunflower constitute products that can have prospects.

2. INDUSTRIALLY PRODUCTS

Our analysis will be continued with the most main industrial plants and concrete with the tobacco of type Berley, the tobacco of type Virginia, the tobacco of Eastern type, the cotton and the sugar beet. Table 4 shows short-run and long-run elasticities for the each one product.

TABLE 4

INDUSTRIALLY PLANTS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
Tobacco of		
Berley type	-0,039	-0,13
Tobacco of		
Virginia type	1,06	3,45
Tobacco of		
Eastern type	-0,0078	-0,025
cotton	0,00189	0,005
Sugar beet	0,0802	0,21

As we observe from table 4 the tobacco of Eastern type and type Berley present negative elasticities of supply as for the price. The production of tobacco of type Berley increased up to 1984, in which year This type of tobacco showed a spectacular increase and then presents fall, such that in 1990 the production had reached in level similar with those of year 1964. The reasons is the low reducing of this variety and low Community bonus. (KEPE, Reports 25 Athens 1991). Of course, the E.E.C. forecasted important increase bonus for the Greek Berley, thus, so that exists absorption harvest, without however the objective increase of production, as it appears in the table of 5 Annex 1. Of course, it should be marked that an important problem of Greek Berley isthe enormous quantities of American Berley that are putting in the foreigner markets in very low prices, because the subsidies. The fluctuation of production, in this period, perhaps was result of big differentiation of demand. This means that the specific culture appears to offer for co-operative or enterprising exploitation, in such a way that the factors of work and capital are developed still better.

From the side of tobacco of Eastern type we should mark that the elasticities that result, at my opinion, are not equitable, after exist 8 goods of Eastern tobacco. The tobacco of type

Basma, drying and irrigating tobaccos, Sampsountos of Katerini, drying and irrigating tobaccos, Tobaccos of type Koulak Classically, Tobaccos of type Koulak not Classically, drying and irrigating tobaccos, Tsempeljon irrigating tobaccos, sweet-smelling of Agrinio, drying and irrigating tobaccos, tobacco of Elassonas and tobaccos Zjhno sweet-smelling. Because the production is reported in the total of these of goods of tobacco it wiil an error if we analyze their total. Of course, the lack of sufficient statistical elements for each type separately, forces to make us a simple report. Concretely the production of drying tobacco of Katerini constitutes basic employment for the farmers of Prefecture Pieria with the significance that the tobacco producers do not find other alternative employment. Particularly for irrigating tobaccos of Katerini, exist a lot of regions in the Prefecture Pieria that is advisable more for tobacco production, the farmers are specialized, that means that is difficult for them to change culture or to withdraw from the agriculture and also, the production of tobacco it requires a lot of employment, that means that it is positive, because as production of intensity of work that is it will require more working hands.

Tobacco Basmas also marked stability in configuration economy of effectiveness and this good of tobacco is connected with the big employment and renders it important. (N. Zjoga, D. Delis, K. Shortsanitis, Athens 1992). Moreover both of two goods of tobacco, Katerini and Basma, constitute varieties that are mainly exporting. We should stress that because of the drying extents, in which extents can be achieved production of tobacco, renders the specific production automatically as the unique agricultural activity. This however is not solution, because the fields of tobacco will remain drying. For this reason it should be developed as much as possible faster the unexploited watery resources thus, in order that many from these grounds are rendered irrigating and this because the cultures of irrigated tobaccos attribute economically more and creating more satisfactory agricultural income (N. Zjoga, D. Delis, K. Shortsanitis, Athens 1992).

Tsempelion tobaccos presented complete lack of exports, because before the integration of Greece in the E.E.C. the these tobaccos were cultivated with unique aim cover of domestic demand. Moreover, the these tobaccos constitute unknown varieties in the international market. Like the smoking public has turned itself to the cigarettes of American type, but faces also problem of disposal in the internal market, because of the reprocess of demand of tobaccos of Eastern type and increase of demand for tobaccos of American and British type.

Elassona tobacco have prospects because of the territory and meteorological conditions in a lot of regions, the big employment that requires also the specialization in the production.

The production of Zjhno sweet-smelling, that is cultivated in the prefectures Karditsa and Trikala constitutes important employment in the municipalities of these prefectures.

The elasticities for the tobacco Virginia are positive and present big prices. This means that the culture has big interest for the tobacco producers, but also for our rural economy. We should however say that the demand for tobaccos of Eastern type has been decreased considerably while was increased considerably the demand for cigarettes BLEND that is American and British type. The varieties Basma and Katerini are contained in a small percentage in the American press and the British press are constituted exclusively by tobacco of type Virginia. Of course, the medium annual export of tobaccos was at period 1976-1980: 60.986 tons, while afterwards the integration of Greece, period 1981-1986, the mean annual increase of exports was 87735 tons. In the increase of volumes of exports contributed considerably the Community aids and the serious depreciation of drachma against the dollar. (KEPE, Reports 25 Athens 1991). Beyond however by the extension of exports, was observed also increase of imports of tobaccos, that is owed in the increased demand of cigarettes of foreigner signals that uses in big percentage of tobaccos Virginia. Precisely at the substitution of this tobacco aims also the extension of culture of tobaccos Virginia. An important element that it should we take into our consideration is the pressure that practise U.S.A., Japan and a lot of other countries for complete suppression of subsidies of transactions in the international trade. This means that a lot of rural products, in this existing arrangement of subsidies and protection, in which they owe their competitiveness, can lead the Greek economy to a modification of comparative advantages and to the loss of competitiveness of enough rural products. For this subject we will speak to other capital. Generally, we can say that from the

goods of tobaccos that we reported can have prospects. First of all Virginia and secondary the Berley, because they are used in the production of cigarette American and British type BLEND. Then are the Basmas and tobacco Katerini, that are used in production of American BLEND, even if their rate of attendance is small. We could say for the varieties Koulak, Elassona, sweet-smelling and Zihno sweet-smelling that is cultivated in irrigating grounds, attributes economically and can have prospects of disposal in the market, it is enough to applied such a policy that it ensures balance between their production and B.P.Q. (Biggest permissible quantities). It should be stressed that the national policy, in this sector, in 1980, before the integration of country in the E.E.C., did not differ a lot from Community. Concretely it contained:

i. The system of prices, that the state determined each year prices of safety, under which they did not have right to buy thetradesmen

ii. The system of bounties, that was given in the producers of exporting tobaccos, incoming aid, in order to improve their income, and in the exporters was given subsidy of export thus, so that our tobaccos to become competitive.

iii. The system of intervention, at which the National organism of tobacco assembled his reserves with prices of intervention, as also he was compelled to buy returned tobaccos from the private trade, which did not achieve to export.

iv. The system of controls of culture and market, that became control with regulation of culture, with decisions of Governmental economic committee, as determination of production at producer, the determination of areas of tobacco growing, as well as intervention at the stage of transaction.

V. The system of management, which was becoming from the proper ministries, as the Co-ordination, Agriculture, Finances and Trade, and with proposals of National organism of Tobacco. From the harvest in 1981 the incoming aid continued to be granted decreased at 25% the year, that it kept for four years, until to leaded in 1985 to the complete nihilism. The E.E.C. with base regulation of 727/1970 established in the common organization of market of crude Tobacco the following systems:

I. The system of prices, that includes the prices of objective, the prices of intervention and the secondary prices of intervention. The price of objective is the price that the E.E.C. wishes to be shaped in the market aiming at the protection and the improvement of income of producers. The price of intervention is the price that is paid in the producers that are bought from the Organism of Intervention and are smaller at 1% from the price of objective. The secondary price of intervention is paid in the tradesmen that deliver the commercial processed tobacco.

II. Community bonus, which are granted in the purchasers thus, so that they prefer tobaccos of Community production and simultaneously they can buy in the oobjective prices. Also, are granted returns in the exporters in order to remain the tobaccos of Community production competitively in the markets of third countries. III. The system of control of culture and market remains. Thus in the case where it exists in the market excessive supply of tobaccos and simultaneously low demand for them, then the E.E.C. take over measures of demoralization, which most important is the reduction of prices of intervention and quantities that are led to the intervention. IV. Finally, exists the system of management that is practiced by the Administrative Committee of tobacco, that is constituted by representatives of cards of members and is chaired by representative of Committee, while at the same time functions also the Advisory committee, which is constituted by representatives of producers, consumers and tradesmen. The cotton production it constitutes a dynamic culture in Greece which is in percentage of 93% irrigated. The main product that produces each year is the ginning cotton, that is the base in which is supported the textile. The production may be not present important increase, because of unfavorable meteorological conditions. From the other side however the cotton constitutes a product not profitable, after his price is enough bigger than imported, because of the cheap working hands from the countries from which it emanates, as Egypt, but also the new conditions that prevail from the terms of GATT. The farmers are instigated by the big subsidies that are given for the production of cotton. With the new however terms of GATT in combination with the maintenance of same structures and same ways of production this cultures will be eliminated.

The space which is realized the production of sugar beets is extended by the Thessaly as the Thrace. So in this the space exist five factories of treatment of beets: In Larissa, in Plati, in Serres, in Xanthi and in Orestiada. The sector of sugar-sugar beet is conditioned by special arrangement and the basic beginnings is determined by Regulation E.E.C. 1785/1981. On our country is in effect the total quota 319.000 tons, from which the 290.000 tons are sugar of type A and the 29.000 tons sugar of type B (Panitsidis Athens 1984) For the production of total quota are required extent of sugar beet cultivates in order of the 430-450 thousand of acres. In case of extension sugar beet cultivates beyond this extent it will have as result the production of sugar beyond the 319.000 tons, that are known as sugar of type C. For this sugar do not exist Community protection, but also simultaneously the producer should export it in third countries with his own expenses. The National policy in this sector includes:

- Determines single price of disposal of sugar, which is bigger than the Community price of intervention.
- Determines single price of beets which is always bigger from the minimal price of beets type A that is determined by the E.E.C. , which price is reported in beets with content in sugar 16%.
- Additional aid as right of producers from produced poulpa.

Important fact is that sugar beet cultivate is practiced in grounds inadequate for sugar beet production.

3. VEGETABLES

TABLE 5

VEGETABLES	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES	VEGETABLES	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
Tomato	0,109	1	Lettuce	0,0172	0,132
Fresh			Carrots	0,0665	0,317
Onions	0,0317	0,046	Fresh		
Drying			Peppers	0,0714	0,273
Onions	0,0296	0,0524	Aubergine	0,0836	0,0862
Courgette	0,069	0,115	Cucumber	0,0124	0,0992

In table 5 are presented the elasticities of supply as for the price of more basic vegetables. We will begin our analysis with tomato. Front however we begin it will be supposed we report that the statistical inventory, that is given in the table 6 in Annex 1, is reported in the total of production tomatoes. Tomato it can be table countryside, it can be bioengineering or greenhouse. For this reason we will analyze each one separately and no the total of production. Greece is calculated that it consumes roughly 700.000 tons fresh tomatoes, countryside, and which is self-sufficient on season tomato, while it is deficit in tomato of out season. Tomato on season is calculated in the 550.000 tons and tomato out of season 150.000 tons. The extent can be decreased , but the production remained in almost the same level (KEPE, Reports 25 Athens 1991). However is believed that they should improved the methods of culture.

Industrial tomato depends in the arrangement of aid of production of remade vegetables of Regulation of E.E.C. 426/1986, which forecasts an aid in the manufacturer and a minimal price in the producer. The manufacturer is eligible the aid provided that he signs contracts with the producers and pays in them at least the minimal price. The system assisted the growth of sector, but the enormous increase of production forced E.E.C. to take measures, as:

Threshold of guarantee for E.E.C. of 4.700.000 tons fresh tomatoes for manufacturing. The threshold is total , as to say is in effect the co-responsibility between the states-member, which threshold if it is exceeded by the mean of previous three-year period, then is decreased the aid in the manufacturer at the percentage of overshooting. If we take into our consideration the structural problems of our agriculture and mainly the small size of agricultural exploitation, then are erased positive prospects for this culture. From the other side however, we should take

into our consideration seriously the weaknesses of transformation of product, cost of transport, packing and generally the marketing. With regard to tomato greenhouse is observed rapid spread of them and not only tomatoes, but also of other vegetables. This is owed in the intensifying in countries with limited territorial resources and in the need of continuous increasing demand of products out of season, as it is tomato. The greenhouse cultures constitute one from most dynamic cultivates of Greece with biggest agricultural income per acre in relation with the other cultures. Their contribution in the national economy, develop a lot of day labors, they create a lot of employment. In a lot of regions of country exist the suitable territorial and climatic conditions, thus, so that are created viable exploitations in small extent of 4-10 acres and they contribute with this way in the reduction of problem of a lot smallholders that characterizes the Greek agriculture. Nevertheless optimistic expectations, the facts were played disappointingly. The mean output per acre of tomato is roughly 9,5 tons/acre., against 35 tons/acre. of mean output of tomato in a greenhouse of Holland. This is owed clearly in their eminent technological and organizational structure and situation. (N. Zjoga, D. Delis, K. Shortsanitis, Athens 1992).

Generally, we see that the long-run elasticity is as for the price unitary, that means if is increased the price of product at 1%, then the production will be increased at 1%, exists that is to say change equal in amount.

For the fresh and dry onions the elasticities, so the short-run, as the long-run, are inflexible and oscillate in the same levels. The production for the fresh onions maintains a stagnation, as in the output per acre, while the extent was decreased, from 31.192 acres that were been in 1961, in 23.000 acres.

Similar is the situation for the dry onions, with basic difference the size of production. The Greek diet includes the dry onion, that is basic good for the domestic consumption.

The cucumber is exported in the countries of E.E.C. in quantities of almost 130.000-140.000 tons each year, from which the 80-90% emanate from greenhouses, while the culture of country side cucumber is continuously decreased, because the economic output of this culture is very low. From this quantity is exported almost the 30% in the countries of Western Europe. The exports begin at the first days of October and finish at the end of March. The possibilities, however, of export of cucumber are not unlimited, after exist countries that produce very good cucumber and can rival Greece, as Spain, the Canary Islands, Holland.

The courgette, the aubergine present long-run elasticities lightly bigger the 0,1, while exception constitute the carrot and the fresh peppers, beyond tomato.

4.CITROUS FRUITS

TABLE 6

CITROUS FRUITS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
Tangerine tree	0,178	0,35
Orange tree	0,196	0,286
Lemon tree	0,043	0,09

In table 6 we see elasticities of supply of citrus fruits. The problem once again with the statistical inventory is that it does not take into consideration the depreciation time of each tree. Concretely, for the tangerine tree the year of beginning of depreciation is 4th year and for the orange and lemon tree is the 6th year. The time duration of depreciation is 20 years and the coefficient of depreciation is 5,0. This means , for example, all the tangerines tree do not have the same age and consequently they don't have the same damping (see table 7 Annex 1).Yet, is

possible, many of these trees have depreciated far time ago. Consequently , all these elements can underestimate or overestimate the prices of elasticities. With few reasons the model of adaptive expectations is not in effect for the multi-annual and the full of trees cultures, as it is not also in effect in the veterinary products or even the products of forestry. After however we see also for the multi-annual cultures with this model, then we will also examine with the following combination of models. The Nerlove combined the models of partial adjustment and adaptive expectations and developed a dynamic model of supply. But we will examine it in other part of the project.

The 72,3% of tangerines tree it is constituted by common tangerines, while Clementine covers the 18,6% and the Satsouma the 5,8%. The distribution of these varieties temporally do not cover quantitatively so much the needs of market of abroad, but also qualitatively, because the main part of production is constituted by the common tangerines are not preferred for consumption. Moreover, the possibility of developing the being redundant quantity from the industries production of juice is limited, because the demand of juice of tangerines is very low. They present however the biggest long-run elasticity, which means the cultures can be constituted from trees that hardly began to attribute, but they are also possible be cultures that allocate better mechanical and technological equipment.

The production in general lines can present augmentative tendency in this period, but are observed important fluctuations that are owed in damage by frosts, as in the instability meteorological at the critical period of flowering. These fluctuations can be justified in the objective for installation of new plantations with the desirable improved varieties, as well as for the implementation of work of infrastructure, standardization, packing and transformation. From the other side however the extirpation and the revaccinations of old plantations were limited. The implementation of land reclamation work, work of road construction, irrigatory did not advance in important degree. Consequently, the increase of production can be owed in the increase of trees and particularly those that entered in the age complete fruition, as happened with the tangerines. The reasons for which became the program of reformation of citrus fruits and particularly orange are:

- The lack of business dexterity that characterizes the rural world, as we said in the first chapter.
- The satisfactory price of withdraw, that is independent from the quality and
- The frosts and the danger that young saplings are exposed to them.

The exports of oranges have ascendant development, exist however and the increasing competition from third countries. The quantities that are led to the juise production mark fluctuations, as precisely the production do. And however in the sector of juice production is observed competition from third countries and particularly the countries of Southern America.

The lemons, as it appears, present very low elasticities, after in this period it presents a light augmentative tendency. This limited tendency of production is owed in the same reasons that we reported also for orange, and mainly it is owed in the frosts. The exports present fluctuations, that are owed so much in the fluctuations of production, such as in the powerful competition of third countries. Of course, because the biggest part of production becomes at the period November-December, the remainder months is marked declining escalation with result the quantities do not suffice neither for the domestic market so that we were leading to imports. The E.E.C. gives minimal prices of producer which covers a minimal income in the producer, and depending on the situation in the market, so E.E.C. can also give superiors prices from them. In any case the minimal price of producer for the public orange, that constitutes the biggest part of production, is much lower than the other varieties of orange.

5.OIL AND OLIVES

TABLE 7

PRODUCTS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
OIL	0,127	0,163
EDIBLE OIL	0,0916	0,115

The cultivation of olive trees is classified in the maintained cultures, that is to say is not sought the increase of cultivated extents. Even if is considered maintained culture and are applied the programs of extension, is observed planting of number of olive trees, which however is intended for the replacement of old and aged trees, that naturally they will attribute more, but also for exploitation of extents that can be developed differently. The olives are separated in olives of high form and low. For first category the year of beginning of depreciation is the 8th, depreciation time of depreciation is 50 years and the coefficient 2,0. For the second category year of beginning is the 5th, the depreciation time is 30 years and coefficient is 3,3. The more important problem of olive and mainly for the production of oil, the harvest of olive should be sought with the distribution of olive collecting machines. In the Common organization of market of olive oil and according to Regulation 136/1966 the mechanism of Community support of olive oil is constituted by a mesh of institutional prices and aids that are determined one year before the beginning of commercial period. Concretely:

- The indicative price of producer, which is determined in such level so that is ensured a fair income in the producer, but also simultaneously is maintained the essential volume of production in the E.E.C.

- The price of intervention, at which the organisms of intervention buy the olive oil that offer his first holders and counterbalance with the indicative price decreased at the aid in production, but also a sum that takes into consideration the fluctuations of market and the expenses that are required in order to channel the product in the market.

- The representative price, that is determined taking into consideration the prices of competitive products, in such level so that it allows the regular disposal of production.

- The price of threshold is determined thus, in order that the price of sale of imported olive oil balance with the representative price of market, amining at the protection of Community production, in order to not exist cases of drain of products, from third countries, in the market in very low price. In the cases where where the price is bigger is collected compensatory contribution for the cover of contribution.

6.VINEYARDS

TABLE 8

VINEYARDS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
TABLE GRAPES	0,023	0,09
CORINTHIAN GRAPE	-0,0978	-0,173
GRAPE SOULTANA	-0,121	-0,147

The production of table grapes presents a light augmentative tendency. From them usually the 8% are deteriorations and auto-consumption, the 34% are intended in the internal market, the 28% are exported also the 30%, are intended for vinification. The percentages these however are not always regularly, because the production depends to a large extent from the climatic conditions. In any case, the elasticities of supply as for the price that it presents are positive, concerning the Corinthian grape and soultana, do not cease however they are low. If therefore price increased at 1 unit the production will be increased only 0,09 in the long-run period. And in the vines however becomes the same affair that became with the citrus fruits and the olives, that is to say that all the vines do not have the same age. The year of beginning of depreciation for the vine is the 5th, depreciation time is 25 years and the coefficient of depreciation is 4,0. Moreover the number of extents did not present great reduction in time period 1961-1998, after in 1961 it was 167.600 acres and in 1998 it was 146.500 acres (Ministry of agriculture 2003). In any case exists prospect for the production of table grapes and their contribution Greek rural economy, as those grapes that are intended for wine production.

The problems however that exist are that many of vineyards cultivates are old enough and they have economically depreciated a lot of years ago. Other major problem is the technique which is used in the vine-growing is anachronistic, but exists also the problem of intense competitiveness and big supply that prevails in the international market (N. Zjoga, D. Delis, K. Shortsanitis, Athens 1992).

Thus, in connection with the private initiative that was practiced it will be supposed to contributes also the co-operative activity and to develop:

1. Required building and mechanical equipment
2. Their aquatic resources, that remain very little
3. The growth of manufacturing co-operative units of wine industry, as well as the growth and the more effective organization of co-operative marketing.
4. The way of benefit of required work, the output and the quality of work.

From the other side the Corinthian grape presents negative elasticities This can be owed in unfavorable meteorological or even in the reduction of extents, that in 1961 was 428.360 acres and in 1998 was 195.644 (Ministry of agriculture), but mainly it is owed in that the demand in the international market does not appear encouraging tendencies, even if the Corinthian grape constitutes exporting product, because the internal consumption absorbs small part of production. However exports present stagnation period 1982-1987 (KEPE, Reports 25 Athens 1991). Soultana presents negative elasticities of supply as for the price. Soultana mainly plays big role in the Greek rural economy and in the regions of Crete. The number of extents presented small reduction, after in 1961 it was 274.700 acres and in 1998 it was 26.354 acres (Ministry of agriculture). The development of exports presents ascendant tendencies and it has possibilities of prospect and increase of exports, contrary to the Corinthian grape, particularly to the countries of E.E.C. and this because the Community market covers only the 50% of her needs for Greek soultana, which almost in total is exported in the countries of E.E.C. Also, exists big competition from third countries, but the Community measures protected the product in satisfactory degree.

7.DRY FRUITS

The dry figs present negative elasticities of supply. The 94% almost of total production are produced in the prefectures Messinia, Arkadia, Lesvos, Evia and Lakonia. The domestic consumption is covered by the production and the quantity that remains indisposed in the end of campaign is led for alcohol production. The dry figs have been included in the Common organization of market of remade vegetables. Thus, according to Regulation 426/1986 the status of common organization of market of dry figs forecasts:

1. Minimal price of producer that is determined before the beginning of each campaign, with base the minimal price that was in effect at the previous campaign that is 1 July until 30 June) and for the grapes (1 September until 31 August).

2. Aid to the manufacturers that have bought to transformation product in the minimal price of producer, at such way that it allows his disposal in the Community market and it maintains his competitiveness against the price that offer the third

TABLE 9

DRY FRUITS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
DRY FIGS	-0,123	-0,18
ALMONDS	0,159	0,25
WALNUTS	-0,0046	-0,016
PISTACHIO-NUT	0,655	0,69

countries. In order to determined this aid, is taken into consideration the aid that had been overwhelmed the previous campaign, adapted at such way that is taken into consideration the development of minimal price of import, the price that offer the third countries and the development of cost of transformation.

3. Reinvestment of quantities of two last months of campaign that was not sold. And be bought in the minimal price that was determined in the beginning of period of marketing that becomes from the organisms of reinvestment, on behalf of the E.E.C. 4. For the case of quantities that are sold in the organisms of reinvestment in prices lower than the price of market, is granted by the E.E.C. pecuniary compensation that covers the difference between price of market and price of sale.

5. These measures are also in effect for the dry figs and for the grapes. The price of import is in effect only for the grapes, that are shaped by the E.E.C. aiming at the protection of Community production. If is also not observed this price beyond the duty, is applied equalizing contribution, that is calculated with base prices that are in effect in the most main suppliers third countries. The number of Almond trees presented increase up to 1983 and then reduction in the 8.870.992, that was in 1998, that is owed in the abandonment of culture of aged trees. The year of beginning for almonds is the 5th, the depreciation time is 20 years and the coefficient of depreciation is 5,0. Still a problem is that the inflationist phenomena that happened the last 20 years they mainly affected the full of trees cultures that it involves enormous economic tax of economic results with high interest and big depraciations. (N. Zjoga, D. Delis, K. Shortsanitis, Athens 1992). Consequently, is judged essential the installation of new plantations in replacement of old plantations, that in any case is in effect in all the multi-annual plantations. Are still necessarily judged the determination of areas of almonds culture and modernization of plantations with the application modern technical and technological methods. Still an other basic problem is the disposal of product in the markets of abroad, because the high competitiveness, mainly the California of U.S.A. Consequently, becomes obvious the need for co-operative growth of treatment and marketing of tonsils.

