DID THE 2004 CAP REFORM AFFECT PRODUCTION PRACTICES OF CEREALS? INSIGHTS FROM THE AGRICULTURAL INPUT SUPPLIERS

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Abstract: *The Mid-term review of the Common Agricultural Policy in 2003/2004 has strengthened the multifunctional role of agriculture by implementing "decoupling", "modulation" and "cross-compliance" and created a number of significant changes in agricultural production in all EU member states. Specifically, the reform shifted emphasis away from commodity support towards environmental contracts, diversified production practices and rural development. In the case of cereals, a full decoupling was applied in subsidies and integration through rights in the Single Payment Scheme, except rice, which was one of the few crop cases in which part of the subsidy remained coupled, particular in countries with significant production like Greece. Within this context, the present study aims to analyze the impact that the reformed CAP measures had on agricultural production and more specifically variations in production diversification. The novelty of this study is that instead of focusing on the producers, it targeted the agricultural input stores, so as to get better insights of the CAP reform impacts on a larger scale of the regional economy. Accordingly, primary data were collected through personal interviews (structured questionnaire) from 209 owners of agricultural input stores in the region of Anatoliki Makedonia and Thraki and were analyzed through multivariate data analysis. The results identify important antecedents for the regional economy and the viability of agricultural input stores, which include factors of the reformed CAP, environmental issues, financial measures and CAP effects on cereal production and marketing.*

Key words: Common Agricultural Policy, Reform, Impacts, Agricultural Inputs, Cereals

JEL Codes: Q10, Q13, Q18

1. INTRODUCTION

The Common Agricultural Policy (CAP) has been the central element of European integration for more than 50 years and remains the most important EU common policy. The initial proposal from the European Commission in the 60s was to create a stable secure background of food security, increasing productivity and ensuring that consumers and producers enjoy equal rights in agricultural markets. The result was a rigid subsidy policy oriented towards production that continued until the mid-1990s. Since the main goal of increasing food production had been achieved, negative phenomena appeared, such as the mountains of unsold products and

trade disruptions in international markets, with further implications for developing countries. These have been accompanied by concerns about the CAP effects on the environment and indirect threats to public health.

Recently, a new course for the CAP has launched that is more environmentally friendly, tuned to the needs and market rules, supporting sustainable and efficient agriculture, away from the logic support of overproduction. In 2003, following the shift towards direct payments to farmers in the early 90s, the CAP has entered a new dimension of reforming and transforming (Fischler reform). The reform radically differentiated the way of community support payment, thus causing distinct consequences in the entire productive procedure of the European agriculture. The reform has been simplified by merging an array of different direct payments to a farm payment, while becoming a more efficient mechanism, fulfilling several objectives at less expense. The farm support has been adapted to the priorities and concerns of consumers, having switched from coupled subsidies to production, to achieve the targets on the quality, the natural environment and food safety. Accordingly, changes in the CAP caused significant consequences on cultivation, production, marketing of cereal and most crops, as well as on produced income, on the rest economic elements but also on the rest involved sectors (transportation, trade, inputs, etc.) (Evaluation of the measures applied under the Common Agricultural Policy to the cereal sector, European Commission, 2014). In turn, these consequences affected the local economy of each individual area, especially in those areas, where the entire local economy is strongly affected by agriculture and agricultural production (Hüttel and Margarian, 2009). This powerful connection of local economy with exercised agriculture and deriving agricultural production is also marked in the individual areas of the region of Anatoliki Makedonia and Thraki, since agriculture is the main economic activity constituting the motive force of the other economy sectors as well (processing, trade, services, occupation, construction, etc.)

The objective of the current study is to investigate the effects that the CAP reform of 2003 had on the local economy and especially the consequences recorded in cereal cultivations. The remainder of the paper is outlined as follows: the next section presents the theoretical background on the CAP reform and its impact on other EU countries. The third section describes the methodology employed followed by the discussion of the results and conclusions.

