

THE EVOLUTION OF AGRICULTURAL SECTOR THROUGH FINANCIAL STATEMENTS ANALYSIS

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Abstract: *In 1950 Hellas was probably the most agricultural country of the West. Within the first thirty years (1950-80) the economic model that was followed had as a consequence the contraction of the sector. Nevertheless, in 1981, when the country entered European Union, it had still an extended agricultural nature. Even in 2010 (after the enlargement of E.U. to 27 members in 2004 and 2007) the labor force percentage of the farming sector was among the highest rates.*

Herewith it is intended to present the evolution of the sector through the analysis of the balance sheet variations of Greek agriculture. Based on a former extended literature survey, but also extracting data from Agricultural Bank of Greece (ATE), it was tried to evaluate, not only at the country level, but also at the prefectural one, data of assets and liabilities during the post-war era and per decade.

The evidence derived from the fixed assets movements suggests that despite the capital accumulation, and the relatively satisfactory lending in working capital by ATE, the sector is moving near the edge of the cliff. Neither the integration of the country in the E.U. or later in the Economic and Monetary Union in 2000 managed to alter the trends formed in the period 1950-80.

The contribution hereof lies in the presentation of the financial statements variations, on the one part, a methodology rather rare in Greek bibliography and relatively uncommon in the international one (data being assessed mainly with macroeconomic tools) and on the other part, in the investigation of the consequences of the economic policy applied throughout the post-war period.

Keywords: *agricultural sector; financial statements; balance sheet; fixed assets; working capital; European Union.*

JEL Classification Codes: Q14, Q18

1. METHODOLOGY

The items that compose the asset have been calculated for all years as follows:

1.1 Fixed Capital

It consists of two components the *Public* and the *Private*.

The *Public Fixed Capital* arose from state's activities, while the *Private* from individual initiative.

1.1.1. The *Public Fixed Capital* is consisted of seven parts:

I. *Public Fixed Capital of Agriculture.*

Its estimation arose after gross public investment logging in buildings, plants, nurseries (plant breeding) etc. All the expenditures referred to the primary sector. Naturally, the expenditures related to processing or standardization or packaging of agricultural products was

not taken into consideration. Further were removed the subsidies (were assessed in the capital of private sector). For every one of the 27 categories of which the fixed capital is consisted, a special depreciation rate¹ was calculated, which arose after a special research.

II. Public Capital Asset of Livestock Farming.

Accordingly were estimated the gross public investments which were related to livestock farming and special depreciation rates² were adopted.

III. Public Fixed Capital of Fishery.

Respectively were taken into account investments related to fishing works or aquaculture and a depreciation rate was calculated depending on the type of the work³.

IV. Public Fixed Capital of Forests.

It was estimated the fixed capital which was formed by the public investments. These concerned works:

- in forest protection (tanks and observatories) the depreciation rate was 2,5%, while in forest tracks (fire safety zones) was 12,5%
- in reforestations and nurseries the rate was estimated at 3%
- in torrents and generally in mountain water supplies, there were separate rates⁴ depending on the type of the intervention
- in forest road construction, the depreciation rate for the forest roads was established equal to 20%, while for the buildings (outposts, watchtower etc) was 1,67%.

Forest grazing lands (pastures, meadows)

Following the torrents works, the forest pastures occupied a significant portion of the expenditures. The depreciation rates ranged according to work type⁵.

Other categories of forest expenditures

These categories are related to various forest scopes, forest mapping, land classification etc. The depreciation rate ranged per expenditures between 2,5-4%.

Deprived forests

In this category, there are expenditures for the forest improvement (depreciation rate 1,67%)

V. Public fixed capital of agricultural electrification.

The expenditure for the agricultural electrification comes from Ministry of Agriculture and Public Power Corporation. The depreciation rate was estimated at 4%. The agricultural electrification program systematically started after 1970.