Walnuts presented increase in the number of trees, that from 1.138.704 that was in 1961 reached the 2.216.252 1998. production remains the almost stagnant from 1983 and afterwards (see table 8 Annex 1). Domestic consumption is covered by the national production, while certain time intervals can present lacking in the market and thus the country it proceeds in imports. The important thing that it should be said is that walnuts flourish also in the mountainous-semi-mountainous regions, but also in flat regions. Important however is that it can exist prospects to be developed the mountainous regions aiming at the decentralization, that also constitutes henceforth imperative need in the last years.

Pistachio-nut presents positive elasticities of supply. The number of trees has been increased considerably, from 1961 that was been 231.738 in 1998 was increased in 1.034.818 (Ministry of agriculture 2003). The production presents constant increase and it covers the domestic consumption, while a small part of production is exported. The production has positive prospects, because is observed an increased tendency for demand of this product, but also because of the high prices that enjoy the producers. The production could be still more efficient if are replaced the old plantations from new, be absent small cutting-pieces that do not allow the best and the most effective exploitation of productive factors, but to being also disappeared the inflationist phenomena that affected mainly the full of trees cultures, as I reported previously.

8. FRUITS

TABLE 10

FRUITS	SHORT-RUN	LONG-RUN
	ELASTICITIES	ELASTICITIES
APPLE -TREE	0,139	0,156
PEAR-TREE	-0,317	-0,85

The number of apple trees presented small increase in the period 1961-1998, from 5,950.600 that was in 1961, they reached 6.444.586 in 1998 (Ministry of agriculture). Already, from five-year period 1981-1985, the number of saplings that was planted was bigger than that eradication. This means that apple cultivate began to be intensified with the extension of dense plantings and the configuration of trees of low form, that decreases the cost of production and increases the output per acre. The production presents fluctuations because of the unstable meteorological conditions at the critical stages the flowering and fruition. The 70% of production are the red varieties with sweet flavor, while very small is the attendance of other light colors and green varieties with sour flavor. The apples that are produced in the mountainous and semi-mountainous regions have most excellent quality (as the apples of Pilion), but the plantations are sparse-planting so that increase the cost of production, but also very important is that they increase the cost of transport. Thus, by the total of plantations of apple tree the 41% are cultivated in mountainous regions, the 40% in flat regions and the 19% in semi-mountainous . From that we see therefore, a big percentage of production it emanates from the flat regions. For this one of the objectives of I.M.P.. (Integrated Mediterranean Program), is the shift of these cultures to the mountainous and semi-mountainous regions. The quality of apples of red varieties is downgraded and for this a lot of quantities is led to the withdraw the countries of Western Europe makes imports in apples, mainly the greens or light colors varieties of sourish flavor and a very small part of this imports constitutes the red varieties. This part exploit France and Italy, that produces most excellent quality apples with lower cost, but also because distance, is also overloaded with less expenses of transport. For this reason Greece can rival this countries in the market of Europe, as impossible are also the exports to the countries of Northern Africa, because these countries prefer to be provided with apples of other countries, as Turkey. Moreover, the possibilities are developed the being redundant quantities for juice production are very limited, because the third countries and mainly the countries of Eastern Europe offer apples for juice production in prices lower and from the prices of withdraw. Nevertheless, all the above problems should become the training and the application of national cadastre, the determination of areas of apple tree and shift of

cultures from flat to the mountainous and semi-mountainous regions, that can give solutions in the decentralization, as I reported more.

The production of pear-trees marked fall that was owed basically in unstable meteorological. The cultivated extents marked a small reduction, because of the extirpation of old and aged trees, but also the simultaneous planting of new saplings. Other fundamental cause of reduction of production that was played considerably in period 1986-1998 is also owed in the disability of reduction of cost of production, that arises from the increased farming cares that are required, as well as that did not become application of dense plantings with the parallel configuration of trees of low form, so as to constitute the culture most competitive. We should say that when we were reported in the trees of low form, we mean that they can become more competitive, because the depreciation begins earlier, concretely from the 4th year, while the high form is the 5th, and consequently their fruition begins in a earlier stage. Of course, the one year can have enormous difference, but important is the difference in the collection and the harvest, which becomes easier in the case of trees of low form. This is in effect for all the full of trees cultures. Also, important cause of reduction of production is the appearance of illness with the term "bacillary burn", which in certain regions tends to exterminate peer tree cultivates, so that it has it discourages a lot of cultivators (KEPE, Reports 25 Athens 1991). The production of pear-trees is directed in the cover of needs of domestic market, while the prospects for increase of exports are limited because the powerful competition of other states of - members of E.E.C.

Generally, we can say that the problems that it faces the sector of plant production is:

1) As we said in the first chapter one of the problems of this sector is multi rural exploitations, the composition of age of working rural potential, that his big percentage is aged, as well as the low level of education, renders difficult the application of modern technology thus, in order that the level of technology in this sector falls short concerning other states of the E.E.C. This is also in effect for the other sectors of rural sector.

2) The downgraded grounds of mountainous and semi-mountainous regions that constitute the 30% of agricultural ground.

3) The no complete exploitation of watering resources. Even if as we saw in the first chapter the percentage of irrigated extents it is presented increased, concerning that of drying extents that is presented decreased, but should become also other efforts.

4) The policy of prices and incoming aids leads many times to the error street the farmers with result the productions develop independent the internal market and the possibilities of exports.

5) The high cost of production, mainly for the full of trees cultures, because are absent the big agricultural exploitations, the lack of right land-planning distribution, but also the high cost of transport, mainly for the removed mountainous regions, has as result the reduction of competitiveness.

6) Also, the no uniform time distribution of product to the requirements of consumers is an other problem. The composition of varieties of mainly full of trees, is such, in order that the production overlaps and it is assembled in a small time interval, with result the weakness of cover of needs of market in the other time periods, but also with result the restriction of exports.

7) Last problem and very important is the lack of work of infrastructure, as stocking spaces, wrapping centers, etc.

9. VETERINARY PRODUCTS

TABLE 10

VETERINARY PRODUCTS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES	VETERINARY PRODUCTS	SHORT-RUN ELASTICITIES	LONG-RUN ELASTICITIES
BOVINE MEAT	-0,174	-0,4	PIG MEAT	0,0101	0,027
SHEEP MEAT	0,0983	0,128	COW MILK	0,00497	0,032
GOAT MEAT	0,0256	0,117	SHEEP MILK	0,0029	0,028
POULTRY MEAT	-0,0261	-0,56	GOAT MILK	-0,00408	-0,156
RABBIT MEAT	0,084	0,17	EGGS	0,0054	0,025

BOVINE BREEDING

The total production of bovine meat presented fall (see table 12 Annex 1). Roughly the 30% are cows and from them the 80% roughly are cows of lactation. Reduction of production is owed in the structural and technical problems, as the units of small size, lack of work of infrastructure, as well as in the strict policy of sections that was applied in the products of sector, as the low market prices in the bovine meat and in most dairy products, the not imposition of duties in imported from the Community similar products (KEPE, Reports 20, Athens 1991). The mean output was increased in 221 kilos/animal in 1998, from 107 kilos/animal that was been in 1962 and the milk from 787 kilos/animal that was been in 1961 it was increased in 3.455 kilos/animal in 1998 (Ministry of agriculture 2003). Also, reasons of reduction of production are the following:

1) Many of the bovine boarding stable installations are constituted by old buildings, many from which they do not fill the terms of healthy stable animals. Of course, the last years in the sector of installations of equipment was marked important improvement with the creation of young persons and with the extension of existing bovine boarding units.

2) Does not exist co-operative attendance in the primary production of sector bovine board. Those that exist are few and they serve bovine board farmers only in the lending and in the supply of forages. Generation the co-operative organizations are absent from the programs of genetic improvement of bovine population of country and from the marketing of local animals of reproduction.

Greece is deficit in the bovine meat burns the cow milk, after in 1974 the self-sufficiency in the bovine meat was 81% and in cow milk 68% and 1985 was decreased in 37% and 45% respectively, while it continues decreasing continuously with parallel increase of demand for these products. Also, according to the ministry of agriculture the trend of increase of production of meat and cow milk is bigger than the trend of increase of prices of E.E.C. and bigger than the prices that enjoy the producers, so the difference is covered at a part by economic aids. It should be marked that the economic Community aids that concern the investments in the sector and the support of income of producer, and that began to be applied from 1983, are those that led to stabilization of sector. However, with the tour of Uruguay and the pressures that they practice the third countries to E. E. C. change the data.

The transactions of animals become in the installations of mainly producers. In the circuit participate the producer, the wholesaler, butcher and finally the co-operative

organizations. Existing slaughterhouses are distinguished in traditionally and simultaneously. Traditional do not allocate the required equipment, the facilities of storage and exploitation of by-products, with result the slaughter of animals in this slaughterhouses does not become regularly, is observed low productivity of work etc. In any case it should be said that in the circuit of treatment and distribution of bovine meat the presence of co-operative organizations is insufficient and insignificant.

The internal consumption in the E.E.C. is almost 25 kilos/individual and occupies the second place in the consumption afterwards the pork meat. The self-sufficiency of E.E.C. in bovine meat was 105,3%. Exported to third countries 805.000 ton, but imported 446.000 tons, that are owed in the bilateral and multifaceted agreements that E.E.C. signed with third countries, and that force it to import important quantities of bovine meat.

Generally the common organization of market of bovine meat supporting in basic regulation E.E.C. 805/1968 and has as follows:

1) The price of orientation, that is the sought price of producer and is in effect for annual commercial period, from first Monday of April, and which is determined with base prospects of development of production and consumption of bovine meat, the situation of market dairy.

2) The price of intervention of that is the 90% of price of orientation. If the prices of market fall under the prices of intervention then they are received measures of intervention, at which it is purchases that are realized by the organisms of intervention.

3) At the import of cattle is imposed, beyond the duties, compensatory contribution, that the height of this contribution is the difference between the price of orientation and price in the borders of Community, overloaded with the customs duties.

4) Economic aids that aim at the support of income of producers. From the beginning however of 1987 the system has changed considerably, aiming at the reduction of prices of intervention and the reduction of interventionist reserves of meat. Similarly the common organization for the cow milk and according to Regulation E.E.C. 804/1968 aims:

A) Determination each year of price in the producer that would ensure satisfactory income. The price is in effect for the dairy year that begins 1 April.

B) The price of intervention that is the 95% of indicative and concerns also the other by-products, as the butter, the lean dust.

C) The price of such threshold for imported in level that they do not rival the dairy products of Community. If therefore the imported similar products are offered in lower price than the one that is in effect in the interior of Community is imposed compensatory contribution. In the products of Community, by the other side, is granted subsidy of export, when the international prices of are lower than those of Community.

D) For the confrontation of imbalance in the market of milk, that is caused by the increased supply against the demand have been taken measures that aim so much in the reduction of supply, such as in the increase of consumption and disposal of surpluses that is created. For the reduction of supply have been taken two measures:

· The first line is reported in the reduction of number of cows of lactation, as is the subsidy for their slaughter, according to Regulation E.E.C.. 1975/1969, the transformation of herd from milk-production in meat-production, Regulation E.E.C. 1353/1973 and subsidy on the not marketing of milk - dairy and transformation of herd, Regulation E.EC.1078/1988 and 1391/1975.

· The second line includes measures that aim in the reduction of milk that is sold. Thus therefore, with the system of quotas are forecasted certain maximum quantities of milk that will be delivered in the industries, as well as maximum quantities that will be sold directly in the consumption by the producers.

BREEDING OF SHEEP AND GOATS

The breeding of sheep and goats presents perhaps the bigger importance than all the sectors of animal production. In 1985 participated at 44% in the gross value of animal production[9] and in 1998 it reached it participates almost at 56%. Main characteristic of the production of this sector is that is usually raised in small familial exploitations of traditional form. The positive element is that the ovines they are adapted very well in the landing-meteorological conditions and develop extents that are not suitable for other use. For their production are not required the complete employment of workforce and constituting important supplement of familial income.

From the sheep the 90% almost are pastoral and a 10% are boarder. From the goats 80% almost are pastoral and 19-20% almost are boarder. As pastoral are raised animals of domestic races that are plain dieting, durably, but have small output in meat and milk. Certain races however from the sheeps, as the Hiotiki, the karagouniki and that of Frislandomorpho sheep of Arta, they are distinguished for their high lactation their polidemia.

By the goats, as domestic are raised races of foreign origin, as the Zaanen, the Alpjna, the Malteziki etc. The advantage is that all the population of goats and sheep because the differentiation in the output, has margins of genetic improvement. (KEPE, Reports 20, Athens 1991).

As in bovine breeding, so as in the breeding of sheep and goats, the conditions of stock farming are thus not considered satisfactory. Thus, sectors that present problems are diet of animals, the stabling and veterinary care. The sheep anf goat breeding exploitations are distributed mainly in the mountainous and problematic regions, that constitute the 80% of total extent of country, according to Directive E.E.C..148/1985. The small weight of carcasses is owed in the preferences of consumers, that pay finally very superior prices for meat of animals of small age, as well as the conditions of production. Concretely, the races of animals that are raised are mixed output, that has as main direction the lactation and does not give good quality of carcasses of big age. The sheep and goats are slaughtered small in order to is increased the production of milk and simultaneously because do not exist their possibilities of fattening with economic way and because of the insufficiency of forages. Consequently, does not exist wide distribution of modern technique of fattening lambs, so that we did not exploit the rapid augmentative faculty of young animals and we finally have important losses in the production of meat. The imports of meat of sheep and goat from the countries of E.E.C., concern mainly the frozen meat, that does not rival fresh, and mainly the sheep and goats of milk (the known cossets of milk), because the big qualitative difference that distinguishes them. The imports however of fresh meat in Greece and mainly sheep, it concerns countries from the neighboring third countries, as Yugoslavia and Bulgaria.

Exports can become, because the cost of production is high concerning the other countries of E.EC., as well as with the international prices. In the case of sheep's milk we see from table 11 that the elasticities of supply as for the price are positive, while the elasticities for the milk of goats are negative. In any case, the self-sufficiency in sheep and goat milk reaches the 100%. This fact in connection with that are not becoming imports of sheep and goat milk and cheeses, are explained in that the dairy products from sheep and goat milk face competition from similar products of cow however milk, or domestic or imported, for the reason that they are offered in the consumption more cheaply. In any case the prices of producer present constant augmentative tendency in the time period that we examine, 1961-1998. In the sector of marketing of sheep and goat meat are presented problems because :

· of big number of producers, from that the most are assembled in mountainous and unfavorable regions

9. See table 7 in Annex 1. the gross value of production is not nothing other than the price of product on the quantity that was produced.

· of big rate of auto-consumption and disposal of product from the producers and

· of high cost of slaughter in the slaughterhouses.

The Common organization of market in the sheep and goat meat functions from the 20-10-1980 with base Regulation E.E.C. 1837/1980. Each year, before the beginning of campaign, that begins first Monday of January, is determined the institutional price of base, the institutional price of intervention of that are the 85% of price of base, the derivative price of intervention, as well as the way of seasonality of these prices, the weekly heights, at the duration of year. For the support and the regularization of market the measures that are forecasted are:

· The arrangement of purchasing intervention, which can be applied only in the states - members that apply national system of classification of slaughterhouses

· the bounty in favor the producers of sheep and goat meat and are overwhelmed in all the regions of Community, from the moment where the medium annual price of market in a region is shaped in level inferior from the price of base, and has as aim the compensation for the cover of income of producers. The arrangement of transactions with the third countries, that are based on a total of contributions and duties, as well as on the agreements of self-restraint that has signed the Community with twelve third countries. More concretely, the Community fixes the contribution in 10% of value of imports fresh and frozen of sheep and goat meat, while the third countries undertook the obligation to observe the quotas of exports to this.

On the other hand the sheep and goat meat does not depend in Common organization of market, because the Community in total is not big producer, but also because are not presented problems of overproduction and excessive supply as it happens with the cow milk. The measures however that are taken for the cow milk and its products, is natural that they influence also the market of sheep and goat milk of datum, after substantially it is similar products. Consequently, the indicative price that is determined for the producers of cow milk is also used for the determination of indicative prices and in the sheep and goat milk. The indicative prices play regulating role in the market of ajgopro'vejoy milk and in the substance the prices of producers being in the law of supply and demand. The result is the indicative price of sheep's milk counterbalance with double the price of cow and goat with the 2/3 of price of sheep's. The result is that the income of producers of sheep and goat milk in the Community have bigger income than the Greek producers, because the big output of animals and the more favorable conditions of production. Also, the consumers prefer the cow milk and its products, because they offer more cheaply, but this has also long-run consequences, because with this way it contributes also in the modification of model of consumption. The economic aids in the breeding of sheep and goats concern the investments in the sector and in the support of producers. More concretely:

· In the base of Regulation E.E.C.. 797/1985 is strengthened the foundation, improvement and the extension of breeding of goats and sheep exploitations in existing agricultural exploitations, up to height of investment 12 millions of Drachmas for individual institutions, up to 35 millions for collaborating institutions and in 80 millions in collective institutions. Are strengthened all the activities, as the stabling installations, the mechanic equipment, the supply of animals of reproduction etc.

· The program in base of Regulation E.E.C. 1975/1982 is applied in the mountainous and unfavorable regions of 22 prefectures of country with the same terms and conditions, the same height of investment and aids that fixes Regulation 797/1985, with alone difference that is not strengthened the supply of female animals of reproduction. Also, with Regulation 797/1985 are strengthened in the mountainous and unfavorable regions of country, collective activities for the improvement of pasture lands and the production of forages

· With regulation E.E.C. 355/1977 are still strengthened the marketing and transformation of veterinary products

·Also, are strengthened the foundation of breeding of goats and sheep exploitations of modern technology and enterprising form with Law 1262/1982 “about motivates”, exclusively from national resources.

SWINE BREEDING

The swine breeding began to be systematic in 1960. Were founded a lot of pig raising units, what they were improved continuously. While they were increased therefore the familial units, at the same time began the foundation of big enterprising pig raising units. On the systematic units the diet of pigs is based mainly on the maize, which the stock breeders supplied it by the co-operative organizations. The stables are modern with suitable environment of hygiene. A lot of units of enterprising form are vertical organizing, that is to say exist the units of stock farming, production of mixes of forages, slaughterhouse, sausage making, shops wholesale and retail sale. The biggest part of production of pork meat emanates from the systematic stock farmings. The pig raising exploitations are separated in three categories:

§ Units of industrial type that occupy agronomists and veterinarians

§ Units of familial type, with 40-120 nursing sows and

§ Units of villager type, with 1-35 nursing sows.

The production presented very big increase from 1962 as and 1987 (see table 5 Annex 1). Then however marked a small reduction until 1998. One from the reasons of reduction is the pressure the strict sanitary and urban provisions, that forced certain units to close or to decrease their production. The prices are shaped in three phases of distribution: from the producer, the wholesaler and the retailer. The price of producer is shaped freely, with base the supply and the demand. The demand is also influenced by the prices of other goods of meat, as well as by the feasts and the seasons. For example sure will be increased the consumption of meat at the feasts. Easter however is increased more the demand for sheep and goat meat, after beyond that Easter is feast, constitutes however the lamb in connection with Easter the maintenance of our deliveries. Certain cattle-breeders allocate their production in their own butcheries and thus achieve constant and satisfactory prices.

The imports in Greece from third countries have been decreased. The prices of import from the countries of E.E.C. are at 4-5% more inferior than the domestic prices, but third countries have offered meats as at 50% of more cheaply domestic. The E.E.C. was forced to pay big contributions in this countries, as were Bulgaria and Hungary. The imports in prices that cover the cost of production create only competition, while the imports in prices dumping[10] place in danger the viability of domestic enterprises. Of course, still complete substitution of imports it is easy to be achieved, because the domestic production can still cover the needs of the sausage making and cannery. With regard to the co-operative organizations they disappear in the sector of distribution of production. Thus, the sale of pigs as living carcasses and the lack of work of infrastructure, create big difficulties in the application of right marketing, consequently the appearance of many intermediaries and with final result the difference between the prices of producer and retail prices to be many times important. Of course, we should stress that the Greek consumer prefers the fresh pork meat, that comes contrary to the other countries of Europe, because it does not entrust the cold meat. (KEPE, Reports 20, Athens 1991).

10.To dumping it is the most banal form of discrimination of prices in the international trade Substantially it is billing practical, at which a enterprise debits lower price in the exported goods from the one that debits in the same goods that are sold domestic. With few reasons the imports in prices dumping will be lower than the domestic prices, with danger the not viability of domestic enterprises. (Cf. Paul R. Krugman and Maurice Obstfeld, International Economy, Theory and Policy, Volume A, Publications Critical Scientific library, Athens 1995, page 208-212).

The swine breeding constitutes one from the most important agricultural sectors for the countries of E.E.C.. and for this reason, immediately after the foundation of E.E.C.,. the pork meat was included in the Common rural policy. According to basic Regulation E.E.C.. 275/1975, are taken for the swine breeding the following measures:

§ private reinvestment

§ the subsidies of exports to third countries

§ the price of dam, that is determined each quarter

§ the compensatory contribution, that is determined and this simultaneously with the price of dam and overwhelms it each importer from third country

§ the additional compensatory contribution, that is imposed in each third country that imports the countries of E.E.C., when the prices of import are under the price of dam. The integration in the arrangement of E.E.C., ensured Greek pig-breeders constant regulations that allow long-run planning of production. The measures that are taken, as the price of dam, the compensatory contribution and the additional contribution, it ensures sufficient protection in the Community and Greek producers.

POULTRY

The production of poultry showed increase until 1992 and then presented fall until 1998 (see table 5 Annex 1). The main factors that can limit this production are the demand and the competitiveness of products of this sector. The production of dawns presents also this increase up to 1990 and then marks a small reduction (see once again the same table). From 1970 Greece is self-sufficient in eggs and from this year began exports, small quantities, Sumerian surpluses, mainly to the Arabic countries. For the eggs thus and for the poultry, Greece is general self-sufficient.

The great units, from the opinion of building installation and constitution, as well as mechanical equipment, correspond in the modern requirements of zoo techniques, do not correspond however the small and medium enterprises. The co-operative organization in this sector is developed, exists margins for the complete cover of production, treatment, standardization, marketing of poultry. The supply of forages and remaining supplies from co-operative organizations, is not proportional with the needs of members. The Common organization of market for the products of this sector includes:

§ Free configuration of prices with base the supply and demand

§ Freedom of imports of - exports, so much between the countries of Union, such as between the Union and the third countries.

§ Protection from imports of third countries with the system of price of dam and compensatory contribution

§ Subsidy of exports

§ Rules of standardization and healthy

§ Rules of production and marketing of eggs of incubation and nestlings.

Consequently, we can say that the free configuration, the freedom and the subsidy of exports to the third countries encourage the domestic production, with the simultaneous Community protection that is applied with the imposition of duties in the imports with the system of dam and compensatory contributions. The subsidies, that are forecasted according to Regulation E.E.C. 355/1977, on the foundation of work of infrastructure, as well as the organization of unions of producers for the application of common rules of production concentration of production and the preparation for the sale and the supply of markets of wholesale sale have as result of improving the conditions of treatment, standardization and marketing of products of this sector.

RABBIT BREEDING

Finally, we have the development of production of rabbits and generally the rabbit meat. We should say that the rabbit constitutes product of limited demand. The production remains constant and does not become neither imports neither exports. Production emanates at the 85% almost from the territorial form, that is intended mainly for auto-consumption and a 10-15% emanates from systematic rabbit breeding. The problems of this sector is the decreased output (Ministry of agriculture 2003), that is owed in the insufficient knowledge of rabbit breeding and in illnesses.

GENERAL PROBLEMS OF LIVESTOCK-FARMING

The problems of animal production arise, so much from natural predicaments, such as from policies that were followed. The landing-meteorological conditions of Greece are not also particularly suitable for the growth of certain sectors of livestock-farming. Dry and hot climate[11], as well as the poor mountainous and semi- mountainous grounds, do not allow the improvement of acclimatization, mainly the big animals, the cattle, but also not allow the existence of extensive natural pasture lands, suitable for bovine breeding. The diet of animals becomes obligatorily mainly with produced forages. The culture of efficient veterinary plants requires mainly flat and irrigated extents, that is attributed in other species cultures, as the cotton and the sugar beets. The forages constitute a big part of total cost of production that is 50% and can reach until the 80%. Moreover problem with regard to the precedent it is that in Greece is often not ensured the connection of livestock farming with the territory.