2. THEORETICAL BACKGROUND

The 2003 CAP reform has been a profound, radical change that replaced an established practice for granting support, which went on for years, now establishing decoupling of community support from production as SFP (Single Farm Payments) system, which provides payment to the decoupled Unified support farmers, based on "report period" rights, establishing one: establishment of commitments of Multiple Compliance, which also include the environmental factor of CAP and transfer of amounts from Pillar 1 to Pillar 2 through Differentiation. The reformed CAP was put into force, leaving room for national choices by the member states that specified its application in each country (Hüttel and Margarian, 2009).

Many scientific papers studied the consequences of the reform application on various sectors, like productivity, viability of farming, as well as the expected improvement of competitiveness, even before the official application of the new reformed CAP that actually started in 2004 due to the radical changes it included. In this framework, the scientific community argued that full decoupling of support could cause a general reduction in agricultural activity (Conforti et al., 2002) while these estimations also included the opinion that the attempted competitiveness increase included the risk that many agricultural trade activities (commodities) would become less profitable. At the same time in the same scientific papers it was stated that support decoupling is the most important radical change within the CAP.

While the 2003 reform aimed at increasing CAP's market orientation and reduce activities conducted with the intention of claiming subsidy, reduction of provision of support affected agricultural sub-sectors, which are important to the general sector of agro-nutrition like cereal (Matthews et al., 2013). The reform generated consequences on the entire productive procedure, on farmer behaviour, their choices and on the way of cultivation, while there were even opinions regarding the further expansion of decoupling (Bhaskar and Beghin, 2009). With the CAP reform and decoupling of support, farmers have to face additionally an increased instability regarding the agricultural income they produce (Mary et al., 2013).

Farmer's reactions towards CAP reform have not been uniform due to the different conditions regarding exercise of agriculture, while the expected consequences from support decoupling were not confirmed on certain cases, due to lack of adjustment for some farms and their devotion to existing former patterns (Lobley and Butler, 2010). In addition, study of changes in farmer behaviour was considered limited, since it is mentioned that it concerns a radical change, with no previous experience as regards its application (Howley, et al., 2012). In particular, in the case of Scotland (Matthews et al., 2013) it is pointed out that the considerable reduction to provided support raises now questions regarding response and adaptation under these circumstances. In the question posed in two areas in France (Latruffe et al., 2013), whether farmers would keep exercising agriculture if CAP and its support were paused, the result was that a considerable percentage of the farmers intended to stop farming, if something like that would occur. This tendency appears more intense in mountainous and minority regions. In Ireland the decoupled support continues affecting production. However, their impact is less than any production-coupled support (Howley, et al., 2012). In Spain (Júdez, et al., 2008) it was stipulated that all areas are not affected to the same extent while on cereal sector an increase of areas is mentioned due to abolishment of set-aside application. In the same country it is mentioned that from support decoupling application onwards a significant reduction in cultivations with high requirements in irrigation water was noted (e.g. cotton, sugar beets & corn) while a considerable increase is noted in cultivations with low irrigation requirements (winter cereal, sunflower & olives) (Lorite and Arriaza, 2008). It is also mentioned that support decoupling has affected the use of inputs and irrigation to sugar beets and cotton, bringing the cultivation mode closer to a more sustainable practice, while for the same country, previous years' predictions (Gracia et al., 2008) referred early to cereal reduction due to SFP. In Italy (Crescimanno et al., 2008) widening of the gap between cost and yield is pointed out, as well as consequences caused in cultivation of durum wheat while there is the opinion that support reduction has a negative impact, causing reduction of profit for firms trading in cereal or even their exit from the market, while on the other hand the increased interest for cultivation of plants from which biofuels are produced. Finally, necessity in administrative level is pointed out, in order to deal with and improve the low level of available services, the deficit of supportive structures for promotion of product "profile". In Germany and France (Hüttel and Margarian, 2009) there was a reduction in corn expanses [cereal and fodder maize], which were covered by other cultivations. Change tendencies caused by the CAP reform are same in both countries but remain stronger in France. On individual issues concerning EU agriculture and the consequences caused by the CAP reform, the following are pointed out:

Land values and capitalisation grade on land cost are not expected to be reduced due to the CAP reform while retaining high land values may create a barrier that shall prevent entrance of new farmers and will potentially hinder competitiveness of European agriculture (Kilian et al., 2012). Quantitative analyses presented reduction of cereal expanses (about 5%) and oil seeds (about 3%), increase of forage plants and reduction in bovine fattening (Britz et al., 2006). At the same time it is mentioned that durum wheat is under hard pressure in some countries. However, scientific research, even before the beginning of the reformed CAP application, presented a great

reduction of inner values of cereal as a result of comparison of scenarios (Benjamin et al., 2003). Of course this evaluation was not confirmed, since it has been discovered that there had been value instability. It should be mentioned that EU evaluation foresaw a limited reduction of cereal as a result of support decoupling, increase of energy crops, especially of oil seeds but also reduction of livestock breeding (cattle and sheep breeding).

From the above mentioned, it is obvious that no analytical recording of the reformed CAP consequences in various sectors of economic activity has been realised, resulting from a scrupulous research and recording of statistical findings in the NUTS II region of Anatoliki Makedonia and Thraki. The present paper attempts to record the relation between the consequences of the reformed CAP and the local economy, not through recording of an element, e.g. production, sales, collections, community support, etc., but through the comprehensive opinions of input storeowners involved in agricultural production; in particular these input storeowners were involved in cereal cultivations and cover all aspects of agricultural production, affected by CAP reform from all sides.

3. RESEARCH METHODOLOGY

The methodological procedure involved a quantitative survey (in-depth interviews) with a structured questionnaire in the region of Anatoliki Makedonia and Thraki. The region is situated on the northeastern part of Greece and includes five regional units, Drama, Evros, Kavala, Xanthi & Rodopi. It covers an area of 14,157 Km^2 with a population 608,182 residents (2011 census). The agricultural area reaches 66,419,000 m^2 (ELSTAT[1] – Statistical Yearbook 2009-2010); available for choice within the framework of CAP are 64,411,000 m^2, from which 22,500,000 m^2 (OPEKEPE[2] data for the year 2010) are covered by cereal cultivations. It is also worth mentioning that from the 63,290 submitted applications for obtaining community support (OSDE)[3]) for 2010, 28,393 included cereal cultivations (OPEKEPE data for the year 2010).

The questionnaire consisted of four sections. The first section comprised four basic questions, which aim at calculating CAP consequences on cereal production. The second section of the questionnaire included four questions aiming at calculating CAP consequences on allocation and movement of cereal. The third section consisted of four questions, aiming at calculating the CAP consequences on cereal cultivation. Finally, the fourth section, which included three questions, calculated CAP consequences on local economy. All answers were recorded with the five-level Likert scale, with neutral element, where 1 corresponds to “Strongly Agree” and 5 corresponds to “Strongly Disagree”. Questionnaires collection was conducted through personal interview in a sample of 212 participants. Particularly, the survey instrument was addressed to input storeowners involved in input marketing (agricultural medicine, fertilizers, seeds & other supplies) in the region of Anatoliki Makedonia and Thraki and all together reach the above-mentioned number. Prior to the quantitative research, a qualitative research was performed in a smaller sample of respondents, in order to select the questions that would be included in the final questionnaire. The choice for data collection from these input storeowners, required for completion of this research, constitutes an element of innovation and it was selected due to the special part carried out by these particular input storeowners, who, apart from supplying farmers, they additionally provide advice - actually solving issues. At the same time they are able to evaluate the produced harvest, but also the consequences caused by the

[1] ELSTAT: National Statistic Authority

[2] OPEKEPE : Greek Payment Authority of CAP Aid schemes by the name “Payment and Control Agency for Guidance and Guarantee Community Aid”

[3] OSDE: Integrated Management & Control System (the system for recording the available for choice of expanses, animals, etc. of Greece, used for estimation and payment of community support).

reformed CAP in all parameters of exercised agriculture (impact on the size of the farm, on its competitiveness, on included cultivations articulation, etc.).