VI. Public fixed capital of agricultural road construction.

The expenditure for the agricultural road construction was covered by Ministry of Interior, Prefectures and Ministry of Public Works. The depreciation rate range, depending on the period, between 10-25%

¹ Some examples: structures (agricultural schools): 2-2,5%, equipment: 6,66%, nurseries-greenhouses: 10%, upgrades: 2-2,5%

² Livestock farms: 3-10%, veterinary clinics: 2%, stables: 2%, works on pastures: 2-5%, procurements-equipments 6,66%

³ Hatcheries: 4-6%, fishing shelters: 2,5%, fisheries: 4-5%, vessels: 5-6,66%, buildings: 2-2,5%

⁴ Stone-structured dams: 2,5%, concrete-structured dams: 2%, dry-stone dams: 3%, drainage ditches dams: 5%, earth-fill dams: 6,66%

⁵ Rainwater tanks: 2-2,86%, drinking troughs: 2-2,86%, fixed covers-stables: 2,5%, barriers: 2%, forest roads: 10%, fences: 5%

VII. Fixed public capital of land improvement works.

This is the biggest component of public fixed capital. It arose from works of Ministry of Public Works, Ministry of Agriculture, National Economy and Prefectures. From the total expenditure was removed those which did not consist an investment, such as expropriations, compensations for crop damage due to works.⁶

1.1.2. Private Fixed Capital

The fixed capital of private investments has been calculated on the basis of medium and long term loans by Agricultural Bank, as until 1990 ABG was the exclusive -by law- funder (financier) of agricultural sector. In the capital of the period 1990-2000 all the rest bank loans were also taken into account. The private fixed capital is composed of the following categories:

I. Private Fixed Capital of Irrigation Improvements

It concerns small works, the majority of which took place due to the public land improvement works. They were, however, cases where the opposite occurred: the non existence of public land improvements forced individuals to similar investments.⁷

II. Private Fixed Capital of Land Improvement

Various expenditures that concerned works relevant to land improvement constituted this category⁸.

III. Private Fixed Capital of Agricultural and Livestock Built Structures

It includes investments in stables, warehouses etc. being made by farmers⁹.

IV. Private Fixed Capital of Mechanical and Electrical Equipment

It concerns expenditures on purchase or maintenance of machinery, tools etc.

V. Private Fixed Capital of Greenhouse Plants

In this category, there are investments for the construction or maintenance of greenhouses. The depreciation rate ranged between 7-14% depending on the type of the construction.

VI. Private Fixed Capital of Other Improvements

It concerns expenditures which are not included in any of the above mentioned categories (struts- abutment, construction of cement threshing floors, etc). Depreciation rate 5%.

1.2. Plant Capital

For the evaluation of the plant capital, on account of the lack of data across the country in various years, so that the plantations value to be known, it was used the price of 1970 and the "productive" plantations area. This means that the young fruitless trees were subtracted. The tree species which were investigated were:

⁶ Basic grindings (leveling fields): 2%, systematize: 2-2,5%, procurements of electrical and mechanical equipment: 6,66-8%, constructions: 2%, etc.

⁷ The depreciation rates were: wells, drillings, tanks: 3%, pumping stations, tube-drain, etc.: 7-10%

⁸ The depreciation rate was accounted for 2,5%

⁹ The depreciation rates ranged between 2,5-5% throughout various periods of time

a. orange trees, b. lemon trees, c. tangerines, d. apple trees, e. peach trees, f. apricot trees, g. cherry trees, h. almond trees, i. walnut trees, j. peanut trees, k. wine grapes, l. table grapes, m. currants, n. sultana raisin variety, o. olives (edible and oil-extractable).

1.3. Livestock

The livestock was calculated through the inventory method. The animal population was recorded. As livestock were viewed:

1. Horses, 2. Donkeys, 3. Mules, 4. Cattle, 5. Buffalos, 6. Sheep, 7. Goats, 8. Rabbits, 9. Pigs, 10. Hens, 11. Bee swarms. From cattle, only working, production and reproduction animals were taken into account (that is animals for fattening were subtracted as they were included in the current asset). Accordingly for the pigs, as capital it was considered the one of boars and sows. As refers to the hens, only the ones that were used for egg production were included. Livestock capital derived by multiplying the animals number by the price each category had on 1970.