Result is not ensured the diet of animals with gross forages, what emanates from cultures of veterinary plants, from which most important is midiki. Main characteristic of these forages is that they are cheap, have very good quality and they ensure in the animals essential proteins. Thus therefore also the policy of prices that was followed until 1980, with the establishment of maximum prices for the withholding of price index, took into consideration the cost of production, but also the parallel release of imports in periods of peak of demand led the course of domestic prices under the cost of production. The E.E.C. established at the same time also the negatives M.E.A (Monetary equalizing amounts) which can have favorable effect in the withholding of prices of consumer, but simultaneously they tend to promote the merchantability of imported products from countries of E.E.C.and consequently they harm with this the corresponding domestic sectors. All the above and in connection with objective predicaments that were reported, had as result the conditions of stabling, the methods of stock farming, the professional knowledge for the stock farming and the production of more generally animals, the technical support of sector, the healthy situation of animal chapter and his genetic level to remain in low levels. The infrastructure of marketing and transformation, and mainly the meat, as well as the co-operative action, that could blunt and decrease the consequences of structural imperfections, they are not still enough developed.

11.In according to the models of forecast of meteorologists and the director of National Observatory Athens, Mr Dimitri Lala, (until 2100) is that the temperature in Greece it will be increased, and is considered more likely Greece it is pestered by high drought, contrary to countries of northern Europe, that will be pestered by intense storms and rainfalls, as well as that in Greece will be decreased also the rainfalls (see for more details in the Greek newspaper “NEWS” of Sunday of 12 January 2003, OFFERING “the meteorological phenomena in Greece”).

10. ANALYSIS FOR THE MULTI-ANNUAL CULTIVATES AND VETERINARY PRODUCTS

The elasticities that result according to this model are almost similar with those that resulted from the model of adaptive expectations. If that is to say the statistical inventory of full of trees cultures includes also the new saplings that hardly they begin to attribute somehow, then reason are this trees to need time of adaptation of more his one year. From the veterinary products we distinguished the bovine meat and the poultry. According to the results the short-run elasticity does not differ and a lot from the elasticity that we found initially. More concrete the short run elasticity is –0,19. According to the first version, if that is to say the $\delta = 0,125$ and $\gamma=0,596$, then this means that the adaptation of prices becomes in very short time interval, without the proportional adaptation of production. That's why the long-lasting elasticity, according to this version, is –1,52, elasticity flexible and negative. With few reasons if the price is increased at one unit, the production will be decreased at 1,52, at sum of that is to say bigger unit. According to the second version, if the $\delta = 0,596$ and $\gamma=0,125$, then happens precisely reverse from that it will happen higher up.

Very likely happens the first version, that would be owed in the make that production of beef meat needs more from one year. It is also most reasonable because it is little improbable does not exist adaptation of price. This moreover it explains also the fact, that the production of bovine meat in Greece passes crises, so much because do not exist organised units of stock farming, what the co-operative organisations do not proceed in right economic planning in the sector of transformation and marketing, so that is increased also the cost, what because exists big demand for bovine meat as well as big competition. Thus, the estimate with the method of minimal square is good. The regression with the method of maximum likelihood gave similar results. For the case of poultry was applied the method of maximum likelihood and distinguishes two cases. For the first case the real adaptation of the production desirable is completed almost in one year, where $\gamma = 0,93$, while the expectations as for the price in a desirable level requiring interval of bigger the one of year, where $\delta = 0,97$. This means that if the price is late it is adapted, then at sequence delays also the adaptation of production. If that is to say the farmers do not know or they can't adapt the price in one valid and favourable interval, then it's reasonable to be impossible to adapt also the production, after they finally do not know her prices that can prevail in the market. The free configuration of price with base the supply and the demand do not encourage the domestic production, that are also owed in the reductions of mainly duties, because of the agreements that were achieved on the Uruguay Round and of more general pressures of other third countries for release of international trade and the suppression of duties. At the second case, when that is to say δ = the 0,93 and $\gamma=0,97$, result same conclusions. In any case what should it is marked is that the short-run elasticity that results from the model that we examine it is bigger than the one that we found from the model of adaptive expectations, -0,18 and –0,026 respectively. The long-run elasticity is much smaller than the one that we found initially. While we it calculated as –0,56, now results as –0,185 or –0,19. It is similarly with the short -run., -0,18.

For the meat of goats, we see that the short -run elasticity that results from this model, (See in annex) is bigger than the one that we found in the beginning. Now the elasticity of supply as for the price is 0,142, while previously we found it 0,0256. According to the first approach, that is to say the $\delta = 0,8965$ and $\gamma = 0,765$, means that the adaptation of the real production in desirable is realised in interval of little smaller one year, ($\gamma=0,765$), and the expectations for the adaptation of prices in the desirable level, needs time more of one year. If $\gamma = 0,8965$, this means that the adaptation of production in desirable level needs time bigger, while the expectations for the adaptation of price in the desirable levels require smaller time than that before.

In order to see also the case of certain multi annual cultures. One of them is the grape soultana. With method of regression with instrumental variables, we led to the following results. The short-run elasticity is -0,146, almost the same, if no precisely the same with the long-run elasticity that we found previously. Consequently, if $\gamma = 0,9655$, means that the

adaptation of real production to the desirable level is completed almost in one year, while the expectations for the adaptation of price to a desirable level it is required more by one year that is to say δ=0,855. If reversibly, γ = 0,855 and the δ = 0,9655, we have similar conclusions.

From the category dry fruits and concrete walnut we have once again two cases. If γ = 0,996 and the δ = 0,294, is completed in one year the adaptation of real production to desirable, and simultaneously the adaptation of price to desirable, requires a time interval of enough smaller of one year. As the long-run elasticity is
–0,51, enough bigger than the elasticity that we found previously that was –0,016. Of course should we stress that also the short-run elasticity is –0,15, which is enough bigger than the one that we found initially that was –0,0046. According to the other version the adaptation of real production to desirable is completed in interval of smaller one year, while the expectations, δ=0,996, for the adaptation of price in a desirable level requires an interval more of one year. The most likely version appears to be first, as the production remains stagnant. Walnuts while it can play a decisive role and dynamic presence in the decentralisation, after it can flourish the mountainous and semi-mountainous regions and simultaneously present prospects of increased demand in the abroad, appears has been achieved something the substantive, after also the production remains stagnant from 1983.Also, it seems that , these regions were not developed and finally the farmers haven't been interested for the future improvement and extent of this specific cultures.

From fruits we preferred the pear-tree, after it presents negative elasticity of supply as for the price. The short- run elasticity that resulted from the model (see in annex) is –0,25, while the one that we found previously it was –0,317. If now γ = 0,969 means that the adaptation of real production to desirable level is completed in one year roughly, while the expectations for the adaptation of real price to desirable level it requires time interval of much smaller of one year, δ=0,129. According to this version the long-run elasticity that results is –1,93, while with the simple model of adaptive expectations we found it was –0,85.

The second version supports that if γ = 0,129, the adaptation of production is completed in interval of much smaller of one year, while if the δ = 0,996, then the expectations for the adaptation of price in a desirable level requiring more than from one year. The most likely version is first, after the adaptation of price it is almost impossible to become without it becomes the proportional adaptation of production.

Generally, we can say that the short-run elasticities of supply as to the price oscillate between the 0,002 and the 0,4, with minimal exceptions of elasticities that are bigger, as pistachio-nut with elasticity of supply, 0,6 almost. The long-run elasticities oscillate from 0,2 until 0,4 with exceptions the elasticities that oscillate in bigger levels, as the sunflower and the tobacco of type Virginia as well as the elasticities that oscillate in smaller levels.

ANNEX

Model of dynamic supply of Nerlove results of following:

$$\mathbf{Y^*_t = \alpha_o + \alpha_1 P^*_t} \quad \mathbf{(1)}$$

$$\mathbf{Y_t - Y_{t-1} = \gamma(Y^*_t - Y_{t-1}),} \quad \mathbf{where\ is\ valid} \quad 0 \le \gamma \le 1$$

$$\mathbf{P^*_t - P^*_{t-1} = \delta\ (P_t - P^*_{t-1})} \quad , \quad \mathbf{where\ is\ valid} \quad 0 \le \delta \le 1$$

and final is:

$$\mathbf{Y_t = f\ (P_{t-1}, Y_{t-1}, Y_{t-2}),}$$

$$\mathbf{Y_t = \alpha_0\gamma\delta + \alpha_1\gamma\delta Pt_{-1} + (2-\gamma-\delta)\ Yt_{-1} - (1-\gamma)\ (1-\delta)\ Y_{t-2} + \varepsilon t}$$

, which finally being

$$\mathbf{Y_t = \beta_0 + \beta_1\ P_{t-1} + \beta_2\ Y_{t-1} + \beta_3 Y_{t-2} + \varepsilon_t}$$

And this model however it does not exceed the problems that we reported. Nevertheless, the elasticities that result according to this model are almost similar with those that resulted from the model of adaptive expectations. Also, in enough cases it results that the γ is also bigger of unit, that this can happen, after we stressed more the restriction that the γ oscillates between the zero and the unit. This in any case can be explained empirically that the arborised cultures and certain veterinary products are needed more by one year in order to begin to attribute in the production. If the statistical inventory of full of trees cultures includes also the new saplings that hardly they begin to attribute somehow, then reason are that these trees need time of adaptation more of one year. For the beef meat we have:

As we know we will make following replacements

$$\mathbf{\alpha_0\gamma\delta = 1{,}34} \qquad \mathbf{(1)}$$

$$\mathbf{\alpha 1\gamma\delta = -0{,}0143} \qquad \mathbf{(2)}$$

$$\mathbf{(2-\gamma-\delta) = 1{,}24} \qquad \mathbf{(3)}$$

$$\mathbf{-(1-\gamma)\ (1-\delta) = -0{,}353} \qquad \mathbf{(4)}$$

The process is very simple. We are solving the relation (3) as for the γ and we have γ = 0,76-d. We replace the γ that we found in the relation (4) and we have: (1-0,76+δ) (1-δ) = -0,353 = > - (0,24+δ) (1-δ) = -0,353 = > -0,24+ 0,24δ -δ – δ^2 - 0,353 = 0 => - δ^2 –0,76δ +0,113

= 0 => We will find the solutions with the known method: $(\beta)^2 - 4(\alpha)(\gamma) = 0,5776 - 4(-1)(0,113) = \frac{0,76 \pm 1,01}{-2}$ => $\delta_1 = 0,125$.

We only accepted the positive root. I replace in the relation (4) and we have (1-γ) (1-0,125) = -0,353 = > 1-γ = -0,403 = > γ = 0,596. We replace in the first relation and take: ao*0,125*0,596 = 1,34 = > $a_0 = 18$ and $a_1 = -0,19$. Consequently the final model is:

$\ln Y_t$= 18 - 0,19$\ln X_t$ + 1,279$\ln Y_{t-1}$ + 0,3535$\ln Y_{t-2}$ $R^2_{(adj.)}$ = 93,8% F= 172,76

t-statistics (2,86) (-1,90) (7,42) (-2,36)

D W = 1,71

If δ = 0,125, then the long-run elasticity = -1,52 If however δ = 0,596, then the elasticity = -0,32 We should mark that the regression, that became with the method of least squares, did not present problems of heteroscedasticity, but also there is not existence of autocorrelation.

LnYt = 0,098- 0,18$\ln X_t$ + 0,097$\ln Y_{t-1}$ - 0,002$\ln Y_{t-1}$ $R^2_{(adj.)}$= 98,7% F= 885,65

t-statistics (3,54) (-1,82) (4,06) (1,04)

D W = 1,92

If δ = 0,97 then the long-run elasticity = - 0,185 and γ = 0,93 or δ = 0,93 then long-run elasticity = -0,19 and = 0,97. A criticism that it should we make here, is that the estimate with the method of least squares is not always reliable. The methods that are proposed are the method of least squares in two stages, the method of instrumental variables, as well as the method of maximum likelihood. For the meat of goats we used the method of instrumental variables, where as instrumental variable of Y_{t-2} we took $X_{\tau-2}$ where we had the following results:

$\ln Y_t$ = 2,75 + 0,0974$\ln Xt_{-1}$ + 0,7210$\ln Yt_{-1}$ - 0,064$\ln Xt_{-2}$ $R^2_{(adj.)}$ = 93,3% F= 158,55

t-stat. (2,02) (1,20) (5,20) (-0,89)

D W = 1,63

For autocorrelation became control with the BG test and we were led to the conclusion that does not exist autocorrelation. ρ_1= 0,024, 0,024*(37-1)= 0,864, ρ_2= 0,047, 0,047*(37-2)=

1,645, ρ_3= 0,047, 0,047*(37-3)= 1,598, ρ_4= 0,055, 0,055*(37-4)= 1,815 και ρ_5 = 0,052, 0,052*(37-5) = 1,664. F_1= 0,50, F_2=0,24, F_3 = 0,56, F_4= 0,49 και F_5 = 0,47. The short – run elasticity is 0,142.

a_0 = 4,02 and a_1 = 0,142 If δ = 0,8965 then γ = 0,765 and long-run elasticity is 0,16. If δ = 0,765 and γ = 0,8965, then the long-run city is 0,185.

Let's see now the grape soultana. The regression was been corrected with the model of Koyck, because it presented multicollinearity. With the help of statistical program SPSS, we found that the price of VIF, was found in levels of prices around in 19 with 20, that imply the existence of ρ_1= 0,024, 0,024*(37-1)= 0,864, ρ_2= 0,047, 0,047*(37-2)= 1,645, ρ_3= 0,047, 0,047*(37-3)= 1,598, ρ_4= 0,055, 0,055*(37-4)= 1,815 και ρ_5 = 0,052, 0,052*(37-5) = 1,664. F_1= 0,50, F_2=0,24, F_3 = 0,56, F_4= 0,49 και F_5 = 0,47. The final model, after we made also the algebraic replacements, as we made and previously, will be reported here, after we have presented the all process hardly more in running department of annex, is:

$$LnY_t = 9,75 - 0,146lnX_{t-1} + 01761Y_{t-1} - 0,0037lnY^*_{t-2}$$

If therefore the δ = 0,965, then γ = the 0,855 and long-run elasticity = -0,151 If the δ = 0,855 and γ = 0,9655, then long-run elasticity = -0,17. With similar process we examine from the family of drying fruits, walnuts. The model is

$$LnY_t = 9,95 - 0,15lnX_t + 0,7108lnY_{t-1} \; lnY^*_{t-2}$$

If the δ = 0,996 and γ = 0,294, then the long-run elasticity = -0,15 and if the δ= 0,294 and γ = 0,996, then the long-run elasticity = -0,51.

From fruits we examine the pear-tree and have the final model:

$$LnY_t = 12,55 - 0,25lnX_t + 0,902lnY_{t-1} - 0,025lnY^*_{t-2}$$

If therefore the δ = -0,129 and γ = -0,969, then long-run elasticity = -1,93 and if δ = -0,969 and γ = -0,129, then long-run elasticity = -0,258.

THIRD CHAPTER

MODEL OF ADAPTIVE EXPECTATIONS FOR THE PRODUCTION OF SPONGES

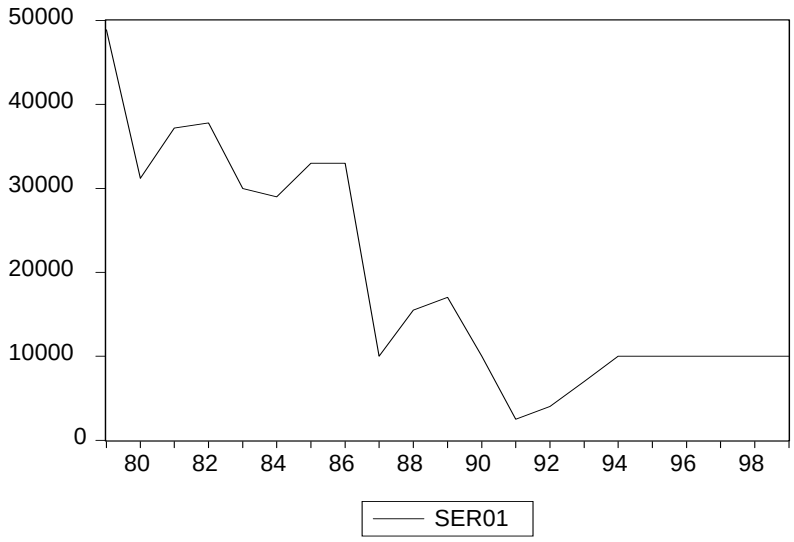
Summary

In the particular article we make a small historical retrospection of development of production sponges, number of ships and employment with the use of simple graph. Then we will present the model of partial adjustment of employment in the production of sponges.

Analysis

We observe that while in 1979 existed a progressive reduction of production, in years 1985-1986, is marked a stagnation until the production is decreased from 1986 in 1987 in the 10.000, percentage of order 69,7%. This reduction is owed, according to the E.S.S.G.., in illness that affected sponges. Nevertheless, in continuity of course of time are observed fluctuations of production, until the production remains stagnant in the 10.000 in period 1994-1999.

DIAGRAM 1



From diagram 1 appears moreover and the diachronic reduction of production. It is finally increased years 1992-1994 and is stabilized in 10.000 in period 1995-1999. With regard to the number occupied it presents fluctuations in all time period 1979-1991, until in 1992 was marked a enormous reduction of employment of order 86%. Then was marked again certain fluctuations, until it is stabilized in 50-60 workers in occupied years 1998-1999. The number of ships presents a relative stability up to in 1991, until in 1992 was observed reduction at percentage of order the 84,5%, precisely the same year that was marked the big reduction of employment. It is precisely the year that was signed the treaty of Maastricht and that sure influenced the piscatorial production and policy.

The model that will be examined here is the model of partial adjustment for the employment. We have the model,

$$L_t - L_{t-1} = \gamma (L^*_t - L_{t-1}),$$

where L symbolizes the employment, the Y the production, the H the number of ships and the lt-1 employment with delay of one year. As making dependent we take the ΔL_{t-1} that substantially is the first differences of Lt. With few reasons it is in effect that $\Delta L_t = L_t - L_{t-1}$. As explanatory we will take the Y, H and $L_{t-1.}$, but also the t and the t^2, that symbolizes the time. The model resulted with the method of least square and was preferred the simple linear model. Problem of autocorrelation and heteroscedasticity did not result. The estimates are the followings

$$\Delta L_t = 13 + 0{,}00092Y_t + 2{,}67X_t + 3{,}72t - 0{,}261t^2 - 0{,}938L_{t-1}$$

t-statistics (0,12) (0,68) (5,03) (0,40) (-0,86) (-6,11)

$R^2_{(adj.)} = 77{,}4\%$ $F = 14{,}01$

As we see from the estimates , the factor of adjustment is 0,938, that means the real adjustment of employment to desirable is completed almost in one year. From the model it appears that the variable, production does not influence considerably the employment, and this explains in that t-ratio of this variable is not big, and consequently this variable is not statistically significant. However, if the employment is increased at occupied, then the production will be increased at 0,00092, while the number of ships is increased at 2,67. In order to, we find the long-run interrelation of employment will divide the variables with the factor of adjustment, $\gamma = 0{,}062$ Thus, we have the interrelation:

$$\mathbf{\Delta L_t = 209{,}67 + 0{,}015Y_t + 43X_t + 60t - 4{,}2t^2}$$

We conclude therefore that the production is not increased considerably also neither will be increased considerably in the future, however will be increased considerably the number of ships. Generally, diachronically the employment I believe that it will present a small reduction.

FOURTH CHAPTER

ELASTICITIES OF DEMAND FOR THE FERTILIZERS

Summary

In this article is examined the role of fertilizers in the agricultural production and concretely is analyzed the elasticities of demand of fertilizers at period 1975-1993. The fertilizers as it is known can play decisive role in the agricultural production and mainly in plant, after the use concerns only this type of production. It does not mean however that it does not influence also the sectors of rural sector. With other words the right growth of plant production, it can contribute considerably and decisive in the production of forages, that constitute surge for the livestock-farming.

ANALYSIS

Consequently, here we will see the interelation of fertilizers that is the following:

$$\ln Q_{\lambda\iota\pi.} = \alpha_0 + \alpha_1 \ln P_{f.} + \alpha_2 \ln P_{w\,i} + \alpha_3 \ln P_{inc.} + \ln P_{t\,-\,1\lambda f.}$$

,where ln it implies logarithm
$Q_{df.}$: demanding quantity of fertilizers
$P_{f.}$: Indicator of prices of fertilizers
$P_{w\,i}$: Indicator of prices of producer without incoming aids
Pinc.: Indicator of prices of producer with incoming aids.
Because the appearance of problem of multicolinearity, we decided to separate the model and to have finally the results. (see Annex).

TABLE 1

ELASTICITIES	Short-run	Long-run
As for the price		
fertilizers	-0,687	-2,85
As for the price of rural products		
without incoming aids	0,645	2,65
As for the price of rural products		
with incoming aids	0,570	2,25

From table 1 it becomes obvious that the elasticity of demand of fertilizers as for their price is negative. Concretely, the short-run elasticity is -0,687, which means if the price of fertilizers is increased at one unit, then the demanding quantity will be decreased at 0,687. So demand is inflexible. The increase of price at 1%, it will least cause reduction of quantity at percentage from 1% and also for the enterprises that sell fertilizers will realise income between 0 and the 1%. They could increase , in the short-run period, the price without having big losses. However, in the long-run period the situation is enough different. In this case if the price is increased at one unit, then the demanding quantity will be decreased at 2,85, that means in this case we observe a big reduction of demanding quantity of fertilizers. With regard to elasticities of demand as for the prices of producers that they enjoy the incoming aids are smaller, so much short-run, such as the long-run, in relation with the producers who not enjoy the incoming aids. This of course can explain that the producers who enjoy these aids, they may have also a bigger comfort, without however this means that they are also more efficient and competitive. As for example, the producers of cotton enjoy big aids, and simultaneously the cotton does not constitute, with regard to Greece, efficient and consequently and competitive culture.

The interelation of demand for fertilizers presented autocorrelation, according to statistics h of Durbin. The model was converted as GLS, where the problem of autocorrelation was finally solved. Also, the model does not present heteroscedasticity. Of course, exists big cross-correlation between the variables that symbolize the indicators of prices of rural products without incoming aids and in them with incoming aids. A fact that can lead us to the suspicion for existence of multicollinearity. However the signs which result are almost the same with a research which does not take precisely the same variables. It takes the same variables, it takes also a variable that measures the extension of irrigated extents, an other variable that fixes it as indicator of rainfalls and also we separate the prices of producers in prices with incoming aids and in prices without incoming aids. The estimates are the followings:

$\ln Q_{df.} = 4,72 - 0,687\ln P_{f.} + 1,40\ln P_{wi} - 0,717\ln P_{inc} + 0,241\ln Q_{t-1}$
t-statistics (6,07) (-6,86) (2,18) (-1,22) (1,80)

D W =2,79 F = 41,38 $R^2_{(adj.)} = 91,0\%$

The model is statistically important. The high R^2 means that exists very good explaining faculty of variables of model, the F prompts us to say that the model is general statistically significant, while exists a doubt for the importance of two last variables, with regard to the individual statistical significance, after the t-ratios, are relatively low, -1,22 and 1,80 respectively. However, the high R^2 and low t-ratios of these variables leads us to the suspicion for existence of multicollinearity. Thus, therefore we will see these two variables separately. Thus we have:

$\ln Q_{df.} = 4,73 - 0,65\ln P_{f.} + 0,645\ln P_{wi} + 0,243\ln Q_{t-1}$
t-statistics (5,83) (-6,81) (6,79) (1,74)

D W = 2,49 F = 49,30 $R^2_{(adj.)} = 90,1\%$

Consequently, we observe that the elasticity is not flexible as for the indicator of prices of rural products without incoming aids. The elasticity of demand as for the price of fertilizers is almost similar, as the constant term is precisely the same, that means it was not influenced from multicollinearity. The model that takes into consideration precisely the same variables, but instead of the indicator of prices of producers that do not enjoy incoming aids, we will take into our consideration of indicator of prices of producers that they enjoy the incoming aids. The model is following:

$\mathrm{Ln}Q_{df.} = 4,68 - 0,580\ln P_{f} + 0,570\ln P_{inc} + 0,254\ln Q_{t-1}$.
t-statistics (5,21) (-5,99) (5,98) (1,64)

D W =2,05 F = 39,89 $R^2_{(adj.)} = 87,9\%$

FIFTH CHAPTER

SUMMARY

In this article we will analyze the interrelation of production for the agricultural sector of Greece at period 1978-1995. We will see if it presents declining or constant or serial output.