In Anatoliki Makedonia and Thraki and in general in Greek agricultural reality agronomist scientists who deal with pesticides, other supplies and inputs in general, play an important role, which also has to do with lack of a wide and efficient system for agricultural applications and with the increase of average age of farmers, with all that it entails for their ability to approach innovation, changes and even consequences for the CAP reform. The specific respondents combine: scientific knowledge, cumulative and multiplicative value of their answers due to cooperation of each with a great number of producers, thus the value of their answers summarises, with particular importance, the conclusions from this great number of producers, adding a particular value to the current research methodology. At the same time it is estimated that the specific input storeowners are able to evaluate better while receiving an answer, having in mind many more cultivations same type of cultivation in different areas and the effect of the way of application of cultivating works and consequences of CAP by a considerable number of farmers, in order to avoid one-sided approaches. In addition, their judgement and response objectivity are important, since they are not farmers themselves, thus they are not affected by what would best serve their own interests during exercise of agriculture.

The response rate of the survey reached 65% and it is worth mentioning that there was a large response number from all over the region of Anatoliki Makedonia and Thraki and finally, after recording the answers and finding the errors, these questionnaires have been rendered usable. At this point, it should be emphasized that cereals were selected because of their diversity, which makes them exploit larger and completely different categories of ground, i.e. fertile and irrigated ground in the case of maize, semi-mountainous, mountainous and lowland ground, mainly non-irrigated, regarding wheat, rarely lowland and irrigated grounds for crop rotations, for wheat, semi-mountainous and mountainous ground for barley and irrigated ground or pathogenic soil conditions with regard to rice. Thus, the impact of CAP reform, is better reflected, while input storeowners at the sales points of pesticides and inputs, are the closest respondents involved in farming working from the private sector.

4. RESULTS

This section presents and discusses the results obtained from the quantitative research. As regards the years of store's operation, the majority (41%) operates «11-20 years». The respondents were primarily men (81%) at the age of 36 and 45 years old (47%), whereas about 36% fall in the next year class «46-55 years old». As concerns their education, 60% have a higher education mainly from Greek universities with a percentage of 30% having educated from a Technologiacal Institute. Also only 10 of those surveyed said they hold a postgraduate degree, and of these only one is an owner and Phd holder. Regarding the form of the business, the vast majority of input stores (66.1%) are independent businesses while the remaining percentage of input stores is included in a broader business range with more input stores. Specifically, 14.2% of the input stores belongs to partnerships which include two (2) points of sales, 17.3% owned by partnerships that include three (3) to five (5) input stores, while only three cases (2.4%) belong to partnerships involving more than five (5) input stores. As for the employment, in more than half of input stores one (1) to two (2) persons were employed, while nearly one third (30%) employs three (3) to five (5) individuals. Less than 1/10 (9.2%) employs 6-10 people, while much smaller the rates on the above categories (11 to 20 persons: 5.4% and above 20 persons: 2.3%). In terms of turnover, the questionnaire responses indicated that the higher percentage (26%) declares 200001-400000 euros, following by 400001-600000 euros (20.6%), 100001-200000 euros (17.6%), and 600,001 to 1,000,000 (15%). As for the whereabouts of the outlet's

activities, the majority of the input stores have its operation within a region (39,3%), or with one or more municipalities (35,7%). Only 16.1% report as area of operation beyond some municipal districts and even smaller percentage indicated more than one region.

