WHEAT PRODUCTION IN GREECE (1980 – 2020)

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ПРОИЗВОДСТВО НА ПШЕНИЦА В ГЪРЦИЯ (1980 – 2020)

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Abstract

Wheat production is of strategic importance for every country. Until the 1970s, wheat self-sufficiency was one of the indicators of economic growth. Of course, no matter how much the characteristics of the society-economy change and no matter how much the consumer habits change, the need for consumption of wheat by the final consumer, as well as their use by the manufacturing industry, remains at high levels.

This work presents the configuration of the following elements for soft and durum wheat: arable land, quantity produced, yield per acre, trade balance, consumption and degree of self-sufficiency. There are strongly different behaviors between the two products. Common wheat shows a decrease in production for the whole period considered, while durum wheat shows a continuous increase in production (quantities and areas) until 2005 and then a continuous decrease, where in 2022, it shows the magnitudes of 1980. The negative trade balance during the period considered – for common wheat – is deteriorating, while the positive trade balance for durum wheat is constantly declining. Finally, the degree of self-sufficiency from 146 for common wheat in 1981, was set at 26 in 2020 and for durum wheat from 234 to 160 respectively.

It is interesting and important to highlight the causes that shaped the above figures over time. The causes, as well as the prevailing market conditions, are even more important during the impending – as it seems – food crisis, as a result of the severe reduction of production – after the war in Ukraine, but also the increase of export restrictions from a number of countries.

Key words: self-sufficiency, agricultural policy, ssubsidies, agricultural production

JEL code: A11, Q18

Introduction

Cereals are among the most important cereal crops worldwide. Wheat covers 17% of the world's cultivated area (217 million hectares) with a production of 770 million tons. Until the 1970s, self-sufficiency in wheat was one of the indicators of economic development. Today, many countries support their food security and nutrition by securing the necessary quantities of wheat. Wheat bread feeds about 40%

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of the world's population and provides 20% of the calorie and protein requirements in the human diet. (Muhammad et al., 2014). Wheat is an important commercial commodity because of its hardiness, longevity and use in flour production. The import and export of wheat and wheat products is a complex global business (Nanidis 2021). The factors shaping this complex process are the following:

• The phenomena of drought, fires, floods, in several regions of the earth and their direct impact on the global production of agricultural products.

• The imbalance (decrease in supply, increase in demand, export restrictions, increase in prices) caused in the world grain market after the start of the war in Ukraine.

• The increase in global demand, due to their use in the production of biofuels.

• The increase in meat consumption, which results in increased demand and participation of grains in their rations.

The purpose of this paper is to present the wheat production in Greece for the period 1980 – 2020. In order to achieve the purpose, the formation of the following quantities will be analyzed: arable land, produced quantity, yield per hectare, the trade balance and the degree of self-sufficiency. At the same time, it will compare the changes in arable land and produced quantities between the whole of the European Union and Greece. Then the work aims to highlight the policies that shaped the above figures. This point is quite complex, given that a series of policies and tools of the applied agricultural policy are not directly linked to the formation of the above quantities. Nevertheless, the selection-combination of these policies is a useful tool for applied agricultural policy.

The methodology used for the preparation of the work is: defining the above quantities, extracting data from the competent services, processing the configuration of these quantities over time, investigating the factors (politics) that influenced the over time configuration of the above quantities.

In order to investigate the factors (policies) that have influenced the temporal formation of the considered quantities, we take into account the factors that affect the quantity of grain demanded and offered at the global level. Factors affecting grain demand are: grain price, gross domestic product, income, prices of related goods, pandemic and covid virus, the effect of the war in Ukraine. Factors affecting grain supply are: grain price, last year's grain price, oil price, world grain production last year, global rainfall, pandemic and covid virus, impact of war in Ukraine.