ANALYSIS

We know that the available technology of production determines how much quantity of product is produced by given quantities of capital and work. This is also the interrelation of production (Pournarakis - HatziKonstantinou, Athens - Thessaloniki, 1999). Thus we symbolize with Y the quantity of produced product, with K the quantity of capital and with L the quantity of work. We have:

$$Y = F(K,L)$$

The interrelation of production expresses or more equitably reflects the available technology, that is to say is expressed the way that this interrelation changes the
capital and the work, with given the available technology, in product. Usually a lot of interrelations of production are characterized of constant scale. (Mankiw Athens, 1999). That is to say an increase in quantities of all productive factors leads to increase of produced product at the same percentage.

In this chapter we will analyze the model Cobb - Douglas - that it was
devised by the Paul Douglas, senator and professor of economy, and the Charles Cobb mathematician, that model expresses more equitably the interrelation of production. (Gillis, Perkins, Roemer, Snodgrass, Athens, 2002).

Thus we will take as endogenous (made dependent variable) the G.R.P. (gross rural product), agricultural threshing machines and occupied as exogenous (independent)
variables, that express the capital and the work respectively. The equation Cobb - Douglas it has as follows:

$$Y_i = b_1 X^{b2}_{2i} X^{b3}_{3i} e^{ui}, \text{ where}$$

Y = G.R.P.
X_2 =
H3 = Influx of capital
u = Stochastic disturbing term
e = Base of natural logarithm

The exponential form of interrelation is changed in logarithmic and has the following form:

$$LnY_i = Lnb_1 + b_2 LnX_{2i} + b_3 LnX_{3i} + u_i$$
$$= b_0 + b_2 LnX_{2i} + b_3 LnX_{3i}, \text{ όπου } b_0 = Lnb_1$$

From the annex we observe that the elasticities of labour and capital are 0,458 and 0,472 respectively. Consequently, this means that if we keep constant the influx of capital, an increase in labour at one unit, it will lead to increase of production at 0,458, and respectively, if we keep constant the labour and increase the capital at one unit, then the production will be increased at 0,472. If we add up the two elasticities, we found, then we will see that their sum is equal with 0,93, that is smaller the unit and consequently exists declining output of scale.

However in order to advance a step more farther the work, we will examine the interrelation taking into our consideration and the restrictions. The interrelation that we examined did not have restrictions. Now we will place the restriction, that is in effect b1 + b2 = 1, that is to say that exists constant output of scale. The new equation will have the following form:

$$Ln(Y_i / X_{2i}) = Lnb_1 + b_2 Ln(X_{3i} / X_{2i})$$

We will use the type:

$F = \frac{(R^2_u - R^2_r)/m}{(1-R^2_u)/(n-k)}$ [12] where the R^2_u results from the first equation, without the restriction and the R^2_t results from the equation with the restriction, the m is number of restrictions that we place also in our case is 1, the n is the number of observations, that is the 18 and finally k that is number of variables that we have
in equation and are equal with 3. The results of regression under the restriction are:

$Ln(Y_i / X_{2i}) = -0,0390 + 0,921 Ln(X_{3i} / X_{2i})$ $R^2_{(adj.)} = 99,8\%$ F= 7791,55

t-statistics (-4,59) (88,27) D W = 1,45

The model is statistically very significant, so much in individual level (t-statistics) as much as in total level (distribution F)[13]. The problem was solved with the method of Cochrane - Orcutt with two times repetition[14]. It is obvious that if we replace the prices in the above type price F is negative, after the $R^2_t > R^2_u$, fact that we can't accept it. Consequently, we accept the affair that exists constant output in the agricultural sector of Greece for period 1978 - 1995.

12. Guzarati N. Damodar, "Basic Econometrics", McGraw - Hill International Editions, Economic Series, Third Edition, New York 1995, page 259.
13. George Emm. Chalkos, STATISTICS, Theory, Applications and use of statistical programs in PC, Publications "Tipothito", Athens 2000.
14. Guzarati N. Damodar, "Basic Econometrics", McGraw - Hill International Editions, Economic Series, Third Edition, New York 1995, pages 431-432.

SIXTH CHAPTER

Summary

The national income and the national consumption are two special sizes that macro-economists use in their analyses. In this movement contributed substantially the work of economist Keynes. Consequently in this article we will see the relation between the rural income and the rural consumption. We will analyze the subject of co-integration and the necessity taking into our consideration, as we examine also the forecasts of this two macroeconomic sizes and the methods that we select as most reliable.

Co-integration

According to the Keynes, we accepted that the income are equal with the value of running production and that the running investment counterbalances with the value of that part of running production that is not consumed and the saving counterbalances with the surplus that is found above the consumption. With few reasons it is in effect: Income - value of production = Consumption + Investment. Then is in effect Saving = income - Consumption. Hence, Saving = Investment. The data on the rural income were initial in running prices and then de-inflated with C.P.I. (Consumer Price Index) with base in year 1970. Provided that we examine national sizes and no domestic, the data on the saving will be equal with those of investment. Consequently, the income is created substantially by the value of surplus that is found above the cost of production, that is to say the product that produces the producer and that then sells. That's why the surplus of income that is found above the consumption is named saving. Of course, we should stress that the saving does not always mean also investment. In order to print it more equitably, it is not essential that the saving or a part from this will lead obligatorily to an investment. Still, the producer can buy with a part from the saving some number of shares. However this does not follow investment. What us interests as investment in the rural sector is the market, for example, a new threshing machine, the manufacture of irrigatory work.

Generally, when we were reported in the Greek farmers, can support that they are distinguished for their enterprising faculty in the evaluation and in the equitable decision-making for investment work. As we advance however beyond from this annotation and as see the equation of (1) which present below.

We will regress therefore the rural consumption as made dependent variable with the rural income as independent, with method OLS and preferring the simple linear model. The initial regression is the following:

Consumption = -1878 + 0,956GDP $R^2_{(adj.)}$ = 99,5% F= 6760,59 (1)
t-statistics (-2,87) (82,22)

D W = 0,96

The model is statistically very significant, so much globally, what individually, as well as for the explanatory faculty of variables, after R^2 is very high and approaches almost the 100% of interpretation of model. Results however an other problem. DW< R^2 and concretely 0,96<0,995. Exists suspicion for spurious regression and therefore will check for stagnation and co-integration. The variable of consumption is not stationary, because according to the ADF test (Augmented Dickey Fuller) we see that price -1,115471, in absolute prices always, is smaller than the critical prices.

ADF Test Statistic	-1.115471	1% Critical Value*	-4.2505
		5% Critical Value	-3.5468
		10% Critical Value	-3.2056

However for the first differences what we have to say they are that the variable consumption it presents stationarity, after according to following table price -9,258 is bigger than the critical prices.

ADF Test Statistic	-9.258853	1% Critical Value*	-3.6353
		5% Critical Value	-2.9499
		10% Critical Value	-2.6133

Precisely the same thing happens also with the variable of national rural income. Then is mentioned the test for co-integration. The equation is:

$\Delta u_t = -16 - 0{,}481u_{t-1}$ $R^2_{(adj.)} = 21{,}4\%$ $F = 10{,}25$ (2)
t-statistics (-0,12) (-3,20)

The price is smaller than critical price in l.s.i. (Level of Statistical importance) 0,01. We preferred after a process correct the model taking the second differences of two variables and the residues with two delays. However because these chronological lines are not stationary do not mean that co-integrating. According to the Engle-Granger (EG) test we have the following equation:

$\Delta U_t = -0{,}017 - 0{,}478U_{t-1}$ $R^2_{(adj.)} = 91{,}2\%$ $F = 10{,}15$ (3)
t-statistics (-0,11) (-3,19)

D W = 2,07

As we observe price t-ratio the variable U_{t-1} is statistically significant, therefore the two lines co-integrating.

We observe that the marginal propensity to consumption is 0,956. This is also long-run, that means if the income is increased at one unit then the consumption will be increased at 0,956. From this fact we can conclude that the Greek farmers do not save up, consume almost entire their income and simultaneously they don't invest[15]. Thus, is explained also the reduction of accumulation of constant capital[16].

Cause for this the phenomenon can be the not benefit of information to the farmers, the big percentage of farmers that are debited in the banks so that it is lent in order to pay the previous loans, the disability of agricultural cooperatives, but also state, they contribute decisively in the creation of irrigatory work and in the perpendicular type of agricultural production[17].

15. Baltas K. Nikolaos., "The financing of investments of rural sector", Rural Bank Greece, Address of Studies and Planning, Athens 1984.

16. G. P. Sapounas, Growth of rural sector: Problems and prospects, Studies of rural economy 42, Rural Bank Greece, Address of Studies and Planning, Athens 1991.

17. P. Kroustallaki - Mpeveratou, "the rural cooperatives: Institution economic and social growth ", Studies of rural economy 42 Rural Bank Greece, Address of Studies and Planning, Athens 1990.

METHODS OF FORECASTS

We continue the work with the forecast of rural income and rural consumption. For the variable of rural consumption we tried the methods of mobile means, simple exponential smoothing exponential smoothing with two parameters, and the ARIMA[18], until we lead to model ARIMA (1 1 5). (See below). Our data are from 1960-1995. We have that is to say 36 data. In order to make forecast we will remove the three last observations and we will make projection in the future at three years and we will compare what forecasted prices with real. The results are:

Forecasting prices	Actual prices
55329,9	50504
56300,6	52911
63593,8	53570

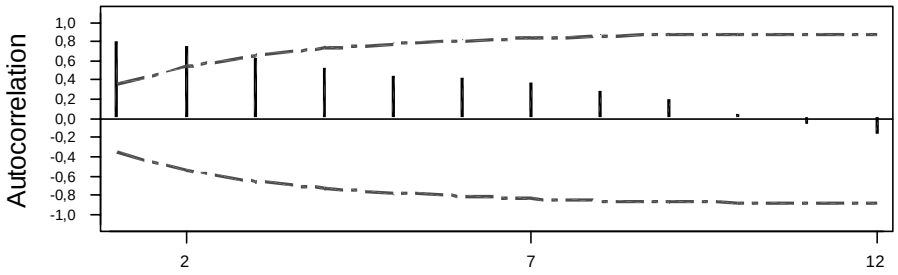
The results for rural income are:

Forecasting prices	Actual prices
60327,1	55376
59039,3	58548
57612,3	58646

Let's see the whole situation analytically.

Firstly as we remember that the variable of rural consumption is stationary in the first differences. Let's now see the degree of AR (Autoregressive). We will see the diagram of autocorrelation and partial autocorrelation.

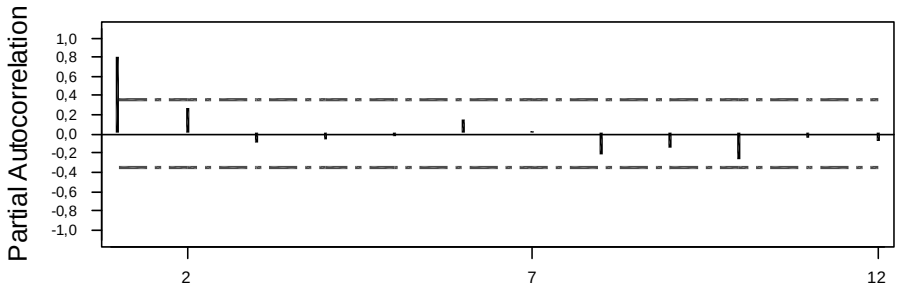
Diagram of autocorrelation of rural consumption



Lag	Corr	T	LBQ	Lag	Corr	T	LBQ
1	0,81	4,64	23,55	8	0,28	0,67	96,91
2	0,75	2,83	44,34	9	0,20	0,47	98,81
3	0,63	1,96	59,63	10	0,05	0,11	98,92
4	0,54	1,50	71,09	11	-0,05	-0,13	99,08
5	0,45	1,17	79,33	12	-0,17	-0,40	100,71
6	0,42	1,06	86,95				
7	0,38	0,92	93,21				

18,Guzarati N. Damodar, "Basic Econometrics", McGraw - Hill International Editions, Economic Series, Third Edition, New York 1995.

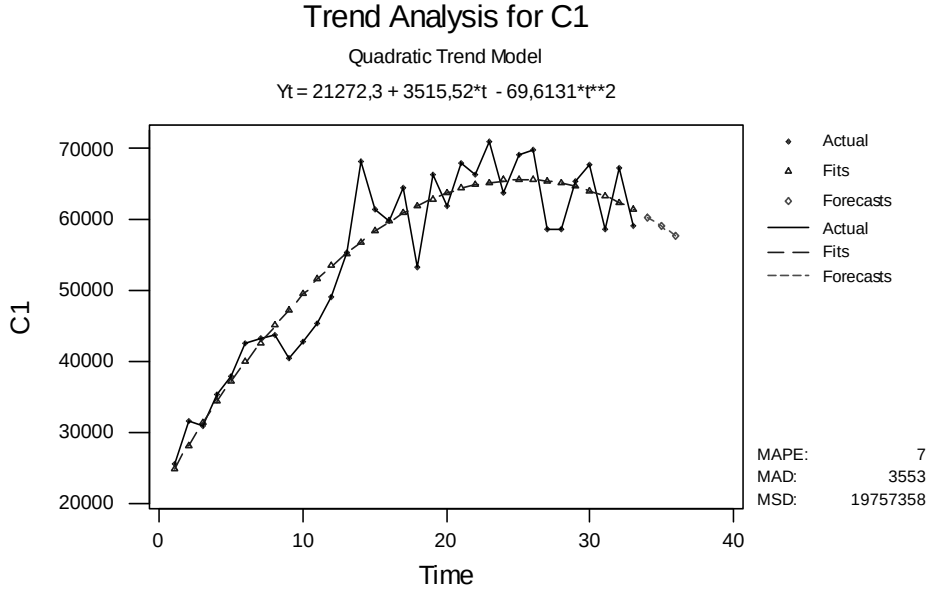
Diagram of partial autocorrelation of rural consumption



Lag	PAC	T	Lag	PAC	T
1	0,81	4,64	8	-0,22	-1,29
2	0,27	1,56	9	-0,14	-0,82
3	-0,09	-0,51	10	-0,26	-1,50
4	-0,06	-0,35	11	-0,05	-0,28
5	-0,02	-0,14	12	-0,08	-0,47
6	0,15	0,89			
7	0,02	0,13			

We observe that the rural consumption has AR (1). This can appear with two ways. Firstly it appears from the diagram of partial autocorrelation. Exists only a black line that it escapes from the limits that they place the two interrupted red lines. The second way has as follows: First we should find the interval of confidence - that it is not other than the interval of two interrupted red lines . Our data are 33. Consequently, $1/\sqrt{33} = 0{,}174$. Statistics t on sample higher than the 30 data are 1,96 in interval of confidence 95%. Hence, $\pm 1{,}96\ (0{,}174) = \pm 0{,}341$. Any price exceeds price $\pm 0{,}341$ we receive it for the finding of degree of AR. As criterion for the choice of better method we take the MSE. The method with the smaller MSE is selected as the best.

For the rural income we selected the analysis of tendency with square model, that is to say model of second degree. For seasonality we can speak, only that for tendency, because our data are annual and no daily or monthly. We have:



SEVENTH CHAPTER

Macroeconomics models in closing economy

Summary

In this article we will examine a macroeconomic model in closed economy. Concretely, we will present the classic model, that had proposes the Keynes, that in the case in question, concerns the rural sector for period 1960-1995. We have the following model:

$C = \alpha_0 Y_t$ (1)
$I = \beta_0 + Y_t + \beta_2 Y_{t-1}$ (2)
$Y = C + I + G$ (3)

The variable C symbolize the rural consumption, the I express the investments of rural sector and the Y the national rural income. These are also the endogenous variables of model. Variable G is exogenous and depicts the public investments. exogenous is also the Y_{t-1}, that substantially is the endogenous Y with a time delay. The equation (1) is the interrelation of consumption. The equation (2) determines the private investments with base the running prices and the prices with time delay of income. The equation (3) is the treaty of balance, that gives the national income equal with the sum of consumption, private and public investments. Our aim is to find the short-run and long-run multiplier of public investments. With few reasons, we want to see who it is the effect of public investments in the income, so much short-run, what long-run. (For details see below). The direct multiplier is 71,42 and long-run is 2500. Consequently, it becomes obvious how many big effect can have the public expenses for investments in the configuration of rural income. Hence, in the long-run period an increase of public investments at one unit, will lead to increase of rural income at 2500. This is reasonable, after the public investments concern land reclamation and irrigatory work, that has result the achievement of more effective production.

Analysis

We have the equations:

$C = \alpha_0 Y_t$ (1)
$I = \beta_0 + \beta_1 Y_t + \beta_2 Y_{t-1}$ (2)
$Y = C + I + G$ (3)

Replace the relation (2) in the relation (3) and will result two structural equation (1) and,

$$Y_t = \left(\frac{\beta_0}{1-\beta_1}\right)\left(\frac{1}{1-\beta_1}\right) C_t + \left(\frac{\beta_2}{1-\beta_1}\right) Y_{t-1} + \left(\frac{1}{1-\beta_1}\right) G_t \qquad (4)$$

The structural form with the symbolism of matrices has as follows:

$$(C_t \quad Y_t)\begin{pmatrix} -1 & \frac{1}{1-\beta_1} \\ \alpha_0 & -1 \end{pmatrix} +$$

$$+ \quad (\ Y_{t-1} \quad G_t \quad I\ )\begin{pmatrix} 0 & \frac{\beta_2}{1-\beta_1} \\ 0 & \frac{1}{1-\beta_1} \\ 0 & \frac{\beta_0}{1-\beta_1} \end{pmatrix} \qquad (5)$$

We finally multiply from right the relation (5) with the reverse matrix and we have:

$$Y_t = \left(\frac{\beta_2}{1-\beta_1-\alpha_1}\right) Y_{t-1} + \left(\frac{1}{1-\beta_1-\alpha_1}\right) G_t + \left(\frac{\alpha_0+\beta_0}{1-\beta_1-\alpha_1}\right)$$

$$C_t = \left(\frac{\beta_2\alpha_1}{1-\beta_1-\alpha_1}\right) Y_{t-1} + \left(\frac{\alpha_1}{1-\beta_1-\alpha_1}\right) G_t + \left(\frac{\alpha_1\beta_0+(1-\beta_1)\alpha_0}{1-\beta_1-\alpha_1}\right)$$

Finally the short- run multiplier is $\left(\frac{1}{1-\beta_1-\alpha_1}\right)$ and the long-run is $\left(\frac{1}{1-\beta_1-\alpha_1-\beta_2}\right)$

The regressions are:

C = -1878 + 0,956Y_y $R^2_{(adj.)}$ = 99,5% F = 6760,59
t-statistics (-2,87) (82,22)

$I = 893 + 0{,}030Y_y + 0{,}0136Y_{t-1}$ $R^2_{(adj.)} = 4{,}5\%$ $F = 1{,}81$
t-statistics (1,35) (1,48) (0,66)

$\left(\frac{1}{1-\beta_1-\alpha_1}\right) = 71{,}42$ και $\left(\frac{1}{1-\beta_1-\alpha_1-\beta_2}\right) = 2500$

The second model that we will examine is still simpler. It is reported also in closed economy.

$C = \beta_0 + \beta_1 Yt$ (1) the equation of consumption

$Y_t = C_t + I_t$ (2) the identity of income

In this model the consumption (C) and the income (Y) are the endogenous variables and the investments are the exogenous variable. If we replace the equation (1) in (2) we will have the following interrelation:

$$Y_t = \Pi_0 + \Pi_1 I_t + U_t \quad (3)$$

όπου $\mathbf{\Pi_0} = \frac{\beta_o}{1-\beta_1}$ $\mathbf{\Pi_1} = \frac{1}{1-\beta_1}$ $\mathbf{U_t} = \frac{u_t}{1-\beta_1}$

Equation (3) is known as structure.

Equation (1) is:

$C_t = -3468 + 0{,}996Y_t$

Predictor	Coef	SE Coef	T	P
Constant	-3468,3	945,8	-3,67	0,001
y	0,995659	0,003829	260,02	0,000

S = 844,7 R-Sq = 100,0% R-Sq(adj) = 100,0%

F	P
67612,57	0,000

If we replace in the following equations we have:

$\mathbf{\Pi_0} = \frac{\beta_o}{1-\beta_1}$ $\mathbf{\Pi_1} = \frac{1}{1-\beta_1}$

$\mathbf{\Pi_0}$ = -867000 και $\mathbf{\Pi_1}$ = 250

Consequently model (3) will be:

$$Y_t = -867000 + 250\, I_t$$

Hence, this model explains that if we increase investments at 1 unit, then the income will be increased at 250. We conclude that the investments determine considerably the configuration of income.

ANNEX 1

TABLE 1

In constant prices of 1970 (million Drachmas.)

YEARS	GROSS DOMESTIC RURAL PRODUCT	% PARTICIPATE IN THE TOTAL PRODUCT OF ECONOMY	GROSS DOMESTIC PRODUCT OF THE - SECONDARY SECTOR	% PARTICIPATE IN THE TOTAL PRODUCT OF ECONOMY	GROSS DOMESTIC PRODUCT OF THE SERVISE'S SECTOR	% PARTICIPATE IN THE TOTAL PRODUCT OF ECONOMY	TOTAL PRODUCT
1948	17211	29,53%	9851	16,90%	31226	53,57%	58288
1949	23473	33,54%	11596	16,57%	34913	49,89%	69982
1950	20683	27,82%	14966	20,13%	38706	52,06%	74355
1	23475	29,16%	14782	18,36%	42254	52,48%	80511
2	22159	27,44%	15121	18,73%	43466	53,83%	80746
3	27898	30,56%	17819	19,52%	45574	49,92%	91291
4	27179	28,85%	19214	20,39%	47820	50,76%	94213
5	29078	28,92%	21101	20,99%	50354	50,09%	100533
6	29851	27,32%	23860	21,83%	55566	50,85%	109277
7	33738	29,12%	25011	21,59%	57109	49,29%	115858
8	31413	26,07%	27953	23,20%	61115	50,73%	120481
9	32947	26,29%	29515	23,55%	62846	50,15%	125308
1960	29863	23,11%	33406	25,86%	65932	51,03%	129201
1	37836	26,32%	35858	24,94%	70078	48,74%	143772
2	32888	22,74%	37504	25,93%	74220	51,32%	144612
3	39594	24,88%	40378	25,37%	79199	49,76%	159171
4	39446	23,04%	46147	26,96%	85584	50,00%	171177
5	43377	23,20%	51047	27,30%	92585	49,51%	187009
6	43687	22,17%	53871	27,34%	99453	50,48%	197011
7	44311	21,49%	56834	27,57%	105031	50,94%	206176
8	40484	18,58%	65439	30,03%	111972	51,39%	217895
9	43085	18,09%	74939	31,46%	120177	50,45%	238201
1970	47058	18,24%	80976	31,39%	129966	50,37%	258000
1	48662	17,47%	90802	32,60%	139087	49,93%	278551
2	51543	16,96%	101955	33,54%	150475	49,50%	303973
3	51204	15,55%	114367	34,73%	163698	49,72%	329269

4	53672	16,60%	101708	31,46%	167927	51,94%	323307
5	56733	16,69%	107572	31,65%	175528	51,65%	339833
6	55971	15,53%	117600	32,63%	186828	51,84%	360399
7	51830	13,97%	123224	33,21%	195968	52,82%	371022
8	57214	14,49%	130971	33,17%	206618	52,33%	394803
9	53616	13,11%	138842	33,94%	216617	52,95%	409075
1980	60499	14,49%	135486	32,45%	221525	53,06%	417510
1	59516	14,23%	133441	31,90%	225314	53,87%	418271
2	60940	14,49%	130388	31,00%	229313	54,52%	420641
3	55518	13,14%	130615	30,93%	236218	55,93%	422351
4	59394	13,66%	132244	30,42%	243088	55,92%	434726
5	60133	13,38%	137318	30,56%	251831	56,05%	449282
6	62250	13,63%	137650	30,15%	256715	56,22%	456615
7	58385	12,84%	137462	30,24%	258775	56,92%	454622
8	61963	13,00%	145526	30,54%	269063	56,46%	476552
9	63180	12,76%	149886	30,28%	281884	56,95%	494950
1990	55666	11,35%	148234	30,22%	286539	58,43%	490439
1	61267	12,18%	147950	29,41%	293911	58,42%	503128
2	61082	12,01%	146732	28,85%	300867	59,15%	508681
3	60223	11,90%	143100	28,27%	302938	59,84%	506261
4	63749	12,42%	144470	28,14%	305254	59,45%	513473
5	61176	11,68%	145453	27,77%	317113	60,55%	523742

*Πηγές: 1.Rural Bank of Greece, Address of Studies and Planning Department of Statistics Athens 1985
2.Vavouras John, "**Economic Policy**" Publications Papazisi, Athens 1998, page 274.