Reliability of the questionnaire was assessed through internal consistency reliability, that estimates the consistency of participants' responses to a questionnaire data; in other words, whether participants respond in a similar way to the questionnaire items. Accordingly we performed a factor analysis (Varimax Rotation) for each variable included in the questionnaire which constitute the independent variables, in order to identify the items that have the most significant impact on cereals production, marketing and on the local economy. Then, the observed variables are derived from the means of the corresponding variables. The factor analysis examines the correlation between a large number of interrelated variables through their clustering into factors (Hair et al., 2010). Also, factor analysis interprets each factor according to the importance of variables and gathers many variables creating a few factors. In the current study nine factor analyses were employed, using the method of principal components and orthogonal rotation axes, which is appropriate if the factors are not related. The factors were extracted using the eigenvalue criterion greater than one.

Decoupling of aids from production: There are two main factors that determine the impact of the decoupling of aids from production, related to the reformed CAP. The first factor (M1) can be called "Product Production" and consists of seven questions and explains 34.8% of the variance explained. The second factor (M2) can be called "Output reduction" and includes only one variable, explaining 15.9% the variance explained (Table 1). From the following table, it is clear that the two factors explain 50.7% of the total variance, whereas all the factor loadings are well above the accepted level of 0.5, and the same also holds for Cronbach *a*.

Table 1. Impact Decoupling of aids – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M1	Product Production			3,134	34,81%	0,801
		Decoupling of aids changed crop synthesis in the region.	0,599			
		Decoupling of aids result in the increase of non-cultivated land in the region.	0,551			
		Decoupling of aids in the decrease of product quality.	0,580			
		Decoupling of aids provided a significant negotiating advantage to farmers.	0,751			
		Decoupling of aids resulted in the adjustment of farms in the conditions of free market and competition	0,830			
		Decoupling of aids had negative impacts on the marketing and processing of products.	0,578			
		Decoupling of aids has been accepted by local farmers.	0,721			
M2	Output reduction					
		Decoupling of aids resulted in production decrease	0,542	1,434	15,93%	-

Grant of aids: As regards the granting of aids within the reformed CAP in 2003, the factor analysis revealed two factors that determine their. The first factor (M4) can be called "Human Resources" and consists of 6 items and explains 29.4% of the variance explained. The second factor (M5) can be called "Farms", includes five items and explains 26.8% of the variance

explained. Table 2 presents the two factors, which explain the 56,38% of the total variance, having satisfctory loadings and present high reliability values.

Table 2. Grant of aids – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M4	Human Resources					
		Grant of aids launched the non-agricultural use of the money, taken resources from the productive process of the farm.	0,661			
		Grant of aids reduced production.	0,680			
		Grant of aids reduced intensive farming that require high inputs.	0,758	3,243	29,48%	0,802
		Grant of aids reduced farmer's interest for risk taking.	0,707			
		Grant of aids was perceived as a non-farm social aid rather than as an agricultural Community aid.	0,650			
		Grant of aids resulted in intense price fluctuations	0,645			
M5	Farms					
		Grant of aids ensured conditions of stability and limited risk for farms.	0,816			
		Grant of aids resulted in better farm organization and programming.	0,815			
		Grant of aids resulted in better economic farm management.	0,795	2,959	26,89%	0,795
		Grant of aids resulted in young farmers attraction.	0,636			
		Grant of aids resulted in the increase of farm size.	0,519			

Cross Compliance (C-C): Another import aspect of the reformed CAP involved the cross compliance of farmers to certain environmental criteria. The preceding factors analysis revealed three factors that determine the application of the specific measure. The first one (M6) can be called «Application Accuracy», consists of 4 items and explains 29.7% of the variance explained. The second factor (M7) can be named «Financial Consequences» and consists of two items, explaining 21.2% of the variance explained. Finally, the third factor (M8) may be named «Impact» comprises also three items and explains 18.1% of the total variance. As it can be seen from the Table 3, the revealed factors explain 69.191% of the total variance, all the factor loadings are well above 0.7 and reliability (Cronbach *a*) exhibits satisfactory values.