1.4. Land

From the total of farmlands, the productive plantations were removed (as they were included in plant capital). Also, the value of greenhouse plants has not been taken into account. That is, the value of arable crops and horticultural areas were estimated.

1.5. Current Asset

In the year 1950 only the stocks¹⁰ were calculated due to lack of data. Within the following years the composition included stocks (animals for fattening etc., multiplying material etc.), seeds, supplies and other.

1.6. Asset

By this way, the *Asset* was derived which is composed of the following:

The sum of *Public* and *Private Fixed* constitutes the *Total Fixed Capital*. Afterwards, *Plant Capital* and *Livestock* were added forming, therefore, the *Stock Capital*. If we add the *Land* into this, the *Total Investing Capital* derives. Adding, also, the *Current Asset*, the *Asset* is shaped.

1.7. Liability

For reasons of simplicity, the *Total Liability* is presented by two components: *foreign (liability)* and *own capitals (equity)*.

Foreign capitals were loans by Agricultural Bank (the only funder of the agricultural economy till 1990). They were consisted of short-term and medium-long term loans.

Own capitals were evaluated by special researches which were conducted.

2. RESULT

The Tables 1-6 show the findings of the research in years 1950, 60, 70, 80, 90, 2000. The data are in US dollars¹¹, while in the annex they are in drachmas (current prices).

¹⁰ The requirements (cheques etc.) and the fund were rudimentary in agricultural sector, at least by the year 1990.

¹¹ It should be noted that this “deflator” is not the best solution, because the parity of the Greek drachma to the dollar does not show completely the evolution of data. It is used hereby as a means of comparison. The parity of dollar for the mentioned years was: 1950 15, 1960 30.15, 1970 30.1, 1980, 43.062, 1990 158.515, 2000 365.412.

Table 1
balance sheet 1950

in dollars		in million	
Total assets	6.880	Total liab. - equ.	6.880
publ. fixed capital	310	liabilities	1.032
private fixed capital	123	equity	5.848
<i>total fixed Capital</i>	433		
plant capital	2.128		
livestock	613		
<i>capital stock</i>	3.174		
land	3.571		
<i>total. Invest. Capital</i>	6.745		
<i>current</i>	136		

Table 1 depicts that in 1950 the *current* was the 2% of the total *assets*. Due to the civil war, the agricultural production had not been restored the years before the war. It is noted that the 52% of the total was the price of the land. The *current* (136 million dollars) can be compared to the *private fixed capital* (123 million dollars), which is less. Apart from the land, the *plant capital* (31%) was an important component of the assets. On the contrary, the *fixed capital* (from public and private investments) was just 6,3% or 433 million dollars, less than the *livestock* (613 million dollars).

Examining the liabilities, it comes out that the equity was 5,8 billion dollars or the 85% of the total. The “*foreign capital*” represented loans that had been provided for rural exploitations by third parties (basically by Agricultural Bank), i.e. expenditure for the *current*, private investments, *livestock*.

It flows from Table 2 that the liabilities were differentiated to a great extent: the ‘foreign capital’ consisted in 48%. There was an extensive lending of the sector with negative results (over indebtedness, i.e. a quasi bankruptcy).

Table 2
balance sheet 1960

in dollars		in million	
Total assets	5.475	Total liab. - equ.	5.475
publ. fixed capital	336	liabilities	2.628
private fixed capital	305	equity	2.847
<i>total fixed Capital</i>	641		
plant capital	1.633		
livestock	461		
<i>capital stock</i>	2.735		
land	2.512		
<i>total. Invest. Capital</i>	5.247		
<i>current</i>	228		

In the *Assets* the *current* was the 4,2%, while the value of *land* represented the 46% towards 30% of the *plant* and 11,7% of the *fixed capital*. The double developmental squeeze of the sector resulted in the capital accumulation by the state and the farmers.

In 1970 the *current* came up to 5,8%, while the value of *land* had shrunken to 32%. (Instead of the increase of the cultivated field and the land improvements, the value of *land* was reduced due to extensive emigration).