Wheat is divided into: Soft Wheat, which is suitable for bakery products and Hard Wheat, which is suitable for industrial use (pasta production). According to the data of the Ministry of Agriculture of Greece, of the 900,000 tons of soft wheat that the country needs, 250,000 tons, i.e. 30%, were imported from Russia and Ukraine, while if Moldova is added, this percentage reaches 35%. For 2022 – 2023 is forecasted a small decrease in the areas of grain cultivation in the EU, according to the Commission (European Union, 2022). Due to the drought and reduced yields

(the increased price of fertilizers also plays a role), all cereals, with the exception of oats, will show a decrease in production. As Commission predicts, given the reduced yields due to the drought, the total production for period 2022/2023 is expected to be reduced, by -7.8%, compared to last year (270 million tons). In particular, the European production of soft wheat is predicted to decrease to 127 million tons (– 2.4% compared to last year), while hard wheat production is projected to decline to 7.4 million tons (-4.9%).

Overall cereal use in the EU is falling significantly as a result of high prices. There is reduced use for animal feed (-1.7% compared to last year) and for food (– 23%). However, reduced corn production and feed shortages in the EU are certain to increase imports to meet demand. Greece in soft wheat produces only 15% of its needs, while in hard wheat it has sufficient production and does not import. In Greece, common wheat production reached self-sufficiency levels in the 1950s, and by the end of the 1970s there was a surplus, which was maintained until 1984. Since then, a rapid decline in the cultivation of common wheat has begun, accompanied by a corresponding increase in the cultivation of the hard.

Looking at Table 1, we see the huge reduction in both the cultivated areas and the produced quantities of Soft Wheat, during the considered period. We observe essentially an isomeric reduction of 81.32% and 81.95% respectively. At the same time the hectare yield follows the same trend – with an decrease of 20.83% and 59 kg per hectare. This decrease does not correspond to the decrease in demand for soft wheat in the domestic market. So the factors that have led throughout time the producers of soft wheat to withdraw from its cultivation and turn to other crops are different.

For better information and observation of the course of the Elements of the cultivation of Soft Wheat we present the figure 1 that we can extract from Table 1.

Table 1. Elements of the cultivation of Soft Wheat

Years (average)	Area (hectares)	Production (tons)	Per hectare yield
1980 – 1985	6,641,541	1,922,871	284
1986 – 1990	3,797,400	993,000	260
1991 – 1995	2,947,371	854,066	291
1996 – 2000	2,134,950	568,466	268
2001 – 2005	1,243,594	333,884	270
2006 – 2010	1,652,446	454,110	275
2011 – 2015	1,527,366	449,927	249
2016 – 2020	1,240,371	346,804	225
Percentage Change 1980 – 2020	-81.32%	-81.96%	– 20.83%

Source: Ministry of Greek Agriculture, same processing.

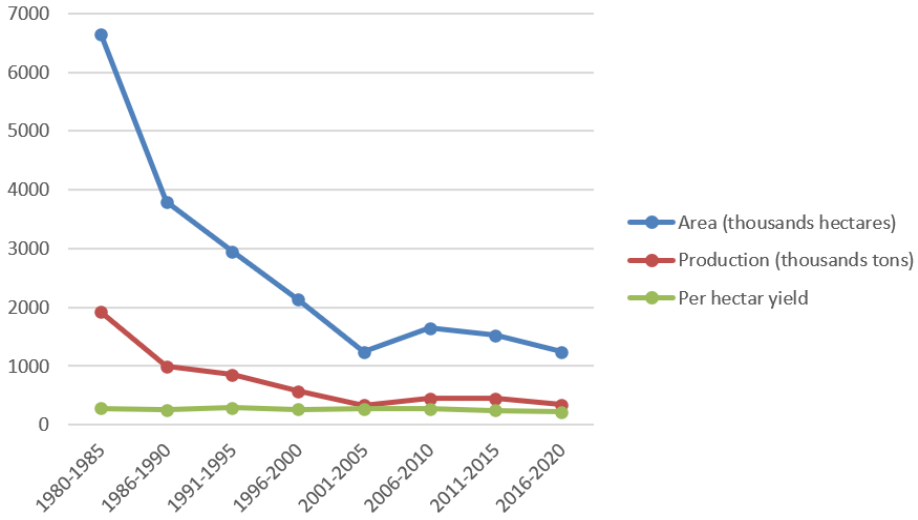

Figure 1 Elements of the cultivation of Soft Wheat – in the years 1980 – 2020

Source: Table 1.