Table 3. Cross compliance – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M6	Application Accuracy					
		C-C was successfully applied to Greek farming.	0,829			
		C-C followed the necessary control prior to its implementation.	0,888			
		The relative bodies have been consistent regarding the announcement and implementation of C-C	0,863	2,676	29,73%	0,843
		C-C appears to apply only to documents held concerning the CAP while not applied in practice	0,609			

M7	Financial Consequences					
		C-C has negative financial impacts in the short-term.	0,887	1,915	21,27%	0,749
		C-C has negative economic impacts on the farm.	0,885			
M8	Impact					
		C-C in the long-term has positive impacts on production and solving farm problems.	0,838	1,636	18,17%	0,589
		The implementation of C-C by some, only, producers causes them unfair competition and comparative disadvantage.	0,600			
		The non-implementation of C-C may result in the imposition of sanctions on our country by the EU	0,701			

Farm Income from Cereals: The results of factor analysis revealed two main factors that contribute significantly to farm income from cereals. The first factor (M9) comprises three items and explains 51.3% of the variance explained and can be named «Farm income from winter cereals». The second factor consists of two items that explain 33.2% of the variance explained and can be named «Farm income from summer cereals». Both factor have satisfactory loadings from 0.65 and their reliability receives values more than 0.74 (Table 4).

Table 4. Farm income from cereals – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M9	Farm income from winter cereals			2,567	51,33%	0,893
		Durhum wheat	0,942			
		Soft wheat	0,867			
		Barley	0,766			
M10	Farm income from summer cereals					
		Corn	0,658	1,662	33,23%	0,747
		Rice	0,964			

Impacts on promotion-disposal of cereals: Five key factors were unveiled as determinants of the promotion and disposal of cereal within the context of the reformed CAP. The first one (M11) can be named «Cereals disposal» and consists of five items that explain 19.1% of the variance explained, while the second (M12) includes two items and can be named «Cereals market bodies»; the factor explains 16.3% of the variance explained. The third (M13) is called «Cereals marketing practices» and comprises three items that explain 15.03% of the total variance explained, whilst the fourth (M14) and the fifth (M15) are single-item factors and can be named as «Cereal marketing problems» and «Climate impact» respectively. Table 5 displays the individual factor loadings and reliability values for the factors revealed.

Table 5. Impacts on promotion-disposal of cereals

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M11	Cereals disposal			2,486	19,12%	0,759
		The majority is collected and sold resulting in the transfer and deployment in other areas.	0,773			
		Producers sell "open price" ie. Informed about the selling price of grain long after their delivery.	0,509			

		All quality classes of cereal are mixed during the concentration of the product and receive the same price.	0,758			
		Moisture is the only factor that differentiates the market price of cereals	0,718			
		Issues of "uncertainty payments' and limited solvency of traders have recorded	0,590			
M12	Cereals market bodies					
		Participation of NDP in collection and trade of cereals has fallen over the last eight years.	0,934	2,131	16,39%	0,919
		Participation of private traders in the collection and trading of cereals has increased over the last eight years.	0,922			
M13	Cereals marketing practices					
		A significant number of farmers store cereals they produce and market their own, in times of higher demand.	0,626	1,955	15,03%	0,646
		Farmers in the region try to produce the quantities they need in their own farms.	0,854			
		There is evidence of 'concerted practices' among cereal merchants	0,608			
M14	Cereal marketing problems					
		The involvement of a large number of cereal traders in the region negatively affects "economies of scale".	0,503	1,468	11,29%	-
M15	Climate impact					
		Climate change affects the production and quality of winter cereals.	0,874	1,201	9,23%	-

Impact on input stores: As regards the impact on the input stores, the analysis yielded two main factors. The first (M16) can be named «Number of branches of pesticides» and consists of two items, whereas the second (M17) relates to two items and can be called «Financial results of input stores». Both factors exhibit high factor loadings whereas, they explain 34.03% and 31.4% of the total variance explained, respectively (Table 6).