TABLE 1 (CONTINUE)

In million drachmas in constant prices of 1980

YEARS	RURAL INCOME	YEARS	RURAL INCOME	YEARS	RURAL INCOME BY EMPLOYEE	YEARS	RURAL INCOME BY EMPLOYEE
1966	166830	1981	253698,5	1966		1981	249,7
1967	174525,4	1982	285353	1967		1982	263,5
1968	157190	1983	247527,6	1968		1983	244,8
1969	166911	1984	261202	1969		1984	246,4
1970	177862,7	1985	266583,4	1970		1985	253,4
1971	195445	1986	243813,7	1971		1986	235
1972	223894	1987	258670	1972		1987	252
1973	269608,3	1988	290587	1973		1988	299
1974	228476	1989	290978,2	1974		1989	299,3
1975	227709,4	1990	252115,5	1975		1990	271,1
1976	257767	1991	289278,6	1976		1991	325,4
1977	235172,7	1992	282895,2	1977		1992	350,5
1978	273451,5	1993	284413	1978		1993	352,4
1979	253361,2	1994	291200	1979	241,52	1994	366,75
1980	257332			1980	252,2		

TABLE 2

	Arable lands	Employees in	Pulling	Threshing	Milk		Arable lands	Employees in	Pulling	Threshing	Milk
YEARS	(in thousands acres)	rural sector (thousands.)	machines	machines	Machines	YEARS	(in thousands acres)	rural sector (thousands.)	machines	machines	Machines
1961	37081		22630	2030	3850	1	35783	1083	152254	6364	5400
2	37264		24530	2150	3900	2	35649	1011	159516	6505	5600
3	36832		28500	2174	3950	3	35574	1060	168715	6345	5800
4	36617		33500	2625	4000	4	35632	1044	178857	6488	6000
5	36850		39318	3763	4050	5	35734	1037	183410	6566	6180
6	36344		44774	3832	4100	6	35663	1026	193257	6485	7193
7	36309		50875	4070	4150	7	35501	971	203161	6395	8950
8	35917		52300	4296	4200	8	35400	972	207567	6476	10020
9	35566		57000	4344	4250	9	35250	930	211651	7176	10948
1970	35472		61945	4151	4300	1990	35084	889	215755	6247	12366
1	35715	1313	67536	4267	4350	1	35155	807	223718	6847	12959
2	35273		70540	4498	4400	2	35270	807	228051	6258	13465
3	35148		77802	4256	4450	3	35014	794	231177	6192	13433
4	35341		84043	4547	4500	4	34950	790	234844	5960	13975
5	35505		93424	5234	4600	5	34856	782	236197	5818	14155
6	35731		102656	5111	4700	6	34895		240125	5656	14413
7	35637		112650	5294	4800	7	34776		242446	5558	14217
8	35873	1049	122268	5744	4900	8	34513		242678	5309	14070
9	35798	1020	132000	6058	5000	9	34420		242800	5300	14000
1980	36011	1016	140305	6109	5200	2000	34289		243000	5250	14000

*Πηγές: 1 .Rural Bank of Greece, Address of Studies and Planning Department of Statistics Athens 1985

2. FAO.

3 Lianou, Damianou, Mergou, Demousi, and Katranidi "Rural Economy", B Publication, Athens 1998,

TABLE 3

YEARS	PRODUCTIVITY OF LABOR	PRODUCTIVITY OF LAND	PRODUCTIVITY OF CAPITAL	DISPOSITION OF FERTILIZERS (in thousand tones)	YEARS	PRODUCTIVITY OF LABOR	PRODUCTIVITY OF LAND	PRODUCTIVITY OF CAPITAL	DISPOTITION OF FERTILIZERS (in thousand tones)
1951				58,1	1974		1,52	0,39	420,4
2				56,6	5		1,60	0,37	438,1
3				60,7	6		1,57	0,33	482,3
4				86,4	7		1,45	0,29	505,3
5				79,5	8	54,54	1,59	0,29	582,5
6				96,7	9	52,56	1,50	0,26	581
7				109,5	1980	59,55	1,68	0,27	526
8				132,9	1	54,95	1,66	0,25	527
9				129	2	60,28	1,71	0,25	590,7
1960				132,1	3	52,38	1,56	0,21	640,2
1	37,06	1,02		149,4	4	56,89	1,67	0,22	611,2
2		0,88		178,7	5	57,99	1,68	0,21	709,9
3		1,07		190,6	6	60,67	1,75	0,20	665,8
4		1,08		242,1	7	60,13	1,64	0,18	555,4
5		1,18	0,88	239,5	8	63,75	1,75	0,19	648,8
6		1,20	0,73	256,6	9	67,94	1,79	0,19	649,5
7		1,22	0,62	260,4	1990	62,62	1,59	0,16	695,3
8	54,54	1,13	0,47	297,9	1	75,92	1,74	0,18	652,1
9	52,56	1,21	0,45	303,8	2	75,69	1,73	0,17	628
1970	59,55	1,33	0,46	337,4	3	75,85	1,72	0,18	509
1	54,95	1,36	0,44	334,5	4	80,69	1,82	0,18	527
2	60,28	1,46	0,44	347,9	5	78,23	1,76	0,17	505
3	52,38	1,46	0,40	394,8					

*SOURCES: 1. OECD, LABOR STATISTICS, 1999

2 .Rural Bank of Greece, Address of Studies and Planning Department of Statistics Athens 1985

3. Lianou, Damianou, Mergou, Demousi, and Katranidi "Rural Economy", B Publication, Athens 1998,

TABLE 4

EVOLUTION OF CEREAL CULTIVATION

YEARS	PRODUCTION OF TENDER WHEAT (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF HARD WHEAT (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF OAT (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF RYE (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	1271913	2,83	313900	2,83	99530	2,2	24415	2.36
1962	1382858	2,81	378190	2,81	99200	2,07	24157	2.17
1963	1088011	2,87	303321	2,87	88390	2,38	20389	2.21
1964	1747234	3,15	442773	3,15	86790	2,51	22312	2.27
1965	1640400	2,65	431600	3,5	84430	2,5	19006	2.35
1966	1581200	2,54	438800	3,34	76495	2,4	15251	2.36
1967	1483200	2,61	452800	3,37	77240	2,36	13610	2.30
1968	1241700	2,75	326700	3,24	71892	2,7	9317	2.49
1969	1373200	2,68	350400	3,1	53000	2,8	7458	2.40
1970	1607283	2,47	361664	3,06	64000	2,64	6777	2.38
1971	1589974	2,42	343081	3,2	70000	2,46	8209	2.40
1972	1563873	2,53	354942	3,36	62000	2,67	6925	2.46
1973	1398618	4,41	339594	5,42	63000	4,14	5910	3.66
1974	1852410	4,35	421059	5,3	61942	4,17	6150	4
1975	1712000	4,92	364725	6,47	70543	4,66	6200	4.7
1976	1885570	5,48	466046	7,61	53900	5,53	6336	5.1
1977	1409090	6,3	306392	8,71	81500	6,67	5357	5.88
1978	2117509	6,95	541830	9,63	79680	7,18	5450	6.64
1979	2010701	7,86	385643	11,04	88900	8,29	5590	7.85
1980	2274250	9,82	657049	13,53	83000	9,51	5800	9.47
1981	2106270	10,61	649800	15,25	98000	11,26	5786	10.58
1982	2983400	13,58	746820	19,34	80300	13,65	6100	12.83
1983	1476600	15,65	566800	21,34	105000	18,82	9780	14.52
1984	1716850	17,78	904070	27,73	106000	21,72	16783	16.71
1985	979854	21,31	826976	32,08	117700	28,04	19530	18.92

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 4 (CONTINUE)

1986	1086000	23,17	1226300	31,49	101700	30,04	19000	20.35
1987	1000000	23,92	1143000	33,31	108000	28,78	26500	20.8
1988	1108000	27,09	1000000	35,65	112213	29,42	34000	23.93
1989	1091000	33,21	1380000	43,91	107698	37,41	38000	27.38
1990	680000	36,07	1100000	48,77	119015	39,72	30000	30.36
1991	977623	39,82	2239483	45,05	105069	44,79	42635	33.94
1992	879277	42,49	1422753	47,01	165025	47,71	33128	39.62
1993	819550	43,88	1192663	43,33	173972	50	35600	39
1994	840820	46,71	1631080	38,86	177055	70,49	41380	38.1
1995	753060	53	1384610	52,46	156153	57,11	40194	42.21
1996	630370	46,81	1132220	45,74	135689	56,96	37230	52
1997	654300	50,32	1398000	49,26	154747	58,79	37230	49.36
1998	611720	46,14	1300000	46,52	153054	57,45	36150	37.79

TABLE 4 (CONTINUE)

YEARS	PRODUCTION OF MAIZE (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF RICE (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF BARLEY (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	270132	2.06	85315	3,23	234952	2,16
1962	266446	2.12	76211	3,48	251879	2,18
1963	311884	2.21	82892	3,43	242892	2,31
1964	289305	2.3	112856	3,3	278543	2,38
1965	297811	2.64	104913	3,16	410865	2,49
1966	322773	2.53	85589	3,28	638698	2,27
1967	337908	2.56	91162	3,78	839135	2,44
1968	375057	2.66	107688	3,65	487040	2,33
1969	429503	2.67	103025	3,4	528697	2,62
1970	527912	2.69	76727	3,51	778544	2,44
1971	585378	2.69	73006	4,06	794858	2,51
1972	614580	2.78	77394	4,32	873000	2,5
1973	650000	3.80	89500	11,04	856500	3,45
1974	538500	4.27	103000	7,8	983200	4,1
1975	540000	5.02	101800	8,38	924000	4,57
1976	555000	5.52	83627	8,76	955000	5,07
1977	541000	5.96	94190	10,39	702000	5,99
1978	536000	6.88	95000	11,33	955000	6,65
1979	731000	7.65	89900	11,12	842000	7,61
1980	1233000	9.43	84050	12,88	949500	9,4
1981	1336890	10.56	72300	18,67	768100	10,09
1982	1448900	13.64	83300	22,55	852100	12,53
1983	1653590	15.88	81800	24,2	578400	14,46
1984	1913030	17.63	89390	32,28	817516	16,81
1985	1821880	20.63	104724	37,81	582910	20,2

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 4 (CONTINUE)

1986	1835000	24.75	119367	39,54	681000	22,43
1987	1951000	25.86	130170	46,14	587000	22,88
1988	2030000	29	114015	49,82	670000	25,58
1989	2000000	33.72	100293	59,42	620000	30,3
1990	1800000	38.73	95976	63,65	374040	34,27
1991	2327448	38.41	89020	67,86	502256	38,77
1992	1976452	43.22	109508	80,04	435584	41,37
1993	1936783	44.12	141797	90,8	391220	42,43
1994	1949246	40.74	174421	102,1	445890	42,51
1995	1611000	52.89	206900	114,15	439580	49,47
1996	1800000	39.92	222310	108,32	318700	52,68
1997	2000000	48.26	222200	89,95	357500	60,37
1998	2000000	43.56	205137	91,43	334430	48,59

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 4 (CONTINUE)

ΕΤΗ	ΠΑΡΑΓΩΓΗ SUNFLOWER(τόνοι)	ΤΙΜΗ (δρχ. / κιλό)	ΕΤΗ	ΠΑΡΑΓΩΓΗ SUNFLOWER (τόνοι)
1998	50.000	71,35	1979	2.370
1997	30.000	62,3	1978	2.000
1996	31.300	62,65	1977	3.135
1995	30.000	82,54	1976	2.314
1994	23.000	65,73	1975	2.121
1993	19.000	72,11	1974	2.100
1992	47.000	47,99	1973	2.134
1991	23.320	93,05	1972	1.988
1990	29.637	85,98	1971	988
1989	54.164	72,12	1970	1.043
1988	74.783	55,75	1969	1.123
1987	146.060	52,37	1968	1.948
1986	165.250	52,08	1967	2.411
1985	84.752	53,08	1966	2.293
1984	67.235	51,47	1965	1.856
1983	26.115	44,37	1964	3.007
1982	7.460	36,33	1963	3.733
1981	4.040	28,44	1962	2.895
1980	4.800	35,5	1961	2.310

TABLE 5

EVOLUTION OF INDUSTRIAL PLANTS CULTIVATION

YEARS	PRODUCTION OF BERLEY TOBACCO(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF VIRGINIA TOBACCO (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF EAST TYPE TOBACCO (TONES)	MEAN WEIGHT PRICE (DRC./KG)	YEARS	PRODUCTION OF BERLEY TOBACCO(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF VIRGINIA TOBACCO (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF EAST TYPE TOBACCO (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961					74402	37.2	1981	19800	165.8	72	145.2	103100	231.1
1962					93102	31.7	1982	24200	156	42	166.3	108190	289.4
1963	922	17.3			126849	30.40	1983	26284	185.7	86	193.9	84180	352.2
1964	3000	18.4			133392	31.1	1984	32486	212.7	140	286.9	110685	423.1
1965	4000	19.7			122218	33.8	1985	30340	186.2	401	357.6	117750	467.4
1966	5500	18.7			92000	30.40	1986	18877	209.4	993	408.4	128136	475.4
1967	9706	21.2			105373	31.8	1987	10169	276.4	1690	465.6	132186	522.1
1968	9425	27.1			78740	32.9	1988	9553	289.8	4455	535	120720	648.7
1969	11983	18.8			65949	34.4	1989	4666	347.7	8300	709.2	109525	694.1
1970	14750	18.8			79879	34.4	1990	3835	519.2	26457	702.7	91979	893.8
1971	14900	21.9			73042	37.1	1991	8651	574.9	39802	793.6	97590	899.2
1972	11000	32.8			72500	49.8	1992	15000	589.2	71500	751	101500	1018.9
1973	14153	33.2			76823	59.7	1993	11530	622.5	37882	762.5	81317	1017.8
1974	10700	41.2			70500	88.3	1994	11610	670.3	29747	818.5	78143	1116.8
1975	13800	42.7			103400	78.5	1995	11733	749.4	30626	943.3	77681	1406.3
1976	15500	47.3			123000	84.7	1996	12390	833.5	30890	1138.90	82900	1560.6
1977	17100	53.9			101300	94.6	1997	12255	833.7	30578	1245.40	80127	1631.50
1978	22500	52.3			107300	114.1	1998	12364	843	30621	1072.50	79862	1508.20
1979	18700	59.61	66	95.9	98510	143.4							
1980	17700	109.4	58	114.7	98900	186.3							

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 5 (CONTINUE)

YEARS	PRODUCTION OF COTTON(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF SUGAR BEET (TONES)	MEAN WEIGHT PRICE (DRC./KG)	YEARS	PRODUCTION OF COTTON(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF SUGAR BEET (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	277000	7.07	60522	0.35	1981	358835	45.21	2600000	2.5
1962	253000	6.85	231181	0.44	1982	315869	62.44	2548000	2.68
1963	266000	6.7	350931	0.40	1983	402506	78.73	2500000	3.07
1964	186000	7.58	533310	0.48	1984	452370	103.95	1654500	3.88
1965	205000	7.47	690000	0.52	1985	526045	109.82	2611616	4.65
1966	242000	7.07	830000	0.48	1986	623592	113.87	2561806	4.76
1967	264000	7.23	898719	0.46	1987	571052	133.05	1652000	5.36
1968	210000	8.16	662552	0.50	1988	749807	137.69	2000000	6.4
1969	313000	7.17	1027226	0.50	1989	828944	159.90	3434033	7.66
1970	308000	8.09	1503379	0.47	1990	663032	182.75	2760000	7.75
1971	330000	9.58	1251990	0.46	1991	680000	238.78	2570806	9.03
1972	360000	9.93	1225500	0.52	1992	815000	262.32	3059105	11.01
1973	310000	19	1350000	0.72	1993	986000	276.76	2718700	11.39
1974	350000	16.56	1415000	1.17	1994	1184000	288.13	2420000	12.17
1975	368000	14.1	2660000	1.02	1995	1250000	277.82	2600000	15.03
1976	340000	23.75	3100000	1.08	1996	962000	294.31	2351900	17.02
1977	435000	19.86	2445000	1.14	1997	1059000	295	3095000	18.49
1978	451200	20.68	2800000	1.30	1998	1170000	275	1970000	13.48
1979	320000	24.9	2800000	1.32					
1980	356000	33.12	1440000	1.91					

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 6
EVOLUTION OF VEGETABLES CULTIVATION

YEARS	PRODUCTION OF TOMATO(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF SPINACH (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF LETTUCE(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF CARROT (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF FRESH PEPPERS (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	549877	1.34	17540	1.89	16921	2.17	4986	1.93	16545	1.58
1962	422637	2.13	15004	2.12	18635	2.12	5180	2.84	17494	1.85
1963	526889	1.92	18010	2.00	20129	2.33	7280	2.42	21176	2.07
1964	532490	1.91	18442	2.10	22137	1.71	9073	2.35	20129	2.30
1965	548294	2.12	18267	2.22	22162	2.08	9383	2.64	21769	2.84
1966	610551	2.23	17502	2.69	23283	2.69	7675	2.79	23475	2.70
1967	678222	2.20	19484	2.86	20662	2.80	8030	3.00	25337	2.64
1968	747154	2.25	18696	2.66	26132	3.66	10127	2.92	24667	3.32
1969	826833	1.87	17281	2.96	33970	2.97	11640	2.70	28230	2.58
1970	1021493	1.91	19756	2.87	37359	2.81	14536	2.78	27438	2.68
1971	1168507	1.59	20157	2.49	44155	2.70	15647	2.89	28482	2.90
1972	1046230	2.40	22053	2.52	37143	2.93	14476	3.19	30801	3.06
1973	1300000	2.43	24500	3.44	39464	4.12	15100	5.08	39695	4.94
1974	1590000	3.60	26600	4.37	42081	5.14	12919	5.28	42541	6.41
1975	1647000	3.17	25553	6.51	46745	5.20	15848	6.09	40200	5.19
1976	1109000	5.00	37116	7.35	48500	8.76	15066	7.79	43132	8.74
1977	1393000	5.75	26300	8.51	51750	8.47	16400	9.89	60850	9.84
1978	1718000	4.89	33000	10.32	51450	9.11	17500	11.76	47450	13.60
1979	1749860	6.18	29400	14.53	51420	13.24	13360	11.47	51000	13.00
1980	1684100	6.39	30400	15.34	55020	16.52	19600	11.97	50580	20.41
1981	1915360	8.08	30950	17.40	54670	16.23	21530	10.78	60940	20.29
1982	1894910	10.10	30620	18.81	55980	23.90	23730	22.40	64343	28.04

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 6 (CONTINUE)

YEARS	PRODUCTION OF TOMATO(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF SPINACH (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF LETTUCE(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF CARROT (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF FRESH PEPPERS (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1983	1892965	11.71	31665	26.83	57657	32.28	22257	23.59	56337	36.04
1984	2423637	13.11	32252	36.70	57963	25.70	23128	17.84	58810	44.11
1985	2187457	16.85	37893	42.34	57733	36.45	26409	33.42	69568	51.59
1986	1647594	23.72	39007	45.48	59971	44.30	31124	26.11	70201	52.55
1987	1661982	22.42	43536	55.52	68263	73.71	32069	33.64	68016	54.79
1988	1699831	33.54	44767	59.85	73646	81.29	31333	32.41	71681	86.54
1989	2005384	30.91	46726	81.82	74592	80.71	34923	40.59	77105	88.81
1990	1755382	49.66	47926	80.41	62131	78.18	35193	54.40	88128	127.19
1991	1877236	56.00	48582	120.73	63774	132.78	35707	85.06	93533	121.40
1992	1873845	68.72	43319	124.68	70212	141.96	41083	68.23	90136	136.10
1993	1735207	74.66	49741	133.95	69215	133.00	42926	81.24	81123	139.42
1994	2030530	67.49	47280	144.46	75443	130.71	42591	87.10	90677	151.48
1995	1976660	71.00	44780	144.91	65580	134.73	37490	110.73	89000	136.51
1996	1932824	81.89	46070	160.79	69450	197.59	36250	109.71	92870	157.40
1997	1899500	103.87	47100	201.11	69300	160.40	36300	106.56	88200	183.56
1998	1978230	95.17	45360	173.5	69340	154.33	37670	111.76	86620	167.39

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 6 (CONTINUE)

YEARS	PRODUCTION OF	MEAN WEIGHT	PRODUCTION OF	MEAN WEIGHT	PRODUCTION OF	MEAN WEIGHT	PRODUCTION OF	MEAN WEIGHT	PRODUCTION OF	MEAN WEIGHT	PRODUCTION OF	MEAN WEIGHT
	FRESH ONIONS(TONES)	PRICE (DRC./KG)	DRY ONIONS (TONES)	PRICE (DRC./KG)	PUMPKIN (TONES)	PRICE (DRC./KG)	CUCUMBER (TONES)	PRICE (DRC./KG)	EGGPLANT (TONES)	PRICE (DRC./KG)	CABBAGE (TONES)	PRICE (DRC./KG)
1961	36418	2.24	128351	2.38	56482	1.87	53657	2.14	57927	1.48	89434	1.22
1962	26049	2.45	132788	2.25	55842	2.03	53933	2.31	61142	1.97	87930	1.68
1963	31243	1.98	131505	1.38	58970	1.77	55084	2.26	56223	2.04	101203	1.25
1964	25633	2.16	141545	1.19	58563	1.92	64139	2.12	56462	2.26	106618	1.42
1965	30803	2.78	125257	2.55	59640	2.28	56575	3.13	56037	2.77	108212	1.58
1966	22484	3.40	124583	2.68	63021	2.52	59038	2.91	61323	2.81	100376	1.90
1967	24038	3.30	136988	1.98	61520	2.60	60271	2.99	66034	2.49	106321	1.69
1968	24653	3.60	115296	2.70	60405	2.78	63600	2.93	62823	2.32	110239	1.65
1969	27088	3.86	120455	3.20	52998	2.80	72027	3.95	56489	2.80	122637	1.62
1970	27060	3.55	140951	1.73	60309	2.88	75224	3.13	53573	2.69	128777	1.74
1971	27797	2.93	129760	2.24	65145	2.92	91116	3.45	57035	3.38	134158	1.94
1972	26104	4.49	126537	2.95	65067	3.11	113228	3.89	56347	3.42	137876	2.29
1973	35000	4.66	127000	3.10	64668	4.19	120745	5.19	55122	4.93	13000	3.63
1974	36151	6.44	135311	3.68	65188	5.55	106570	6.49	61880	6.37	128100	3.44
1975	35308	6.60	142142	2.84	57000	5.48	93000	7.10	62800	5.71	125059	3.85
1976	31894	9.74	129142	6.12	60710	6.92	88720	8.07	54192	8.10	135681	5.06
1977	31500	11.56	131510	8.46	77240	9.57	100860	9.19	64755	12.04	132810	7.20
1978	33000	11.19	134300	7.37	83800	10.10	112650	10.92	64200	9.87	137400	7.62
1979	36470	13.03	129600	5.51	79450	11.11	121750	11.56	67600	13.49	134785	7.76
1980	40160	17.79	128150	12.66	86000	13.88	121500	18.12	62750	17.48	132100	8.97
1981	38350	16.65	133820	12.61	77740	17.32	127840	19.19	70470	20.72	137400	10.58
1982	39730	21.83	134840	12.77	77980	26.14	156858	18.72	73540	28.80	172625	11.80

*SOURCE: MINISTRY OF AGRICULTURE

ΠΙΝΑΚΑΣ 6 (CONTINUE)