Looking at Table 2, we see a slight decrease of the cultivated areas and an increase of the quantities produced in Durum Wheat, during the considered period. We observe and decrease of 3.36% in cultivated areas and an increase of 17.04% in the quantity produced. At the same time the yield per hectare has increased by 8.92% (22 kg per hectare). The increase in quantities, does not correspond to the decrease in cultivated areas and produced quantities observed for the same period of Soft Wheat.

For better information and observation of the course of the Elements of the cultivation of Hard Wheat we present the figure 2 that we can extract from Table 2.

Table 2. Elements of the cultivation of Hard Wheat

Years (average)	Area (hectares)	Production (tons)	Per hectare yield
1980 – 1985	3,020,726	725,253	246
1986 – 1990	5,429,200	1,169,860	219
1991 – 1995	6,259,435	1,574,118	249
1996 – 2000	6,318,822	1,379,987	218
2001 – 2005	7,315,098	1,532,558	209
2006 – 2010	4,993,846	1,219,623	244
2011 – 2015	4,103,130	1,082,389	272
2016 – 2020	2,919,172	848,831	268
Percentage Change 1980 – 2020	-3.36%	17.04%	8.92%

Source: Ministry of Greek Agriculture, same processing.

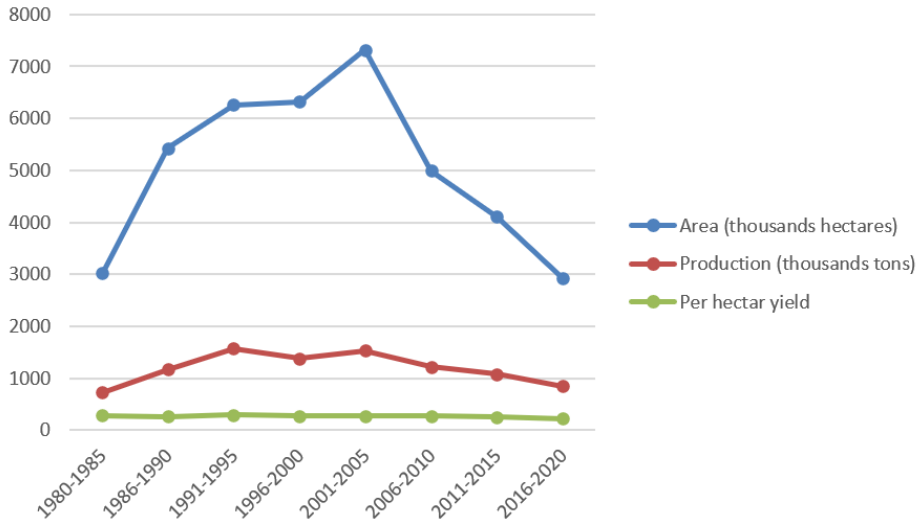

Figure 2. Elements of the cultivation of Hard Wheat – in the years 1980 – 2020

Source: Table 2

In Table 3 below, I can see the configuration of the Trade Balance. For the period under review, we note the rapid deterioration of the trade balance in Soft Wheat, where it went from -188 thousand tons to -980.7 thousand tons. The same unfavorable behavior is experienced by durum wheat, where the positive trade balance practically reached zero during the period under review and from 1,237 thousand tons, it decreased to 28.8 thousand tons. Of course, the formation of the above sizes is understandable, since it is essentially the result of the continuous reduction of cultivated areas.