Table 6. Impact on input stores – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M16	Number of branches of pesticides	Cultivation changes reduce the number of private input stores	0,813	1,702	34,03%	0,645
		Cultivation changes reduce personnel at input stores	0,845			
M17	Financial results of input stores	Cultivation changes decrease turnover of input stores	0,910	1,572	31,44%	0,711
		Cultivation changes decrease profitability	0,800			

Economic impacts: The analysis revealed two factors that contribute to the economic impacts within the reformed CAP context. The first (M18) can be named «Turnover limit» and relates to four items, eplaining 43.03% of the total variance explained (Table 7). The other factor (M19) namely «Input-output pricing impact» is related to two items and explains30.5% of the total variance explained. Both factors exhibit high loadings and significant reliability values from 0.76, whilst they explain 73.35% of the total variance.

Table 7. Economic impacts – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M18	Turnover limit			2,582	43,03%	0,840
		Decrease in turnover is due to reduced productivity that occurred after 2004	0,851			
		Decrease in turnover is due to the increase of uncultivated land	0,857			
		Decrease in turnover is due to reducing inputs used made the revision of the CAP	0,787			
		Decrease in turnover is due to the population aging which owns the rights based on the reference period	0,656			
M19	Input-output pricing impact					
		Decrease in turnover is due to the volatility of the prices of cereals	0,885	1,830	30,50%	0,763
		Decrease in turnover is due to the evolution of input prices	0,850			

Impact on other sectors: The last factor analysis employed in the current study identified three major factors that determine the impact of the reformed CAP on other sectors besides agriculture. The first factor (M20) can be named «Areas in dependence on agriculture» and consists of six items explaining 32.7% of the total variance. The second factor (M21) can be called "Broad sectors" and relates to four items that explain 19.5% of the total variance, whereas the last factor (M22) is named and comrpises two items that contribute with 16.1% in total variance explained. «Land value». Table 8 illustrates the results from the aforementioned analysis, the variance explained and the reliability values for each factor.

Table 8. Impact on other sectors – factor analysis results

Code	Factor	Items	Loadings	Eigenvalue	Variance	α
M45	Areas in dependence on agriculture			4,258	32,75%	0,898
		Diffusion of impacts of the CAP on other sectors of the local economy related products processing	0,823			
		Diffusion of impacts of the CAP on other sectors of the local economy concerned manufacturing	0,778			
		Diffusion of impacts of the CAP on other sectors of the local economy related products Transfer	0,781			
		Diffusion of impacts of the CAP on other sectors of the local economy concerned manufacture of packaging materials	0,892			
		Diffusion of impacts of the CAP on other sectors of the local economy related to labour.	0,801			
		Diffusion of impacts of the CAP on other sectors of the local economy related to construction of storage infrastructure.	0,668			
M46	Broader sectors					
		Diffusion of impacts of the CAP on other sectors of the local economy covered the market of agricultural machinery, accessories etc.	0,553	2,539	19,53%	0,827

		Diffusion of impacts of the CAP on other sectors of the local economy related to consumption	0,778			
		Diffusion of impacts of the CAP on other sectors of the local economy covered standard of living.	0,882			
		Diffusion of impacts of the CAP on other sectors of the local economy related to construction activity in the area	0,742			
M47	Land value					
		Diffusion of impacts of the CAP on other sectors of the local economy related to land purchase	0,772	2,106	16,19%	0,777
		Diffusion of the impact of the CAP on other sectors of the local economy covered land rental	0,874			

5. DISCUSSION-CONCLUSION

CAP has undergone a series of reforms in the recent years, with critical measures implemented (i.e. the decoupling of aids from production in 2003) and oriented towards market and consumer needs. The objective of the paper was to investigate the impacts that the CAP reform in 2003 had on a regional economy and in particular, on cereal production and marketing. These effects revealed through the application of a series of factor analyses on data obtained from a quantitative survey with input storeowners in the region of Anatoliki Makedonia and Thraki. The statistical analysis revealed some interesting results regarding the effects of decoupling and granting of aids, the impact of cross compliance, and the effects of the reformed CAP policy schemes on farm income, marketing of cereals, input stores as well as their impacts on the regional economy and other economic sectors. The main policy measure introduced within the CAP context, the decoupling of subsidies, appears to have a significant impact on cereal production and its output. Particularly, the results indicated that cereal farmers in the region accepted this measure and adjust their farms in the conditions of the free market and competition. Nevertheless, the specific measure had mostly negative effects on production output, on product quality, on marketing and processing of the product, and increased fallow land in the region. Positive effects retained in the case of providing a significant negotiating advantage to farmers.