Table 3
balance sheet 1970

in dollars		in million	
Total assets	8.859	Total liab. - equ.	8.859
publ. fixed capital	982	liabilities	2.370
private fixed capital	1.010	equity	6.489
<i>total fixed Capital</i>	1.992		
plant capital	2.994		
livestock	551		
<i>capital stock</i>	5.537		
land	2.811		
<i>total. Invest. Capital</i>	8.348		
<i>current</i>	511		

The *plant capital*, thus, was the most important parameter of the *assets*, while the *fixed capital* was arisen to 22,5%. In the total *liabilities -equity*, 27% of the used capital had its roots in the non agricultural sector (loans and subsidies by the Agricultural Bank and by the relatives of the farmers). The over indebtedness of the farmers reached so high levels that the dictatorship (to gain popular support) eliminated most of the debts (*seisachtheia*).

On Table 4 (year 1980), the situation was differentiated significantly. The fast mechanization of agriculture (amongst the fastest globally) had as a consequence the important rise of the *fixed capital*, which reached the 33,3% of the *assets*, becoming the most significant ingredient for the assets. The *plant capital*, apart from its over doubling within the decade consisted the 24% towards 28,6% of *land*. The over indebtedness of the farmers (especially for the short-term liabilities), however, continued (the 58% was equity).

Table 4
balance sheet 1980

in dollars		in million	
Total assets	31.476	Total liab. - equ.	31.476
publ. fixed capital	4.935	liabilities	13.112
private fixed capital	5.558	equity	18.364
<i>total fixed Capital</i>	10.493		
plant capital	7.603		
livestock	2.567		
<i>capital stock</i>	20.664		
land	9.003		
<i>total. Invest.</i>	29.667		
<i>Capital</i>			
<i>current</i>	1.810		

In 1990, the rhythm of the capital accumulation was strained. The *private fixed capital* remained at the same levels approximately of 1980 (this means that the investments hardly covered the amount of depreciation). The *asset*, generally, was trisected: 30% came from the *fixed capital*, 27,5% from *plant* and 29,7% from *land*.

Table 5
balance sheet 1990

in dollars		in million	
Total assets	44.695	Total liab. - equ.	44.695
publ. fixed capital	7.578	liabilities	14.328
private fixed capital	5.775	equity	30.367
<i>total fixed Capital</i>	13.353		
plant capital	12.302		
livestock	3.532		
<i>capital stock</i>	29.186		
land	13.276		
<i>total. Invest.</i>	42.463		
<i>Capital</i>			
<i>current</i>	2.232		

It seems that the *livestock* capital during the period 1950-1960 was reduced, instead of the subsidies from EU during the years 1980-1990. The *equity* was increased becoming the 68% of the total *liabilities- equity*.

In 2000 the share of *land* to the *asset* came up to 36%, while the *plant* capital to 40,4%. On the other hand, the rising of the fixed capital was decreased significantly. The public investments in the agricultural sector were limited, while the private moved in low levels. The *equity* is the 73% of the total in light of *liabilities-equity*.

Table 6
balance sheet 2000

in dollars		in million	
total assets	87.557	total liab. - equ.	87.557
publ. fixed capital	7.432	liabilities	23.311
private fixed capital	6.805	equity	64.246
<i>total fixed Capital</i>	14.237		
plant capital	35.353		
livestock	3.515		
<i>capital stock</i>	53.105		
land	31.336		
<i>total. Invest.</i>	84.441		
<i>Capital</i>			
<i>current</i>	3.116		

Although no definite data exist for 2010, it is appreciated that the *equity* are the 75% of the *liabilities-equity*, while the *land* remains in 30% of the asset, which is lower than the share of the *plant* (38%) to the asset. The *livestock* is the 4% and the *fixed capital* is approximately 17%.

3. CONCLUSION

In 1950 and especially in 1955-1970 it appears to be a significant capital accumulation from the side of the farmers and the state. The result was impressive. The *fixed capital* from 433 million dollars came up to 14,2 billion or was increased for 32 times within 50 years (1950 - 2000). The fastest accumulation (important for the global data) occurred until 1980. The growth of the *plant capital* was essential: from 2,1 billion dollars in 1950 came up to 35,3 billion in 2000 or it was raised for 16 times. The *livestock* was in low levels (that explains the extensive imports of the country in meat, milk etc). The value of *land* was increased for 8 times. The contribution of the state, the subsidies of EU etc played a significant role. In every case, the situation in 2010 seems in terms of “foreign” and equity, after 60 years, to fall down to the levels of 1950. The contribution of the farmers is increased while the loans are reduced.