Table 3. Trade Balance (tons)

Year	Soft Wheat	Hard Wheat
1990	-188.000	1.237.000
2000	-519.730	160.600
2010	-725.000	425.000
2018	-980.744	28.880
Percentage Change 1990 – 2018	+421,67%	-97,67%

Source: Ministry of Greek Agriculture, same processing.

For better information and observation of the course of the Trade Balance between Soft and Hard Wheat we present the figure 3 that we can extract from Table 3.

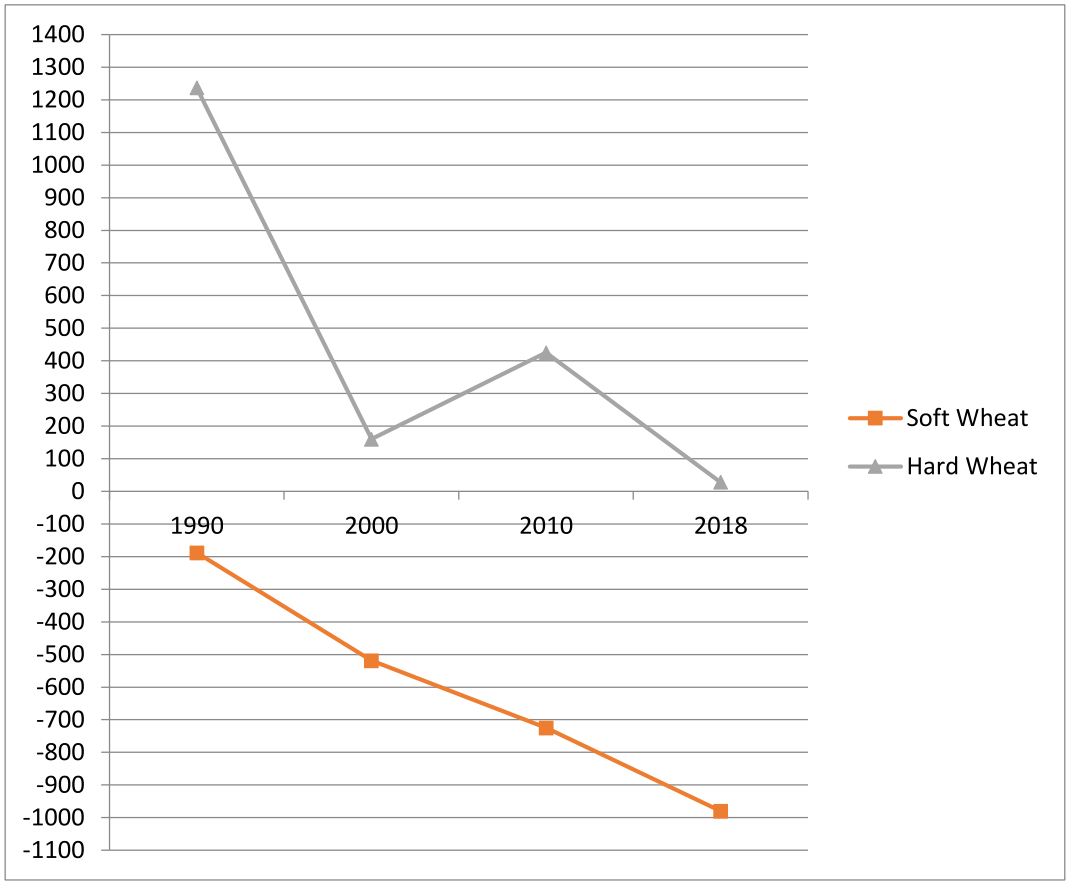

Figure 3. Trade Balance (tons)

Source: Table 3.

Table 4 below shows the percentage of self-sufficiency for the two products, as it is formed during the considered period. As has been pointed out, ensuring self-sufficiency in a range of goods is of prime importance for any national economy. Cereals are included in this product category. Cereals are among the products that each country secures safety quantities – quantities capable of preventing shortages in the market and war reserves – quantities capable of feeding the army in times of war. The importance of grains for the national economy and society is also confirmed by the fact that, until the 1970s, their self-sufficiency rate was recorded as an indicator of economic development.