As for the granting of aids, its consequences primarily affect aspects of farm inputs and farming in general. Specifically, the grant of aids appears to have reduced intensive farming and also the farmer's interest for risk taking. Further, this policy measure resulted in increased price fluctuation, reduced production and launched the non-agricultural use of finance taken resources from the productive phase of the farm. The other aspect that is affected is the farm itself with the respondents to declare that decoupled subsidies ensured conditions of stability and limited risk for farms, resulting in better programming and organization of the farm. A less affected aspect is the fact that these aids attracted young farmers to enter agriculture.

A key policy measure introduced in the reformed CAP in 2003 was the cross compliance (C-C) of farmers to certain environmental criteria. The results revealed that this measure seems to have successfully been implemented to Greek farming, with the necessary controls and consistency on behalf of the responsible bodies. However, input storeowners perceive that it has negative financial impacts in the short-term and negative impacts on the farm in general. In the long-term, the effects on production seem positive and the non-implementation of the measure may result in the imposition of penalties by the EU. As far as the impact of the reformed CAP on

the income from winter and summer cereals, respondents revealed that the most significant affected crop is that of rice and durum wheat, followed by soft wheat and barley.

The respondents indicated specific impacts of the introduced measures of the CAP in 2003 on cereals production and marketing. Particularly, the reformed CAP assisted the collection and market of cereals in the region, resulting in the transfer and deployment in other areas, whereas, all the quality classes of cereals are mixed during the concentration of the product and receive the same price; the only factor that differentiates price is moisture. The participation of cooperatives in the collection and market of cereals have fallen over the last eight years, whilst the presence of private traders is intense, but evidence of 'concerted practices' among cereal merchants is present. Moreover, the respondents argued that significant number of farmers store cereals they produce and market their own, in times of higher demand and try to produce the quantities they need in their own farms.

The last aspects of the CAP's impacts related to the input stores, the economy and the impacts on other sectors. Regarding input stores, the effects are more severe since storeowners argued that the changes in crops due to the CAP reduced personnel and the number of input stores, as well as their turnover and profitability. The economic consequences, as regards cereal cultivation within the reformed CAP, include a decrease in farmer's turnover due to reduced productivity that occurred after 2004, the increase of uncultivated land and the decrease in inputs used. This can be explained from the fact that the CAP reform made the way of cultivation less intense, thus limiting both the use of inputs and cultivation yield. An additional decrease in turnover is argued due to the volatility of prices of cereals and the evolution of input prices. As far as the impact of the reformed CAP on other sectors, these involved sectors related to agriculture and broader economic sectors. As for the former, the diffusion of the CAP's impacts related to product's processing and transfer, manufacturing of packaging materials, labour and construction of storage infrastructure. As for the latter, the broader sectors that have been affected primarily refer to the market of agricultural machinery, accessories etc., constructions and the general standard of living, whereas significant impacts were revealed regarding the value of agricultural land and in particular, the land purchase and land rental.

Conclusively, the current study recorded significant impacts on a regional level, in the case of cereal production, that may be considered as a guide, not only for agricultural policy, but also in many other sectors. The specific relation and the correlation between CAP consequences and local economy has a unique value, since it reflects not only the role of the CAP in both quality of life and in development of the areas of the region and, but it is also important for the impression that the community has towards the CAP.

The rural sector of the region may comprise the main axis for development because, alongside the increase in agricultural production and agricultural incomes, it can also create considerable opportunities for the development of processing activities for agricultural products.

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