YEARS	PRODUCTION OF FRESH ONIONS(TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF DRY ONIONS (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF PUMPKIN (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF CUCUMBER (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF EGGPLANT (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF CABBAGE (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1983	37407	34.23	129672	12.76	84146	28.58	121300	34.11	75065	31.10	159725	15.07
1984	37636	47.37	135257	26.34	84161	29.00	127779	32.37	76145	39.13	154248	16.89
1985	41013	56.77	141539	21.28	91049	46.08	150757	41.85	73338	46.54	156408	27.24
1986	33511	51.90	156599	18.39	87316	45.38	139991	47.02	79122	40.02	164277	22.09
1987	34439	68.95	161443	20.23	89669	51.23	152262	54.61	79539	51.60	172408	29.67
1988	32615	74.40	155065	31.25	104175	78.99	135532	54.72	73646	65.87	180810	31.39
1989	31629	88.30	160320	30.60	102044	92.71	170037	66.10	74592	68.31	188420	37.90
1990	31457	97.47	144809	36.34	95368	107.35	165070	73.83	73698	9.21	179951	39.00
1991	32462	148.10	153368	56.54	103140	96.56	180994	82.65	75194	127.41	187521	51.50
1992	32304	188.45	150705	58.94	93905	96.91	147743	87.80	79954	117.57	192238	74.32
1993	33830	175.10	148212	53.79	79838	107.65	181777	118.45	78113	110.82	181791	53.93
1994	30596	196.14	148524	63.98	91801	113.81	183102	101.28	83187	115.32	202318	73.98
1995	31300	212.27	154050	66.30	91130	144.14	179450	132.74	95523	109.22	190120	71.13
1996	32140	161.92	165980	61.44	96950	121.61	149120	154.10	80020	122.12	192276	50.86
1997	32920	184.27	151420	53.53	78430	157.58	146610	3190.73	81000	170.76	201700	89.71
1998	32000	159.42	169370	44.19	93100	155.88	151050	171.19	83780	148.34	208700	79.54

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 7
EVOLUTION OF CITRUS FRUITS CULTIVATION

YEARS	PRODUCTION OF TANGERINES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF ORANGES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF LEMONS (TONES)	MEAN WEIGHT PRICE (DRC./KG)	YEARS	PRODUCTION OF TANGERINES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF ORANGES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF LEMONS (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	20592	1.69	207000	1.33	87000	1.99	1981	49075	19.41	726320	10.78	214145	17.54
1962	16522	2.33	213065	1.85	90835	2.10	1982	60023	21.59	738700	11.36	178795	20.46
1963	19386	2.08	203644	1.83	83645	2.04	1983	58096	24.44	690722	15.94	188250	22.73
1964	24853	2.23	295996	1.34	88314	1.74	1984	52710	30.51	775544	17.77	170900	23.83
1965	20021	2.57	297331	1.63	97680	2.63	1985	54048	36.39	554200	22.53	186680	31.39
1966	26757	2.28	379268	1.69	106858	2.17	1986	68450	34.93	881100	27.56	187000	32.73
1967	19441	2.24	190330	1.55	93096	1.75	1987	49344	50.07	461320	26.56	88560	34.07
1968	24331	2.35	330384	1.46	68188	2.60	1988	70690	53.58	789000	33.96	172970	42.57
1969	27891	2.93	435113	1.60	116460	2.30	1989	77071	52.50	934100	31.41	190680	34.10
1970	26972	2.93	394339	1.72	135168	2.38	1990	75640	60.62	855390	34.45	177892	43.02
1971	27818	3.10	362203	2.09	132170	3.32	1991	62180	72.35	809490	41.31	121194	54.56
1972	32121	3.57	399000	1.98	141454	3.92	1992	89004	76.86	1004530	45.39	177003	75.03
1973	29270	4.12	392700	2.34	154200	4.06	1993	72728	75.37	879380	40.50	137041	57.68
1974	31200	5.32	505000	2.72	185000	4.80	1994	87950	72.36	930170	55.21	146610	85.54
1975	33400	5.66	474000	2.46	191000	4.80	1995	81185	96.54	822600	58.56	142300	68.33
1976	33600	6.56	499000	3.40	190000	6.63	1996	71001	100.15	870240	63.00	142221	78.27
1977	26000	7.34	429000	3.41	197000	6.23	1997	84600	84.17	965000	48.34	162000	69.07
1978	25000	11.11	480000	5.84	134000	8.08	1998	85000	87.31	801000	49.18	143000	63.53
1979	25000	16.71	313450	11.32	140200	13.41							
1980	32500	19.78	507400	13.51	181000	15.28							

*SOURCE: MINISTRY OF AGRICULTURE

ΠΙΝΑΚΑΣ 8

EVOLUTION OF OIL AND EDIBLE OIL

YEARS	PRODUCTION OF EDIBLE OIL (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF OIL (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	82966	5.27	247855	14.88
1962	12004	9.03	55807	19.10
1963	53538	8.00	209413	19.22
1964	28698	7.46	129474	19.50
1965	45847	8.19	190740	20.10
1966	45000	8.04	185000	20.90
1967	61300	9.18	185000	21.40
1968	45155	11.24	153635	24.70
1969	46690	12.10	155626	25.30
1970	42000	13.29	197700	28.55
1971	77000	10.80	183000	27.01
1972	60700	12.32	249400	29.71
1973	67257	14.88	192400	37.62
1974	67300	16.03	237000	47.86
1975	95000	16.54	257000	54.67
1976	54000	25.82	225000	56.01
1977	68980	32.39	231000	61.88
1978	69700	31.50	235000	73.45
1979	49800	39.85	203000	81.94
1980	87000	43.68	330000	97.80

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 9

EVOLUTION OF VINEYARDS CULTIVATION

YEARS	PRODUCTION OF TABLE GRAPES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF CORINTHIAN GRAPES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF SULTANA(TONES)	MEAN WEIGHT PRICE (DRC./KG)	YEARS	PRODUCTION OF TABLE GRAPES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF CORINTHIAN GRAPES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF SULTANA(TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	130508	2.19	92100	5.97	54100	7.00	1981	280813	19.63	71000	70.21	98000	79.55
1962	120330	2.36	109000	5.65	84000	6.50	1982	238647	22.25	71049	84.57	74900	95.63
1963	112767	2.54	77500	7.04	53000	7.58	1983	252995	32.33	75106	91.39	102000	105.34
1964	130925	2.60	77950	7.97	67900	9.02	1984	258846	35.49	76000	112.66	78000	115.78
1965	148868	2.74	78500	9.00	95000	10.00	1985	271097	39.16	76000	128.60	90000	141.20
1966	155000	3.10	93300	9.54	86054	10.42	1986	255283	52.00	75100	143.81	70000	146.90
1967	152065	3.14	90000	7.00	57000	7.10	1987	250541	53.19	50960	167.65	39900	174.98
1968	183530	3.00	91650	7.00	96136	7.00	1988	260822	57.15	61000	196.31	77000	202.74
1969	181320	2.87	96300	6.60	91000	7.36	1989	221752	91.70	53770	219.64	83500	240.71
1970	179370	3.08	88200	7.21	81500	7.23	1990	220299	108.76	40000	259.39	36000	256.05
1971	176000	3.08	88700	7.00	87407	7.10	1991	240102	83.47	40190	352.71	37000	236.22
1972	172611	3.54	73150	7.50	71500	11.18	1992	251743	96.25	40800	417.29	37000	205.08
1973	156000	6.89	75500	18.45	57800	23.19	1993	276128	136.13	53300	184.33	37500	175.21
1974	202000	6.39	87050	17.81	109000	21.44	1994	299102	128.00	43300	168.31	33700	187.09
1975	196000	7.36	67900	18.39	87000	22.00	1995	226068	113.00	33000	266.35	32700	157.19
1976	204517	10.72	60000	23.87	81266	28.44	1996	246384	131.89	50800	169.85	39400	167.83
1977	187000	12.82	77000	28.58	61500	30.42	1997	216062	160.15	40500	168.39	39400	187.24
1978	223500	13.06	67000	30.69	8100	38.58	1998	212121	161.62	43500	247.12	39400	173.00
1979	204300	15.70	56000	40.57	78665	57.09							
1980	253000	18.58	61800	59.28	68500	66.27							

***SOURCE: MINISTRY OF AGRICULTURE**

TABLE 10
EVOLUTION OF DRY FRUITS

YEARS	PRODUCTION OF DRY FIGS (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF ALMONDS (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF WALNUTS (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF PISTACHIO-NUT (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	28139	2.92	21683	7.66	11398	11.35	281	38.41
1962	25525	2.81	11109	9.57	11584	10.98	234	44.87
1963	28841	3.18	14204	9.94	11033	11.69	318	47.54
1964	22937	3.38	20093	9.90	13564	12.67	428	48.95
1965	22254	4.39	18933	12.65	15974	14.58	585	45.76
1966	24502	4.68	19444	15.12	13103	17.13	521	63.68
1967	16181	3.25	25876	14.32	17889	17.48	861	80.24
1968	23983	3.80	28251	14.00	18565	17.23	789	60.00
1969	26750	3.30	26107	14.95	21042	18.00	835	52.00
1970	25182	3.93	24453	17.27	21843	18.73	626	64.22
1971	23010	4.41	17722	18.27	23372	19.83	862	78.81
1972	24887	6.12	22850	22.45	25271	23.16	1246	85.20
1973	22429	14.00	22996	30.17	25975	31.87	1028	94.01
1974	18740	14.68	29000	29.23	26500	33.00	1400	71.57
1975	20114	15.71	36800	28.64	23856	35.41	1123	105.70
1976	22513	17.62	34456	31.14	25304	41.51	1522	135.74
1977	20000	20.81	28510	41.94	17200	53.57	1640	152.33
1978	19000	27.08	34600	43.16	21600	62.01	1487	167.83
1979	17900	34.19	29800	55.99	21400	87.90	2190	246.69
1980	16600	38.96	41000	74.24	22660	118.02	2514	232.80

***SOURCE: MINISTRY OF AGRICULTURE**

TABLE 11

EVOLUTION OF FRUIT PRODUCTION

YEARS	PRODUCTION OF APPLES (TONES)	MEAN WEIGHT PRICE (DRC./KG)	PRODUCTION OF PEAR-TREE (TONES)	MEAN WEIGHT PRICE (DRC./KG)
1961	126529	1.70	40397	2.47
1962	140254	1.60	34246	3.13
1963	132937	2.00	44935	3.17
1964	159848	1.74	53398	3.25
1965	165917	2.69	45007	4.24
1966	165770	2.59	55145	4.23
1967	178459	2.57	68665	4.52
1968	191817	2.25	91277	3.51
1969	193503	2.82	82733	4.30
1970	207099	2.46	109108	3.77
1971	225310	3.16	104006	4.25
1972	183440	4.03	114300	4.56
1973	232900	4.07	120500	7.02
1974	200150	5.15	88006	9.21
1975	250000	5.21	124000	6.51
1976	255081	8.41	107445	12.94
1977	222165	8.83	109875	11.54
1978	183000	14.26	80500	19.67
1979	279500	11.81	104400	18.59
1980	261600	14.26	111000	22.82
1981	337091	12.48	142805	17.92
1982	264747	18.57	129050	29.04
1983	318700	24.21	146035	36.86
1984	281739	20.95	101218	44.25
1985	256520	30.00	111041	52.26

TABLE 11 (CONTINUE)

1986	311508	36.52	110110	57.81
YEARS	PRODUCTION OF	MEAN WEIGHT	PRODUCTION OF	MEAN WEIGHT
	APPLES (TONES)	PRICE (DRC./KG)	PEAR-TREE (TONES)	PRICE (DRC./KG)
1987	288375	36.28	91275	69.34
1988	269100	48.62	95330	84.20
1989	264270	53.61	94890	93.02
1990	350242	51.92	93675	117.56
1991	186254	104.94	66177	151.56
1992	396577	103.80	92321	137.39
1993	330918	81.31	78147	130.10
1994	329820	87.80	76400	154.06
1995	330585	102.83	59600	195.07
1996	335060	72.86	71560	149.86
1997	292400	71.51	59600	169.34
1998	332160	114.96	69300	140.69

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 12

EVOLUTION OF VETERINARY PRODUCTS

	PRODUCTION OF BOVINE	MEAN WEIGHT	PRODUCTIO N OF SHEEP	MEAN WEIGHT	PRODUCTION OF GOAT	MEAN WEIGHT	PRODUCTION OF PIG	MEAN WEIGHT
	MEAT (TONES)	PRICE (DRC./KG)	MEAT (TONES)	PRICE (DRC./KG)	MEAT (TONES)	PRICE (DRC./KG)	MEAT (TONES)	PRICE (DRC./KG)
1961								
1962	41175	21.89	55830	20.10	30533	20.10	40429	19.57
1963	47752	24.49	60719	22.47	31013	22.47	42303	20.00
1964	53343	28.09	60315	25.95	28753	25.95	40591	24.10
1965	58229	30.58	58268	28.53	27994	28.53	42934	25.03
1966	62890	34.30	60332	32.25	28506	32.25	41820	24.56
1967	72094	35.15	58501	33.05	27233	33.05	41564	25.86
1968	78818	34.00	57753	32.56	27660	32.56	41821	26.42
1969	84030	35.40	57742	33.77	28400	33.77	4707	28.20
1970	88303	38.55	60110	38.69	30086	38.69	55146	28.41
1971	86660	42.30	54175	41.76	32128	41.76	66415	28.20
1972	88086	47.76	65589	45.60	33361	45.60	73279	32.75
1973	90644	57.72	70684	56.42	35600	56.42	90814	41.25
1974	110179	70.33	74806	69.90	36858	69.90	104054	39.63
1975	123129	73.79	76776	74.22	38947	74.22	110086	50.95
1976	120935	93.61	77982	97.45	39347	97.45	117979	59.04
1977	108441	106.78	79958	111.71	38538	111.71	117485	62.52
1978	100685	119.81	79897	127.70	38650	127.70	124003	67.76
1979	98506	158.26	80222	164.82	38516	164.82	135450	82.07
1980	100500	197.17	80458	203.63	39366	203.63	144337	97.08
1981	93860	260.74	79678	272.30	39775	272.30	154090	118.41

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 12 (CONTINUE)

	PRODUCTION OF BOVINE	MEAN WEIGHT	PRODUCTION OF SHEEP	MEAN WEIGHT	PRODUCTION OF GOAT	MEAN WEIGHT	PRODUCTION OF PIG	MEAN WEIGHT
	MEAT (TONES)	PRICE (DRC./KG)	MEAT (TONES)	PRICE (DRC./KG)	MEAT (TONES)	PRICE (DRC./KG)	MEAT (TONES)	PRICE (DRC./KG)
1982	88944	301.86	79573	313.84	39650	313.84	154513	135.08
1983	85808	341.28	81940	358.51	39301	358.51	148739	164.02
1984	84938	403.46	81833	422.70	39839	422.70	146180	188.65
1985	82403	459.60	81390	490.43	40893	490.43	147363	222.00
1986	82156	498.64	70860	526.20	35856	526.20	152911	279.79
1987	85557	554.57	83515	587.06	40978	587.06	163789	262.37
1988	81777	639.16	83395	648.10	43742	648.10	159785	273.88
1989	81159	708.80	80680	718.80	48206	718.80	151177	347.71
1990	81830	769.15	83771	784.65	45671	784.65	146967	391.62
1991	81470	860.50	82699	925.70	45295	925.70	152935	439.80
1992	79545	969.69	85244	1064.20	47097	1064.20	153107	532.34
1993	76370	1004.20	82367	1054.20	46630	1054.20	147040	463.10
1994	74251	1074.30	82670	1119.41	46544	1119.41	142455	508.61
1995	70587	1144.00	82766	1180.80	46764	1180.80	144128	568.50
1996	71382	1185.63	84042	1217.41	46948	1217.41	141722	633.24
1997	70076	1259.54	83639	1285.81	47397	1285.81	144646	659.36
1998	71382	1250.20	82628	1286.10	46862	1286.10	142262	617.2

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 12 (CONTINUE)

	PRODUCTION	MEAN WEIGHT	PRODUCTION	MEAN WEIGHT	PRODUCTION COW	MEAN WEIGHT	PRODUCTION SHEEP	MEAN WEIGHT	PRODUCTION GOAT	MEAN WEIGHT
YEARS	OF POULTRY (TONES)	PRICE (DRC./KG)	RABBITS (TONOI)	PRICE (DRC./KG)	MILK (TONOI)	PRICE (DRC./KG)	MILK (TONOI)	PRICE (DRC./KG)	MILK (TONOI)	PRICE (DRC./KG)
1961					361038	3.07	328354	3.94	275600	3.11
1962	23207	22.30	2612	20.80	413802	2.86	373358	4.25	283213	3.01
1963	24484	23.28	2541	25.78	416596	2.80	372296	4.19	278511	2.98
1964	25898	25.59	2607	27.88	424832	2.89	368608	4.41	269581	3.18
1965	33010	26.66	2463	28.27	473988	3.15	370152	5.08	276115	3.67
1966	36061	24.68	2200	28.59	522969	3.45	403189	6.33	282976	4.32
1967	46467	25.33	2157	31.80	564183	3.37	424713	6.08	295053	4.25
1968	51162	24.20	2020	29.84	561062	3.32	396226	6.02	296485	4.14
1969	58307	25.00	2739	30.00	564868	3.30	425782	6.05	311075	4.24
1970	67404	24.74	3421	34.36	570109	3.12	438921	6.17	330116	4.16
1971	82997	24.76	4111	39.12	566673	3.08	472149	6.19	352797	4.34
1972	90999	25.20	5127	45.35	574521	3.15	495433	6.39	369191	4.34
1973	103047	32.24	7047	56.54	654221	3.81	530315	7.49	383521	5.11
1974	109426	36.98	7946	58.36	686711	4.71	545980	9.23	400108	6.39
1975	114570	39.75	7783	63.96	723370	5.21	558272	10.03	408760	7.03
1976	124898	42.12	7109	79.03	694961	6.35	563688	11.80	408334	8.12
1977	128169	46.58	4937	86.89	741005	6.74	578390	13.39	412641	8.99
1978	131866	48.97	4685	101.12	705064	7.77	576227	15.74	413532	10.47
1979	134795	56.06	4386	129.17	684151	9.05	586566	18.37	423629	11.88
1980	144481	65.98	4275	162.81	712832	10.60	571852	21.38	414383	14.68
1981	146088	89.94	4298	205.18	705200	14.84	562000	27.37	403800	18.52

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 12 (CONTINUE)

	PRODUCTION	MEAN WEIGHT	PRODUCTIO N	MEAN WEIGHT	PRODUCTION COW	MEAN WEIGHT	PRODUCTION SHEEP	MEAN WEIGHT	PRODUCTION GOAT	MEAN WEIGHT
YEA RS	OF POULTRY (TONES)	PRICE (DRC./KG)	RABBITS (TONOI)	PRICE (DRC./KG)	MILK (TONOI)	PRICE (DRC./KG)	MILK (TONOI)	PRICE (DRC./KG)	MILK (TONOI)	PRICE (DRC./KG)
1982	156652	102.50	4395	231.67	705200	14.84	562000	27.37	403800	18.52
1983	153625	125.22	4544	264.12	676800	18.12	568300	36.54	408300	24.88
1984	152484	144.55	4361	272.67	679300	20.98	568700	43.52	429300	30.10
1985	154870	167.35	4483	368.59	687100	24.95	612100	49.29	454300	34.95
1986	141087	207.32	4104	501.09	663000	30.88	596800	62.27	433700	43.64
1987	149155	246.14	4518	522.32	648100	36.88	629800	74.56	461600	51.62
1988	149244	261.19	4854	563.30	649000	39.40	646100	77.25	467400	54.67
1989	153364	291.45	4825	665.21	678600	43.72	668600	86.68	465500	58.41
1990	160122	342.47	4990	813.36	714000	52.48	616600	100.32	448100	67.89
1991	160464	430.00	5174	987.00	716300	61.73	637900	129.47	448800	89.65
1992	175101	447.38	5248	1036.80	711300	67.50	630900	144.10	442400	98.20
1993	170861	451.80	4708	1042.20	730900	81.11	631400	162.23	440700	104.13
1994	171900	500.56	4630	1152.73	747000	91.30	634000	184.95	447000	126.20
1995	160893	568.80	4610	1206.50	769300	98.86	641300	248.12	436200	160.84
1996	176787	541.10	4174	1201.10	763500	100.00	638600	241.36	432000	157.92
1997	172536	570.94	4258	1231.18	741200	97.99	625800	186.69	421000	115.56
1998	147900	554.50	4453	1301.80	730000	105.27	627200	217.23	410900	138.95
					769584	108.30	630128	237.30	447184	157.70

*SOURCE: MINISTRY OF AGRICULTURE

TABLE 13*

YEARS	PRODUCTION	NUMBER OF VESSELS	EMPLOYEES (DIVER)
1979	48903	81	377
1980	31201	71	255
1981	37182	82	233
1982	37800	60	222
1983	30000	60	310
1984	29000	5	233
1985	33000	68	238
1986	33000	56	224
1987	10000	27	135
1988	15500	45	180
1989	17000	66	217
1990	10000	56	17
1991	2500	71	235
1992	4000	11	33
1993	7000	17	51
1994	10000	17	31
1995	10000	23	66
1996	10000	23	66
1997	10000	12	36
1998	10000	18	54
1999	10000	20	60

* SOURCE: Statistical yearbooks of E.S.S.G 1988, 2001.

TABLE 14

In constant prices of 1980

YEARS	DEMANDING QUANTITY OF FERTILIZERS	PRICE OF FERTILIZERS	PRODYCER PRICE INDEX WITHOUT INCOMING AIDS	PRODYCER PRICE INDEX WITH INCOMING AIDS	PROVISIONS PRICE INDEX
1975	438,1	45,3	45,6	45,5	51,5
1976	482,3	53,2	53,6	53,7	55,1
1977	505,3	55,5	60,8	61,3	64,4
1978	582,5	56,7	68,8	69,7	70,4
1979	581	68,1	82,3	82,2	789
1980	526	100	100	100	100
1981	527	111,2	125,4	124,4	132,6
1982	590,7	111,2	151,6	152,2	158,6
1983	640,2	149,4	178,6	179,1	201,9
1984	611,2	153,1	214,5	215,5	234,5
1985	709,9	165,3	249,4	254,5	274
1986	665,8	195,5	274,3	287,8	318,4
1987	555,4	233,7	309,5	322,6	347,1
1988	648,8	275,2	347,6	364,1	371,2
1989	649,5	275,4	414,2	426,2	440,5
1990	695,3	319,2	498,3	514,2	503
1991	652,1	417,5	592	607,1	601,4
1992	628	549,3	631,8	631,8	632,9
1993	509	549,8	631,8	631,8	718,6

*ΠΗΓΕΣ: 1. Rural Bank of Greece, Address of Studies and Planning Department of Statistics Athens 1985

2. FAO

3. P.P. PARASKEVAIDI Origin sources realizing mechanisms of economic surplus: The case of Greek rural sector, K.E.P.E. Studies 43, Athens 1995.

TABLE 15

In constant prices of1970 (Millions drachmas.)

YEARS	PRIVATE INVESTMENTS	GROSS DOMESTIC PRODUCT	YEARS	PRIVATE INVESTMENTS	GROSS DOMESTIC PRODUCT
1950	509	20683	1973	5691	51204
1	801	23475	4	4362	53672
2	850	22159	5	5024	56733
3	655	27898	6	4938	55971
4	793	27179	7	5657	51830
5	899	29078	8	4785	57214
6	1167	29851	9	5237	53616
7	1793	33738	1980	4112	60499
8	2196	31413	1	3859	59516
9	2492	32947	2	3702	60940
1960	2758	29863	3	3490	55518
1	2534	37836	4	4988	59394
2	2089	32888	5	5076	60133
3	2462	39594	6	2815	62250
4	3386	39446	7	2171	58385
5	4029	43377	8	4441	61963
6	3312	43687	9	4667	63180
7	4172	44311	1990	4973	55666
8	4861	40484	1	4691	61267
9	4571	43085	2	5767	61082
1970	4055	47058	3	4872	60223
1	4504	48662	4	5637	63749
2	4816	51543	5	5076	61176

ΠΗΓΗ : 1. SOURCE: Statistical yearbooks of E.S.S.G 1992, 1993, 1999.
2. Rural Bank of Greece, Address of Studies and Planning Department of Statistics Athens 1985

TABLE 16

In constant prices of 1970 In million drachmas

YEARS	NATIONAL RURAL INCOME	NATIONAL RURAL SAVING	RURAL PRIVATE CONSUMPTION	YEARS	NATIONAL RURAL INCOME	NATIONAL RURAL SAVING	RURAL PRIVATE CONSUMPTION
1960	25420	2758	22662	1978	66271	4785	61486
1	31488	2534	28954	9	61840	5237	56603
2	30882,5	2089	28793,5	1980	67897,6	4112	63785,6
3	35130,6	2462	32668,6	1	66475,2	3859	62616,2
4	37868,3	3386	34482,3	2	71064	3702	67362
5	42554,8	4029	38525,8	3	63824	3490	60334
6	43278,8	3312	39966,8	4	69140	4988	64152
7	43585	4172	39413	5	69861	5076	64785
8	40292	4861	35431	6	58646	2815	55831
9	42802	4571	38231	7	58750	2171	56579
1970	45355	4055	41300	8	65317	4441	60876
1	49000	4504	44496	9	67667,8	4667	63000,8
2	55244	4816	50428	1990	58535	4973	53562
3	68271	5691	62580	1	67319	4691	62628
4	61546	4362	57184	2	59017	5767	53250
5	59702	5024	54678	3	55376	4872	50504
6	64601	4938	59663	4	58548	5637	52911
7	53362	5657	47705	5	58646	5076	53570

ANNEX 2.