Due to the current crisis since 2008, it is highly expected that the “foreign” capitals (state loans etc) will be limited and the contribution of farmers will be reinforced. It is likely that in 2020, if the tendencies will continue, the equity will reach or even go higher of the 85% of the liabilities. The structure of the balance sheet of the Greek agriculture in 2020 is expected to be the following:

Further reduce of the fixed capital (private and public), decrease of the livestock, rising of the plant (cultivation of olive trees) and preservation of the value of land. As far as the liabilities are concerned, increase of the participation of equity will occur.

REFERENCES

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Appendix

Table I
balance sheet 1950

in current prices		mil. drachm.	
total assets	103.207	total liab. - equ.	103.207
publ. fixed capital	4.643	liabilities	15.481
private fixed capital	1.852	equity	87.726
<i>total fixed Capital</i>	<i>6.495</i>		
plant capital	31.921		
livestock	9.199		
<i>capital stock</i>	<i>47.615</i>		
land	53.558		
<i>total. Invest. Capital</i>	<i>101.173</i>		
<i>current</i>	<i>2.034</i>		

Table II
balance sheet 1960

in current prices		mil. drachm.	
total assets	165.078	total liab. - equ.	165.078
publ. fixed capital	10.123	liabilities	79.237
private fixed capital	9.204	equity	85.840
<i>total fixed Capital</i>	<i>19.327</i>		
plant capital	49.234		
livestock	13.893		
<i>capital stock</i>	<i>82.454</i>		
land	75.740		
<i>total. Invest. Capital</i>	<i>158.194</i>		
<i>current</i>	<i>6.884</i>		

Table III
balance sheet 1970

in current prices		mil. drachm.	
total assets	266.656	total liab. - equ.	266.656
publ. fixed capital	29.566	liabilities	71.329
private fixed capital	30.403	equity	195.327
<i>total fixed Capital</i>	<i>59.969</i>		
plant capital	90.117		
livestock	16.589		
<i>capital stock</i>	<i>166.674</i>		
land	84.597		
<i>total. Invest. Capital</i>	<i>251.271</i>		
<i>current</i>	<i>15.385</i>		

Table IV
balance sheet 1980

in current prices		mil. drachm.	
total assets	1.355.441	total liab. - equ.	1.355.441
publ. fixed capital	212.497	liabilities	564.632
private fixed capital	239.360	equity	790.809
<i>total fixed Capital</i>	<i>451.857</i>		
plant capital	327.421		
livestock	110.554		
<i>capital stock</i>	<i>889.832</i>		
land	387.677		
<i>total. Invest. Capital</i>	<i>1.277.509</i>		
<i>current</i>	<i>77.932</i>		

Table V
balance sheet 1990

in current prices		mil.drachmas	
total assets	7.084.841	total liab. - equ.	7.084.841
publ. fixed capital	1.201.209	liabilities	2.271.210
private fixed capital	915.375	equity	4.813.631
<i>total fixed Capital</i>	<i>2.116.584</i>		
plant capital	1.950.055		
livestock	559.820		
<i>capital stock</i>	<i>4.626.459</i>		
land	2.104.523		
<i>total. Invest. Capital</i>	<i>6.730.982</i>		
<i>current</i>	<i>353.859</i>		

Table VI
balance sheet 2000

in current prices		mil. drachm.	
total assets	31.994.408	total liab. - equ.	31.994.408
publ. fixed capital	2.715.740	liabilities	8.517.987
privat ed fixed capital	2.486.674	equity	23.476.421
<i>total fix. Capital</i>	<i>5.202.414</i>		
plant capital	12.918.450		
livestock	1.284.328		
<i>capital stock</i>	<i>19.405.192</i>		
land	11.450.705		
<i>total. Invest. Capital</i>	<i>30.855.897</i>		
<i>current</i>	<i>1.138.511</i>		