From the table below, we can see the large reduction in the self-sufficiency rate in Soft Wheat from 146% in 1981 to just 15% in 2020, i.e. a reduction of 89.73%. We also note the reduction of the self-sufficiency rate in Durum Wheat by 44.44%, which however remains above 100%. The formation of the self-sufficiency rate and in this case the large reduction of it for the two examined products is related to the

policies implemented as well as the priorities set during the examined period, through the implemented agricultural policy.

Table 4. Self-efficiency

Type/Year	1981	1990	2000	2010	2020	Percentage Change 1981 – 2020
Total Wheat	160	135	79	83	61	-61,88%
Soft Wheat	146	80	50	36	15	-89,73%
Hard Wheat	234	293	106	160	130	-44,44%

Source: Ministry of Greek Agriculture, same processing.

Finally, important data emerges through the comparative analysis of the sizes – cultivable area and produced quantities – between Greece and the whole of the European Union. These comparative figures are presented in the two Tables below. In Table 5 below, we see the strong differences in terms of the reduction of arable land. Through the comparative presentation, there is a big difference in the reduction of arable land in Soft Wheat between the whole of the European Union – a reduction of 2.08% and Greece – a reduction of 27.0%. The comparison of the change (decrease) of the arable land for Durum Wheat is almost double in Greece compared to the entire European Union, 50.56% and 27.0% respectively.

Table 5. Cultivable area of cereals (000 hectares)

Type/Year	2010	2020	Percentage Change 2010 – 2020
Soft Wheat Total E.U.	21.206	20.765	– 2,08%
Hard Wheat Total E.U.	2.892	2.112	– 27,00%
Soft Wheat Greece	128	93	– 27,35%
Hard Wheat Greece	532	263	-50,56%

Source: www.agriculture.ec.europa.eu, same processing

In Table 6 you present the comparative analysis for the produced quantities of Soft and Durum Wheat between the whole of the European Union and Greece. For Soft Wheat, we find that during the period under review the quantities produced have increased by 5.58% for the entire European Union, while for Greece they have decreased by 13.25%. For Durum Wheat, we see a decrease of 21.42% for the whole of the European Union, while for Greece the decrease is much greater – 38.55%.

The reduction of Greece's production capacity is significant for both products under consideration. Of course, the reduction is not noticed by the consumers – final consumer, intermediate consumers (craftsmanship, industry), because the demand is covered by international trade. This of course applies when there is stability in the market. With the new data taking shape in international markets (war in Ukraine, grain export bans from a number of countries, etc.) lead to price increases, psychological pressure on the markets, which in the end will shape new trade flows.

Table 6. Production (000 tons)

Type/Year	2010	2020	Percentage Change 2010 – 2020
Soft Wheat Total E.U.	112.969	119.270	+5,58%
Hard Wheat Total E.U.	9.443	7.420	– 21,42%
Soft Wheat Greece	347	301	-13,25%
Hard Wheat Greece	1.292	794	-38,55%

Source: www.agriculture.ec.europa.eu, same processing.

Conclusions

We find large differences in the above sizes between the two products under consideration. We can easily see a relative abandoning of soft wheat in contrast to hard wheat production. The reasons for this are: higher yields per acre in durum wheat, better quality of durum wheat, higher durum wheat prices, higher durum wheat subsidy and the decoupling of the subsidy from the quantity produced. The decoupling of subsidy from production is a key factor in the reduction of durum wheat production at the European Union level.

Also, the analysis of the data shows the lack of a national agricultural policy. Producers decide "what to grow", "how much to grow" with profit as the only criterion – they are right. However, the absence of a national agricultural policy highlights key weaknesses – price increases, product shortages, etc. – where in times of crisis and imbalance the "invisible hand of the market" is unable to restore balance.

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