DEPARTMENT 1.

The Chow Test shows us if the factors of regression of two totals are equivalent. We regressed in the program Eviews the G.R.P. with the years and we took
the F that is equal with 42.10214. Fc is the critical price which results as follows:
$\frac{k+1}{n1+n2-2*k-2}$ These are also the degrees of freedom, where k number of explanatory variables (in our case the years) and n1 and n2 are corresponding subsets 1948-1975 and 1976-1995. The fraction that results is: $\frac{2}{44}$. From the critical tables of distribution of statistical Fc we see that he critical prices for degrees of freedom 2 and 44 are 1.36, 2.84, 4.08 and 7.31, respectively for levels of statistical significance α = 0.25, 0.10, 0.05 and 0.01. Price F exceeds the price Fc,, after 42.10214 > 1.36, 2.84, 4.08 and 7.31.

DEPARTMENT 2.

The calculation of elasticities becomes with the model of adaptive expectations[1]. The model in his theoretical form is:

$$\mathbf{Y_t = b_0 + b1X^*_t + u_t} \qquad \mathbf{(1)}$$

The prices of X^*_t are reported in expected and no in the real prices ,supposing that the expectations are adjusting depending on the errors of the past. The relation is:

$$X^*_t - X^*_{t-1} = \delta (X_t - X^*_{t-1}) \qquad (2)$$

, where δ is also the factor of expectations for that it is in effect, $0 \le \delta \le 1$.

With few algebraic transformations we have:

$$X^*_t = \delta X_t - \delta X^*_{t-1} + X^*_{t-1} =>$$

$$X^*_t - \delta X_t + (1-\delta) X^*_{t-1} \quad (3)$$

If δ=1, then $X^*_t = X_t$, which means that the expectations become immediately also complete the in the same time period. If δ=0, then $X^*_t = X^*_{t-1}$, which means that the expectations are static. Conditions that are in effect today will continue being in effect also in the future. Or in other words the future expected prices present identification with the running prices.

1. Damodar N. Guzarati, Basic Econometrics, 1995, sel. 596-598 and lectures of Chalkos George.

We continue the algebraic transformations. Replacing the relation (3) in the relation (1), we have:

$$Y_t = b_0 + b_1 [\delta Xt + (1-\delta) X^*_{t-1}] + u_t$$
$$= b_0 + b_1\delta X_t + b_1(1-\delta)X^*_{t-1} + u_t \quad (4)$$

We take delay a time period the relation (1), we multiply it with (1-δ) and subtract from the relation (4) and taking finally the relation:

$$Y_t= \delta b_0 + \delta b_1X_t + (1-\delta)Y_{t-1} + u_t – (1-\delta)\, u_{t-1}$$
$$= \delta b_0 +\delta b_1X_t + (1-\delta)\, Y_{t-1} +v_t$$
$$, \text{where } v_t= u_t – (1-\delta)\, u_{t-1}$$

The data are mentioned in table 4, where is presented the development of production and prices of producer for the cereals. The model is:

$$Y_t = b_0 + b_1X_t + b_2Y_{t-1}$$

,where Y_t = production, X_t = the prices and Y_{t-1} = the production of previous period. A first effort that became was to take as dependent variable the total production of all cereals and as explanatory or independent their prices. The problem however that resulted was the appearance of multicollinearity, after the factor of correlation is big, the signs of coefficients of variables are erroneously and not reliable, as well as existence of high VIF that implies existence of intense multicollinearity, that leads us to error conclusions. The model that is usually preferred is logarithmic, that is judged as the best because it has higher R^2, it is considered better according to test that is affixed by MacKinnon, White and Davidson, that we call it MWD test, as well as the advantage that has the logarithmic model in the particular case that it straight presents the short-run elasticities that are not other than the factors of variables and long-run result from the division short-run with the factor δ. The price of VIF begins from prices 8,9 and reaches until 1114. For this reason was preferred to take each product separately, with regard to its total production and its price. We can of course in the antipode to claim that this is error because we do not take into our consideration the production of other products, as well as their price, and the effect that it can practise in the business dexterity of producer. Characteristic however element in Greece is that the farmers produce only a product and they intend, as it is natural in his commercialization, and they produce a very small part of other good of product clearly for reasons of auto-consumption (stock farming of goat, the gardens etc.). Therefore is not erroneous the affair that we make previously.

· CEREALS

The regression for the tender wheat has as follows:

$LnYt = 4{,}942 – 0{,}099\ln X_t + 0{,}664\ln Y_{t-1}$ $R^2_{(adj.)} = 67{,}7\%$ F= 38,44
t-statistics (2,45) (4,35) (2,736)

D W =2,68

The long-run elasticity is equal with = -0,3.

Test for autocorrelation with statistic h it cannot become, because var (b_2) > 1. Therefore will become control with the test Breusch - Godfrey $(BG)^2$ where if (n-p)*R2 > Xa,p, then is rejected the H_0 hypothesis, that does not exist autocorrelation. For one lag we have r=0,012 and (38-1)*0,012=0,444< from 3,841, 5,024 and 6,635 for X_2 test in l.s.s. 0,05, 0,25 and 0,01 equivalents. Until six lags is in effect hypothesis H_0 (does not exist autocorrelation). Also, we apply the ARCH for test of heteroscedasticity and we have the followings.

$Ut^2 = 0,0396 + 0,168\ Ut^2\text{-}1$
F= 1,00

$Ut^2 = 0,0335 + 0,177\ U^2_{t-1} + 0,075\ U^2_{t-2}$

F= 0,70

$Ut^2 = 0,0325 + 0,156\ U^2_{t-1} + 0,094\ U^2_{t-2} - 0,005\ U^2_{t-3}$

F=0,40

$Ut^2 = 0,0297 + 0,174\ U^2_{t-1} + 0,110\ U^2_{t-2} - 0,041\ U^2_{t-3} + 0,091\ U^2_{t-4}$

F= 0,42

$Ut^2 = 0,0284 + 0,156\ U^2_{t-1} + 0,124\ U^2_{t-2} - 0,029\ U^2_{t-3} + 0,069\ U^2_{t-4} + 0,059\ U^2_{t-5}$

F= 0,42

$Ut^2 = 0,0329 + 0,156\ U^2_{t-1} + 0,123\ U^2_{t-2} - 0,024\ U^2_{t-3} + 0,083\ U^2_{t-4} + 0,061\ U^2_{t-5} - 0,090\ U^2_{t-6}$

F= 0,27

From that we see the F of the above regressions are lower from the critical prices of tables of distribution of F, that means does not exist the problem of heteroscedasticity.

Follows also the same process for the other products. For the hard wheat we have the following results:

$LnYt = 9,05 + 0,366\ lnX_t + 0,256 ln\ Y_{t-1}$ R-Sq(adj) = 85,6% F= 108,05
t-statistics (4,80) (4,54) (1,69)

D W= 2,44

2. Damodar N. Guzarati, Basic Econometrics, 1995 , σελ.425-426

The factor δ = 0,744 and the long-run elasticity is 0,49. The test for autocorrelation will become once again with the BG test and no with statistics h, because the weaknesses that I reported hardly more [var(b2)>1]. The r for seven lags has as follows:

For r=1, 0,054*(38-1)= 1,998< $X^2_{0,05,\ 0,01,\ 0,25,\ 1}$= 3,841, 6,635 and 5,024
For r=2, 0,193*(38-2)= 6,948<$X^2_{0,25\ 0,01,\ 2}$ = 7,378 and 9,210, but is higher in l.s.s. α=0,05 which is 5,999. For the other r however is in effect that (n-p)*R_2< $X_{20,05,\ 0,25,\ 0,10}$ r the F for control ARCH until six lags were following: F1 = 1,141, F2 = 0,79, F3 = 0,48, F4 = 0,36,F5 = 0,46 and F6 = 0,36.

For the maize follows the following regression:

$\ln Y_t$ = 1,04 + 0,0290ln X_t + 0,923ln Y_{t-1} R-Sq(adj) = 96,7% F=531,37
t-statistics (0,79) (0,410) (8,56)

D W =1,64 δ=0,077 long run elasticity=0,38

Test for autocorrelation becomes once again with the BG test and
for four lags has:
r1 = 0,029, 0,029* (38-1) = 1,073, r2 = 0,033, 0,033* (38-2) = 1,188, r3 = 0,063, 0,063* (38-3) = 2,205 r4 = 0,07, 0,07* (38-4) = 2,38.It is obvious that does not exist autocorrelation. For control ARCH and four lags we have:
F1 = 0,40, F2 = 0,50, F3 = 0,33, F4 = 0,25. Becomes acceptable the affair for existence of homoscedasticity.
For the oat we took the following model:

$\ln Y_t$ = 4,53 + 0,104 $\ln X_t$ + 0,583 $\ln Y_{t-1}$ R-Sq(adj) = 82,3% F=84,64
t-statistics (3,48) (3,44) (4,92)

D W = 2,51

Test becomes with the BG test. For five lags we took the results:
r1 = 0,082, 0,082* (38-1) = 3,034, r2 = 0,108, 0,108* (38-2) = 3,888, r3 = 0125, 0,125* (38-3) = 4,375 r4 = 0,156, 0,156* (38-4) = 5,304 and r5 = 0,162, 0,162*(38-5)=5,67. The hypothesis that exists of autocorrelation is rejected. The test for ARCH had as follows: F1 = 0,26, F2 = 1,11, F3 = 0,93, F4 = 1,00 and F5 = 0,99.

Below is mentioned the equation for the rye.

$\ln Y_t$ = 0,802 + 0,103 $\ln X_t$ + 0,894 $\ln Y_{t-1}$ R-Sq(adj) = 94,6% F= 314,09
t-statistics(1,92) (3,30) (19,00)

D W = 1,77 δ= 0,106 long run elasticity = 0,97

Test for autocorrelation becomes with the BG test. r1 = 0,009, 0,009* (38-1) = 0,333, r2 = 0,009, 0,009* (38-2) = 0,324, r3 = 0,014, 0,014* (38-3) = 0,49 r4 = 0,048, 0,048* (38-4) = 1,632 and r5 = 0,058, 0,058* (38-5) = 1,914. Control for ARCH:
F1 = 1,08, F2 = 1,24, F3 = 1,11, F4 = 1,05 and F5 = 0,99. Becomes acceptable the hypothesis that it exists homoscedasticity.

For the rice we have:

$\ln Y_t = 1,84 + 0,0477\ln X_t + 0,831\ln Y_{t-1}$ R-Sq(adj) = 81,5% F= 80,55
t-statistics (1,74) (2,23) (8,79)

D W= 1,35 δ= 0,169 long run elasticity = 0,28

Test for autocorrelation with the BG test revealed the existence of autocorrelation, which was solved with the estimate of ρ with four repetitions and the final corrected model it has as follows:

$\ln Y_t = 3,306 + 0,0518\ln X_t + 0,769\ln Y_{t-1}$ R-Sq(adj) = 82,4% F= 85,02
t-statistics (1,51) (1,69) (8,24)

D W = 1,59 δ= 0,231 long run elasticity = 0,225

Now the control for existence of autocorrelation has as follows:
r1 = 0,03, 0,03* (38-1) = 1,11, r2 = 0,036, 0,036* (38-2) = 1,296, r3 = 0,038, 0,038* (38-3) = 1,33, r4 = 0,052, 0,052* (38-4) = 1,768 and r5 = 0,31, 0,31* (38-5) = 10,23, r6 = 0,359, 0,359* (38-6) = 11,488 and r7 = 0,311, 0,311* (38-7) = 9,019. Becomes acceptable the affair that does not exist autocorrelation. Control for ARCH for nine lags: F1 = 0,04, F2 = 0,04, F3 = 0,30, F4 = 1,08 and F5 = 3,45, F6 = 2,76, F7 = 2,22, F8 = 1,76 and F9 = 0,35.
For the sunflower the regression is:

$\ln Y_t = 0,743 + 0,188\ln X_t + 0,861\ln Y_{t-1}$ $R^2_{(adj.)}$= 91,5% F= 195,55
t-statistics (1,54) (1,67) (10,86)

D W = 1,58 δ= 0,139 long run elasticity = 1,35

The BG test for the existence of autocorrelation is: r1 = 0,038, 0,038* (38-1) = 1,406, r2 = 0,034, 0,034* (38-2) = 1,224, r3 = 0,064, 0,064* (38-3) = 2,24, r4 = 0,103, 0,103* (38-4) = 3,502 and r5 = 0,162, 0,162* (38-5) = 5,67, r6 = 0,179, 0,179* (38-6) = 5,728. The hypothesis of existence of autocorrelation is rejected. Control for ARCH became up to with five lags and the results are: F1 = 0,80, F2 = 0,39, F3 = 0,33, F4 = 0,48 and F5 = 0,39. Consequently, it does not exist heteroscedasticity.
Finally the regression for the barley presented econometric problems.

$\ln Y_t = 3,02 - 0,0621\ln X_t + 0,784\ln Y_{t-1}$ R-Sq(adj) = 70,4% F= 43,85
t-statistic (2,59) (-1,97) (8,97)

D W = 2,64

The BG test revealed the existence of autocorrelation which was solved with the method that I reported as soon as more and it needed to take eight times repetition, until results the below corrected model.

$\ln Y_t$ = 3,057 - 0,150$\ln X_t$ + 0,805$\ln Y_{t-1}$ R-Sq(adj) = 80,8% F= 76,98
t-statistics (1,60) (-0,94) (7,28)

D W = 1,90 δ=0,1951 long run elasticity = -0,76

Of course, the reserve that we keep is for the statistical significance of variable X that the t-ratio is just -0,94, statistically insignificant. Now the control for autocorrelation with the BG test is positive, that is to say does not exist autocorrelation, as with the ARCH we reject the hypothesis of existence of heteroscedasticity. The results are below:
r1 = 0,002, 0,002* (38-1) = 0,074, r2 = 0,002, 0,002* (38-2) = 0,072, r3 = 0,018, 0,018* (38-3) = 0,63, r4 = 0,029, 0,029* (38-4) = 0,986 and r5 = 0,08, 0,08* (38-5) = 2,64.
F1 = 0,05, F2 = 0,04, F3 = 0,04, F4 = 0,03 and F5 = 0,03.
As I stressed more that the reason we took separately the each product is the hypotheis that we made for the behavior of Greek farmer, but it became also in the effort to avoid the problem of multicollinearity, and as it became finally, after the prices of VIF it presents very small prices.

· INDUSTRIAL PLANTS

Now we will concretely examine elasticities of supply as for the price of industrial plants and the tobacco of type Berley, the tobacco of type Virginia and the tobacco of Eastern type, the cotton and the sugar beet.

For the tobacco of type Berley we have the following regression:

$\ln Y_t$ = 3,07 - 0,0390$\ln X_t$ + 0,699$\ln Y_{t-1}$ R-Sq(adj) = 73,4% F= 47,95
t-statistics (4,69) (-1,05) (9,69)

D W = 1,49 δ= 0,301 long run elasticity = -0,13

The model is statistically important and does not present problem of autocorrelation of disturbance term, but it does not present neither problem of heteroscedasticity. With the BG test and with control ARCH for five and seven lags
respectively we have: r1 = 0,061, 0,061* (38-1) = 2,257, r2 = 0,094, 0,094* (38-2) = 3,384, r3 = 0,094, 0,094* (38-3) = 3,29, r4 = 0,139, 0,139* (38-4) = 4,726 and r5 = 0,214, 0,214* (38-5) = 7,062. F1 = 1,89, F2 = 4,00, F3 = 2,54, F4 = 2,95 F5 = 2,17, F6 = 1,66 and F7 = 1,32. May be the price of F2 be important, but nevertheless we reject the hypothesis of existence of heteroscedasticity.

In the case of tobacco Virginia the regression, with the BG test, it showed existence of autocorrelation. We should stress that in the previous time series became co-integration test with the Engle-Granger (EG) test and showed positive results, that is to say the time series co-integrated. In the case however here, time series co-integrated. The model that follows is the first regression, while the second model is the model in which is applied EG test for co-integration test, in that the first differences of residues of first regression are placed as the

dependent variable and the residues, again from the same equation, are placed as the independent variable.

$\ln Y_t = - 3,99 + 1,09\ln X_t + 0,684\ln Y_{t-1}$ R-Sq(adj) = 97,3% F=326,46
t-statistics (-2,35) (2,80) (6,61)

D W 1,44 δ= 0,316 long run elasticity = 3,45

$\Delta U_{t-1} = - 0,006 - 0,726 U_{t-1}$ R-Sq(adj) = 31,2% F= 8,71
t-statistics (-0,06) (-2,95)

D W = 2,23

From the t-ratio of variable U_{t-1}, that is -2,95, we conclude, according to the critical prices from the table of MacKinnon for the co-integration test[3], that it is not significant and consequently the time series co-integrated.

Control for autocorrelation with the BG test has as follows: r1 = 0,072, 0,072* (20-1) = 1,368, r2 = 0,276, 0,276* (20-2) = 4,968, r3 = 0,375, 0,375* (20-3) = 6,375, r4 = 0,491, 0,491* (20-4) = 7,856 and r5 = 0,478, 0,478* (20-5) = 7,17. Becomes acceptable the hypothesis H_0: does not exist autocorrelation. Control ARCH presented the following results: F1 = 1,02, F2 = 0,83, F3 = 0,83, F4 = 0,68, F5 = 1,43, F6 = 1,03.

Below it follows the model for the tobacco of Eastern type.

$LnY_t = 3,75 – 0,0078\ln Xt + 0,677\ln Y_{t-1}$ $R^2_{(adj.)}$= 43,74 F= 14,79
t-statistics (2,54) (-0,45) (5,44)

D W = 1,76 δ= 0,323 long run elasticity = -0,025

Became control for the existence of autocorrelation with the BG test. r1 = 0,012, 0,012* (38-1) = 0,444, r2 = 0,06, 0,06* (38-2) = 2,16, r3 = 0,032, 0,032* (38-3) = 1,12, r4 = 0,055, 0,055* (38-4) = 1,87 and r5 = 0,105, 0,105* (38-5) = 3,465. With the ARCH we have: F1 = 1,49, F2 = 1,16, F3 = 1,21, F4 = 2,05 F5 = 1,85 and F6 = 1,57. Consequently, we reject also the hypothesis that exists autocorrelation, but also
we reject the hypothesis of existence of heteroscedasticity. As footnote it can be reported that the time series co-integrated, after the price of t-ratio is -5,28 and of course bigger than the critical prices of MacKinnon, that is -4,20, -3,506 and -3,154 for l.s.s. a = 0,01, 0,05 and 0,10 respectively.

3. Christou, Introduction in the econometrics, Athens 2001, page 908.

For the cotton we have the following results:

$\ln Y_t = 4{,}71 + 0{,}00189 \ln X_t + 0{,}626 \ln Y_{t-1}$ $R^2_{(adj.)} = 91{,}5\%$ F= 193,93
t-statistics (2,76) (2,82) (4,60)

D W = 2,10 δ= 0,374 long run elasticity = 0,005

The control for existence of autocorrelation became once again with the BG and reveals not existence, as the ARCH shows the not existence of heteroscedasticity.
r1 = 0,004, 0,004* (38-1) = 0,148, r2 = 0,01, 0,01* (38-2) = 0,36, r3 = 0,092, 0,092* (38-3) = 3,22, r4 = 0,114, 0,114* (38-4) = 3,876. F1 = 0,64, F2 = 0,92, F3 = 1,48, F4 = 1,14 and F5 = 0,86.
The last industrial plant that we will examine is the sugar beet.

$\ln Y_t = 5{,}51 + 0{,}0802 \ln Xt + 0{,}615 \ln Yt_{-1}$ $R^2_{(adj.)} = 83{,}3\%$ F== 90,65
t-statistics (5,59) (1,76) (8,30)

D W = 2,21 δ= 0,385 long run elasticity = 0,21

The price of t-ratio for the control of co-integration was -6,57, that means that the time series co-integrated, as for the cotton which price of t-ratio was -6,21. The control for autocorrelation revealed the not existence of autocorrelation. r1 = 0,022, 0,022* (38-1) = 0,814, r2 = 0,056, 0,056* (38-2) = 2,016, r3 = 0,093, 0,093* (38-3) = 3,22, r4 = 0,149, 0,149* (38-4) = 5,066 and r5 = 0,157, 0,157*(38-5) = 5,181. With the ARCH we lead to the conclusion that it does not exist heteroscedasticity. F1 = 0,01, F2 = 0,24, F3 = 0,37, F4 = 0,32 and F5 = 0,58.
Then we will examine elasticities for the case of vegetables.

· VEGETABLES

Because the category of vegetables presents a big variety, we were focused in the mainer products of this category with base the criterion of importance of size of production, the demand that there is in the markets, so much the interior, as much as the abroad, but also with base the meteorological and climatic of Greece. The products in which we were reported are tomato, the fresh onions, the dry onions, the courgette, the cucumber (in the production of cucumbers that presents in table 7 Annex 1, is not included the number of cucumbers that is intended for pickle), aubergine, the spinach, the lettuce, the carrot, the fresh peppers. Thus, for beginning we have the case tomatoes.

$\ln Y_t = 1{,}52 + 0{,}109 \ln Xt + 0{,}892 \ln Y_{t-1}$ $R2_{(adj.)} = 90{,}7\%$ F= 176,98
t-statistics (1,31) (0,41) (10,28)

D W = 2,09 δ= 0,108 long run elasticity = 1,00

The control for existence of autocorrelation cannot become once again with statistics h, because var (b2) > 1, therefore we check with the BG test, according to that we exclude the existence of autocorrelation. r1 = 0,024, 0,024* (38-1) = 0,888, r2 = 0,124, 0,124* (38-2) = 4,464, r3 = 0,20, 0,20* (38-3) = 7, r4 = 0,227, 0,227* (38-4) = 7,718 and r5 = 0,228,

0,228*(38-5) = 7,524. With the ARCH we reject also the existence of heteroscedasticity. F1 = 0,01, F2 = 0,42, F3 = 0,51, F4 = 0,48 and F5 = 0,37.

The equation for the fresh onions is the following:

$$LnY_t = 8,00 + 0,0317lnXt + 0,317lnYt_{-1} \quad R^2_{(adj.)} = 61,5\% \quad F= 29,72$$

t-statistics (4,05) (3,41) (1,88)

D W = 2,02 δ= 0,683 long run elasticity = 0,046

The control for autocorrelation becomes with the statistical h[4], where finally h = 0,0737. More concretely it is:

$$[\ 1\text{-}1/2 * 2,02\ ] * \sqrt{\frac{38}{1 - 38 * 0,0079624}}$$

If the price of h oscillates between $-1,96 \leq h \leq 1,96$, then we accepted hypothesis H_0: Does not exist autocorrelation. In the particular case the price of h oscillates between the -1,96 and the 1,96, therefore we accepted hypothesis H_0. With the ARCH we reject existence of heteroscedasticity. . F1 = 0,19, F2 = 0,22, F3 = 0,17, F4 = 0,22 and F5 = 0,63.

We will examine now the dry onions.

$$LnY_t = 6,63 + 0,0296Xt + 0,435Y_{t-1} \quad R^2_{(adj.)} = 56,7\% \quad F= 24,53$$

t-statistics (3,32) (2,57) (2,55)

D W = 2,16 δ= 0,565 long run elasticity = 0,0524

Once again with the help of statistics h we will check for the existence of autocorrelation. Price h is 0,59, that it means we reject the existence of autocorrelation as we reject also the existence of heteroscedasticity, with the ARCH. F1 = 0,04, F2 = 0,38, F3 = 0,40, F4 = 0,36 and F5 = 0,63.

4. Statistics h result from the type: $\rho * \sqrt{\frac{n}{1 - n[\mathrm{var}(b2)}}$, where ρ = 1 1/2 * d (where d is not nothing other than the price of statistics D W, n are the observations and var the fluctuation of factor b2, the fluctuation of coefficient of variable dependent, that is presented as independent with a lag. Also, Damodar N. Guzarati, Basic Econometrics, 1995, page 605-607 and lectures of Chalkos George.

For the courgette the equation is the following:

$LnY_t = 6,60 + 0,069lnXt + 0,395lnY_{t-1}$ $R^2_{(adj.)} = 25,7\%$ F= 93,91
t-statistics (3,76) (3,32) (2,45)

D W = 1,87 δ= 0,605 long run elasticity = 0,115

Here henceforth we can't take the statistic h, for the known reason, and that's why we will check with the BG test, as in all the other cases. r1 = 0,004, 0,004* (38-1) = 0,148, r2 = 0,007, 0,007* (38-2) = 0,252, r3 = 0,008, 0,008* (38-3) = 0,28, r4 = 0,008, 0,008* (38-4) = 0,272. With the ARCH we reject the hypothesis of existence of heteroscedasticity. Concretely, F1 = 1,05, F2 = 0,53, F3 = 0,41, F4 = 0,57.

For cucumbers resulted the following equation:

$LnY_t = 1,44 + 0,0124lnXt + 0,875lnYt_{-1}$ $R^2_{(adj.)} = 90,3\%$ F= 169,06
t-statistics (1,36) (0,54) (9,06)

D W = 2,29 δ= 0,125 long run elasticity = 0,0992

With the BG test we took the results, r1 = 0,023, 0,023* (38-1) = 0,851, r2 = 0,027, 0,027* (38-2) = 0,972, r3 = 0,076, 0,076* (38-3) = 2,66, r4 = 0,101, 0,101* (38-4) = 3,434, r5 = 0,123, 0,123*(38-5) = 4,059 and r6 = 0,2, 0,2* (38-6) = 6,4. We reject the existence of autocorrelation, but also of heteroscedasticity, because with the ARCH we removed: F1 = 0,02, F2 = 1,45, F3 = 0,98, F4 = 0,64, F5 = 1,37 and F6 = 1,04.

The aubergine constitutes the next product of analysis.

$LnY_t = 6,46 + 0,0542lnXt + 0,406Yt_{-1}$ $R^2_{(adj.)} = 82,8\%$ F= 87,88
t-statistics (4,19) (3,90) (2,86)

D W = 2,27

The above model presents problem of autocorrelation, after price h is 2,2>1,96. But with the BG test is also proved the same , after if for example we take five lags, then we will have r5 = 0,48, 0,48*(38-5) = 15,84 > 11,070, 12,832 and 15,086 for l.s.s. a = 0,05, 0,25 and 0,01 equivalents. Thus, therefore we corrected the model with the method of finding of ρ and with a time repetition, until we led finally to the model:

$LnY_t = 7,64 + 0,0836lnX_t + 0,0317Yt_{-1}$ $R^2_{(adj.)} = 66,1\%$ F= 36,09
t-statistics (34,54) (8,42) (1,17)

D W = 2,20 δ= 0,969 long run elasticity = 0,0862

Now the BG test has as follows: r1 = 0,01, 0,01* (38-1) = 0,37, r2 = 0,039, 0,039* (38-2) = 1,404, r3 = 0,042, 0,042* (38-3) = 1,47, r4 = 0,047, 0,047* (38-4) = 1,6. The existence of autocorrelation is rejected as well as the existence of heteroscedasticity. Prices F for five lags are: F1 = 0,16, F2 = 1,36, F3 = 1,36, F4 = 1,14 and F5 = 0,94.

The lettuce is the next product of study.

LnYt = 1,38 + 0,0172lnXt + 0,870lnYt- R2(adj.) = 95,9% of F=418,16
-statistics(2,03) (0,90) (12,79)

D W = 2,05 d = 0,13 long run elasticity = 0,132

Statistics h are 0,00625 and us lead to the conclusion that does not exist autocorrelation. Also, according to the ARCH prices F are: F1 = 0,27, F2 = 1,21, F3 = 0,79, F4 = 0,58 kaj F5 = 0,51. Consequently, we lead to the reject of affair that it exists heteroscedasticity. For the carrot we have:

LnY_t = 1,94 + 0,0665lnXt + 0,790$lnYt_{-1}$ $R^2_{(adj.)}$= 95,03 F= 362,16
t-statistics (2,26) (1,51) (8,01)

D W = 2,07 δ= 0,21 long run elasticity = 0,317

Once again with statistics h, that is 0,059 we conclude that does not exist autocorrelation, as well as with prices F for the control for eteroskedastjko'tita, we reject the existence of heteroscedasticity. F1 = 1,01, F2 = 1,32, F3 = 0,83, F4 = 0,74, F5 = 0,72 and F6 = 0,87.

For the fresh peppers we observe:

LnY_t = 2,64 + 0,0714lnXt + 0,739$lnYt_{-1}$ $R^2_{(adj.)}$ = 96,2% F= 462,67
t-statistics (2,22) (1,76) (6,11)

D W = 2,33 δ= 0,261 long run elasticity = 0,273

Statistical h=0,55 refers us to pronounce the reject of hypothesis H_1: that exists autocorrelation. With the ARCH we see that we reject also the hypothesis of existence of heteroscedasticity. F1 = 0,71, F2 = 0,67, F3 = 0,49, F4 = 0,38.

· CITRUS FRUITS

We will examine now the citrus fruits and concrete the tangerine tree, the orange and lemon tree. For the tangerine tree we have the following equation:

LnY_t = 4,97 + 0,178lnXt + 0,490$lnYt_{-1}$ $R^2_{(adj.)}$ = 89,2% F = 150,30
t-statistics (3,49) (3,26) (3,34)

D W = 2,24 δ= 0,51 long run elasticity = 0,35

The BG test has as follows: r1 = 0,027, 0,027* (38-1) = 0,999, r2 = 0,031, 0,031 (38-2) = 1,116, r3 = 0,044, 0,044* (38-3) = 1,54, r4 = 0,078, 0,078* (38-4) = 2,652 and r5 = 0,078, 0,078* (38-5) = 2,574.With the ARCH we observe that it does not exist heteroscedasticity. F1 = 1,68, F2=1,52, F3 = 1,76, F4 = 1,35 and F5 = 1,12. For orange we have the equation.

$LnY_t = 8,60 + 0,196lnXt + 0,316lnY_{t-1}$ $R^2_{(adj.)} = 75,7\%$ F= 57,20
t-statistics (4,36) (3,53) (2,51)

D W = 2,25 δ= 0,684 long run elasticity = 0,286

With the BG test we reject the hypothesis of existence of autocorrelation. r1 = 0,026, 0,026* (38-1) = 0,962, r2 = 0,063, 0,063 (38-2) = 2,268, r3 = 0,089, 0,089* (38-3) = 3,115, r4 = 0,102, 0,102* (38-4) = 3,468 and r5 = 0,096, 0,096* (38-5) = 3,168. With the ARCH we reject the existence of heteroscedasticity. F1 = 0,07, F2=0,07, F3 = 0,33, F4 = 0,29 and F5 = 0,21. Similarly and for the lemon tree.

$LnY_t = 5,50 + 0,0430lnXt + 0,528lnYt_{-1}$ $R^2_{(adj.)} = 42,6\%$ F= 14,37
t-statistic (3,28) (1,32) (3,64)

D W = 2,14 δ= 0,472 long run elasticity = 0,09.

r1 = 0,007, 0,007* (38-1) = 0,259, r2 = 0,012, 0,012 (38-2) = 0,432, r3 = 0,021, 0,021* (38-3) = 0,735, r4 = 0,104, 0,104* (38-4) = 3,536 and r5 = 0,116, 0,116* (38-5) = 3,828. With the ARCH test we reject the existence of heteroscedasticity. F1 = 0,98, F2=1,02, F3 = 0,83, F4 = 0,62 and F5 = 0,62.

· OIL AND EDIBLE OLIVE

Then we will examine elasticities of oil and edible olive. For the oil we have:

$LnY_t = 9,07 + 0,127lnXt + 0,222lnYt_{-1}$ $R^2_{(adj.)} = 58,1\%$ F= 25,27
t-statistics (6,40) (3,96) (1,81)

D W = 2,23 δ= 0,778 long run elasticity = 0,163

With statistics h it is impossible we make control for the existence of autocorrelation and consequently becomes control with the BG test from which is rejected the existence of autocorrelation. r1 = 0,032, 0,032* (38-1) = 1,184, r2 = 0,064, 0,064* (38-2) = 2,304, r3 = 0,083, 0,083* (38-3) = 2,905, r4 = 0,086, 0,086* (38-4) = 2,24 and r5 = 0,101, 0,101* (38-5) = 3,333. Also, is rejected and the hypothesis that it exists heteroscedasticity. F1 = 0,24, F2=0,26, F3 = 0,24, F4 = 0,20. For the edible olive we have the equation of edible olive.

$LnY_t = 6,38 + 0,0916lnXt + 0,202lnYt_{-1}$ $R^2_{(adj.)}$ F= 8,80
t-statistics (11,88) (2,33) (3,13)

D W = 2,48 δ= 0,798 long run elasticity = 0,115

· VINES

It should be marked that for all the above time series becomes control for co-integration with the EG test.Thus, and then we will examine the category vineyard, that are the table grapes, the Corinthian grape and the grape sultana, the prices of t-ratio are -7,19, -6,12 and - 5,88 respectively. Consequently, these prices are bigger than the critical prices of MacKinnon for the co-integration test, that means the time series co-integrated.

For the table grapes we have:

$LnY_t = 3,04 + 0,023lnXt + 0,747lnYt_{-1}$ $R^2_{(adj.)} = 80,3\%$ F= 74,50
t-statistics (2,00) (1,05) (5,81)

D W = 2,28 δ= 0,253 long run elasticity = 0,09

The BG test reveals the not existence of autocorrelation as with the ARCH we are being leaded in the reject of existence of heteroscedasticity. r1 = 0,034, 0,034* (38-1) = 1,258, r2 = 0,076, 0,076* (38-2) = 2,736, r3 = 0,077, 0,077* (38-3) = 2,695, r4 = 0,08, 0,08* (38-4) = 2,72 and r5 = 0,114, 0,114* (38-5) = 3,762. F1 = 0,05, F2=0,05, F3 = 0,48, F4 = 0,34 and F5 = 0,27.

For the Corinthian grape we have the following equation:

$LnY_t = 6,62 - 0,0978lnXt + 0,436lnYt_{-1}$ $R^2_{(adj.)} = 72,9\%$ F= 49,38
t-statistics (3,70) (-3,14) (2,86)

D W = 2,02 δ= 0,654 long run elasticity = -0,173

With the BG test we lead to the reject of existence of autocorrelation and with the ARCH we reject the existence of heteroscedasticity. r1 = 0,001, 0,001* (38-1) = 0,037, r2 = 0,003, 0,003* (38-2) = 0,108, r3 = 0,09, 0,09* (38-3) = 3,15, r4 = 0,111, 0,111* (38-4) = 3,774 and r5 = 0,144, 0,144* (38-5) = 4,752. F1 = 0,73, F2=1,76, F3 = 1,81, F4 = 1,77 and F5 = 1,69. Below is mentioned the equation for the grape sultana.

$LnY_t = 9,54 - 0,121lnXt + 0,176lnY_{t-1}$ $R^2_{(adj.)}$ F= 3,62
t-statistics (4,89) (-1,95) (1,05)

D W = 2,01 δ= 0,824 long run elasticity = – 0,147

As before thus and now we reject the existence of autocorrelation and heteroscedasticity. r1 = 0,001, 0,001* (38-1) = 0,037, r2 = 0,00, 0,00* (38-2) = 0,00, r3 = 0,001, 0,001* (38-3) = 0,035, r4 = 0,004, 0,004* (38-4) = 0,136 and r5 = 0,004, 0,004* (38-5) = 0,132. F1 = 0,02, F2=0,07, F3 = 0,04, F4 = 0,03 and F5 = 0,03.

· DRY FRUITS

Now we examine the category of dry fruits with selective products which are the dry figs, almonds, walnuts and pistachio nuts. For the dry figs we have:

$LnY_t = 7,09 - 0,123lnX_t + 0,316lnY_{t-1}$ $R^2_{(adj.)} = 0\%$ F= 0,39
t-statistics (4,29) (-3,88) (1,99)

D W = 2,20 δ= 0,684 long run elasticity = - 0,18

The price of t-ratio from the EG test is -6,46, consequently the time series co-integrated. With the EG test we reject the existence of autocorrelation, as with the ARCH we reject the existence of heteroscedasticity. The prices are: r1 = 0,010, 0,010* (38-1) = 0,37, r2 = 0,010, 0,010* (38-2) = 0,36, r3 = 0,121, 0,121* (38-3) = 4,235, r4 = 0,125, 0,125* (38-4) = 4,25 and r5 = 0,155, 0,155* (38-5) = 5,115. F1 = 0,58, F2=0,39, F3 = 0,29, F4 = 0,31 and F5 = 0,41.

For the almond we have following equation:

$LnY_t = 5,99 + 0,159lnXt + 0,361lnYt_{-1}$ $R^2_{(adj.)}$ F= 40,47

D W = 1,80 δ= 0,639 long run elasticity = 0,25

With the BG test we were led once again to the reject of autocorrelation, as with the ARCH we reject heteroscedasticity. r1 = 0,00, 0,00* (38-1) = 0,00, r2 = 0,013, 0,013* (38-2) = 0,468, r3 = 0,024, 0,024* (38-3) = 0,84, r4 = 0,18, 0,018* (38-4) = 0,612 and r5 = 0,041, 0,041* (38-5) = 1,353. F1 = 0,78, F2=1,56, F3 = 1,07, F4 = 0,72 and F5 = 0,60.

For walnut we have the results:

$LnY_t = 2,89 - 0,0046lnXt + 0,711lnYt_{-1}$ $R^2_{(adj.)} = 55,2\%$ F= 23,22
t-statistics (2,77) (-0,14) (6,60)

D W = 2,49 δ= 0,289 long run elasticity = -0,016

And to this case we lead to the same conclusions with the precedents according to the BG test and the ARCH. r1 = 0,073, 0,073* (38-1) = 2,701, r2 = 0,13, 0,13* (38-2) = 4,68, r3 = 0,149, 0,149* (38-3) = 5,215, r4 = 0,209, 0,209* (38-4) = 7,106 and r5 = 0,209, 0,209* (38-5) = 6,837. F1 = 0,35, F2=0,80, F3 = 0,53, F4 = 0,41 and F5 = 0,41.

Finally for pistachio nut we have:

$LnY_t = 1,89 + 0,655lnXt + 0,057Yt_{-1}$ $R^2_{(adj.)} = - 71,6\%$ F= 46,43
t-statistics (6,06) (6,38) (0,55)

D W = 2,23 δ= 0,943 long run elasticity = 0,69

Similarly with the precedents. r1 = 0,034, 0,034* (38-1) = 1,258, r2 = 0,036, 0,036* (38-2) = 1,296, r3 = 0,106, 0,106* (38-3) = 3,71, r4 = 0,106, 0,106* (38-4) = 3,604. F1 = 0,02, F2=1,45, F3 = 0,77, F4 = 0,61.

· VEGETABLES

Now we will examine the fruits. The equation for the apple tree is:

LnYt = 10,6 + 0,139lnXt + 0,112lnYt- R2(adj.) = 63,2% of F = 31,88
-statistics (5,20) (3,92) (0,65)

D W = 2,36 d = 0,888 long run elasticity = 0,156

With the BG test we reject the existence of autocorrelation. r1 = 0,039, 0,039* (38-1) = 1,443, r2 = 0,11, 0,11* (38-2) = 3,96, r3 = 0,127, 0,127* (38-3) = 4,445, r4 = 0,124, 0,124* (38-4) = 4,216 and r5 = 0,149, 0,149*(38-5) = 4,917. With the Arch we were led to the reject of heteroscedasticity. F1 = 0,25, F2=0,18, F3 = 0,15, F4 = 0,028 and F5 = 0,24. For the pear-tree we have:

LnYt = 0,0812 - 0,317lnXt + 0,625lnYt- -sq (adj) = 59,5% F=24,51
-statistics (2,50) (-2,81) (5,28)

D W = 2,00 d = 0,375 long-run elasticity = -0,85

The above model is correcting. Initial presented heteroscedasticity, which was corrected with GLS, This model is known and as the model of moving average[5]. Thus, we resolved also the autocorrelation that is proved with price h, that is 0,00. The F for the control of heteroscedasticity have as follows: F1 = 0,16, F2=1,86, F3 = 1,24, F4 = 2,10 and F5 = 1,55.

· LIVESTOCK-FARMING

The team of products that we will examine now they are this veterinary and concrete the bovine meat, the sheep's meat, the meat of goats, the poultry, the rabbits, the pork meat, the cow milk, the sheep's milk, the milk of goats and finally the eggs. For beginning we see the equation for the bovine meat. The model that follows is correcting, after initial, according to the BG test, presented autocorrelation. Thus, therefore the corrected model for the bovine meat is:

5. We suppose that r = 1, therefore the generalized equation of differences becomes.
$Y_t + Y_{t-1} = 2b_1 + b_2 (X_t + X_{t-1}) + \varepsilon_t$ or $\frac{Yt + Yt-1}{2} = b_1 + b_2 \frac{Xt + Xt-1}{2} + \frac{\varepsilon t}{2}$. In the particular case the autocorrelation was not solved with first and for this we were forced to take $Y_{t+4} + Y_{t-5}$ and so on. See Damodar N. Guzarati, Basic Econometrics, 1995, page 429

LnYt = 0,0219 - 0,174lnXt + 0,565lnYt- R2(adj.) = 42,% F = 13,53
-statistics (1,37) (-1,46) (4,45)

D W = 1,72 d = 0.435 long run elasticity = -0,4
With the ARCH test we exclude the existence of heteroscedasticity. F1 = 0,04, F2=0,11, F3 = 0,76, F4 = 0,59 and F5 = 0,53.

For the sheep's meat existed problem of heteroscedasticity and was corrected with GLS. The new model does not present nor autocorrelation, after price h = 0,81 and prices F for the control of heteroscedasticity are: F1 = 0,44, F2=1,20, F3 = 1,59, F4 = 1,11.

LnYt = - 0,0044 + 0,0983lnXt + 0,237lnYt-1 R-sq (adj) = 5,8% of F =2,01
-statistics (-0,36) (0,99) (1,34)
D W = 1,81 d = 0,763 long run elasticity = 0.128

For the meat of goats the model did not present neither autocorrelation neither problem of heteroscedasticity. The BG test gave us: r1 = 0,038, 0,038* (37-1) = 1,368, r2 = 0,033, 0,033* (37-2) = 1,155, r3 = 0,032, 0,032* (37-3) = 1,088, r4 = 0,035, 0,035* (37-4) = 1,155 and r5 = 0,045, 0,045*(37-5) = 1,44 and prices F are: F1 = 0,90, F2=0,52, F3 = 0,79, F4 = 0,74 and F5 = 0,62. The final model is:

LnYt = 2,19 + 0,0256lnXt + 0,781lnYt- R2(adj.) = 93,6% of F = 255,42
-statistics (1,82) (1,65) (6,43)

D W = 1,81 d = 0.219 long run elasticity = 0,117

The initial model that became for the meat of pigs presented autocorrelation according to the BG test and concretely r1 = 0,218, 0,218*(37-1) = 7,848 > 3,841, 5,024 and 6,635, that are the critical prices of X^2 in e.p.p. a = 0,05, 0,25 and 0,01 equivalents. The model was corrected with method of estimate of ρ and with the BG test we have: r1 = 0,005, 0,005* (37-1) = 0,18, r2 = 0,018, 0,018* (37-2) = 0,63, r3 = 0,011, 0,011* (37-3) = 0,374, r4 = 0,012, 0,012* (37-4) = 0,396 and r5 = 0,016, 0,016*(37-5) = 0,512. Also, with the ARCH became control for existence of heteroscedasticity and we lead to the reject of her existence. F1 = 0,03, F2=0,19, F3 = 0,10, F4 = 1,16, F5 = 1,12 and F6 = 0,92. Finally the model is:

LnYt = 0,00533 + 0,0101lnXt + 0,631lnYt- R2(adj.) = 35,34% of F = 10,30
-statistics (0,75) (0,11) (4,54)

D W = 2,04 d = 0.369 long run elasticity = 0,027.

For the poultry the model, according to the BG test, it does not present autocorrelation, as well as with the ARCH we reject the existence of heteroscedasticity. The prices for the two tests are: r1 = 0,039, 0,03937-1) = 1,404 r2 = 0,109, 0,109* (37-2) = 3,815, r3 = 0,094, 0,094* (37-3) = 3,196, r4 = 0,075, 0,075* (37-4) = 2,475 and r5 = 0,056, 0,056*(37-5) = 1,792. F1 = 0,10, F2=1,56, F3 = 0,87, F4 = 1,47, F5 = 0,93 and F6 = 1,28. The model is:

LnYt = 0,705 - 0,0261lnXt + 0,954lnYt-1 R2(adj.) = 98,9% of F = 1507, 90
-statistics (0,83) (-1,81) (0,29)

D W = 2,11 d = 0.046 long run elasticity = -0,56

Of course I should stress that the particular model analyze it with attention and reserve, because statistically is insignificant, and I am concretely reported in the prices of T-ratios. Greece has big production in the chickens, but because in the elements here we were reported in the total of poultry, we cannot make right analysis.

The initial model for the rabbits presented autocorrelation, which was solved and the new model does not present autocorrelation, after the price
h = -0,165, but it does not present neither problem of heteroscedasticity, as the prices F with the ARCH test are: F1 = 0,01, F2=0,15, F3 = 0,13, F4 = 0,27. Finally the model is:

LnYt = -0,0003 + 0,084lnXt + 0,521lnYt- R2(adj.) = 23,1% of F = 6,11
-statistics (-0,02) (0,40) (3,46)

D W = 2,05 d = 0,479 long run elasticity = 0,17

We will pass now in the analysis of milk of cow
The model is:

LnYt = 2,11 + 0,00497lnXt + 0,843lnYt- R2(adj.) = 94,7% of F = 322,42
-statistics (3,27) (0,71) (17,08)

D W = 1,74 d = 0.157 long run elasticity = 0,032

The model does not present autocorrelation, but also not problem of heteroscedasticity. r1 = 0,01, 0,01* (37-1) = 0,36, r2 = 0,07, 0,07* (37-2) = 2,45, r3 = 0,06, 0,06* (37-3) = 2,04, r4 = 0,069, 0,069* (37-4) = 2,277. F1 = 0,08, F2=0,43, F3 = 0,27, F4 = 0,38, F5 = 0,28. The milk of sheep has as follows:

LnYt = 1,38 + 0,00290lnXt + 0,896lnYt- R2(adj.) = 96,1% of F = 440,83
-statistics (1,78) (0,38) (14,69)

D W = 2,20 d = 0,104 long run elasticity = 0,028

For control of autocorrelation and heteroscedasticity, the conclusions are similar with what resulted from the analysis for
the milk of cow. r1 = 0,024, 0,024* (37-1) = 0,864, r2 = 0,008, 0,008* (37-2) = 0,28, r3 = 0,065, 0,065* (37-3) = 2,21, r4 = 0,114, 0,114* (37-4) = 3,762 and r5 = 0,093, 0,093*(37-5) = 2,976. F1 = 0,01, F2=0,00, F3 = 0,20, F4 = 0,20. For the milk of goats we have:

LnYt = 0,363 - 0,00408lnXt + 0,974lnYt- R2(adj.) = 96,6% of F = 507,44
t-statistics (0,55) (-0,61) (18,63)

D W = 1,60 d = 0,026 long run elasticity = -0,156

With the BG test we exclude the existence of autocorrelation. r1 = 0,012, 0,012* (37-1) = 0,432, r2 = 0,014, 0,014* (37-2) = 0,49, r3 = 0,002, 0,002* (37-3) = 0,068, r4 = 0,009, 0,009* (37-4) = 0,297 and r5 = 0,014, 0,014*(37-5) = 0,448. With the Arch we have: F1 =

1,44, F2=1,08, F3 = 0,33, F4 = 0,69. Consequently, we reject the existence of heteroscedasticity.

Finally we have the production of eggs. The model did not present autocorrelation, after according to the BG test, we have: r1 = 0,043, 0,043* (37-1) = 1,548, r2 = 0,052, 0,052* (37-2) = 1,82, r3 = 0,055, 0,055* (37-3) = 1,87, r4 = 0,125, 0,125* (37-4) = 4,125 and r5 = 0,136, 0,136*(37-5) = 4,352. With the Arch test we reject the existence of heteroscedasticity. F1 = 0,12, F2=0,09, F3 = 0,11, F4 = 1,60 and F5 = 1,34.

LnYt = 2,45 + 0,00540lnXt + 0,789lnYt- R2(adj.) = 93,8% of F=272,63
-statistics (4,31) (0,69) (15,44)

D W = 2,37 d=0,211 long run elasticity = 0,025