

Greek Public Tertiary Education Departments of Agriculture

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Abstract. In this paper, we analyze the students' preferences regarding the institution (university or technological institute) for studying agriculture. Our focus is on the departments of higher or lower preferences and our aim is to study the influence on these preferences of factors as department's geographical position or its age. Using descriptive statistic and multivariate data analysis methods, we comment on the distribution of preferences of high school graduates for the year 2007 until 2014 and the correlations with the variables mentioned. Our goal is to record the most popular university department as well as the department which failed to attract sufficient number of students. We hope our conclusions will be useful for planning the future of these departments.

Keywords: agriculture department, education, students' preference.

1 Introduction

The agriculture sector is an important part of Greek economy (Drakopoulos and Theodossiou, 1991; Camagni, 1995; OECD, 2010). A percentage of 13,6% of all employed people older than 15 years work in agriculture (Ereuna apasxolisis ergatikou dunamikou, 2015). This is the second high percentage. (The percentage for trade is 17,7% and 9% work in transformation sector). Many years ago, an individual decided to become a farmer because his father was a farmer as well. There was no need for education. He had experience in agriculture and he thought that was enough.

In the graph we present how many people over 15 years old were employed in agriculture from 2001 until 2014 in Greece. After 2004, about 100 thousands have left agriculture. In 2014, 480.400 persons older than 15 years were active in agriculture. This number was almost the same in years 2011, 2012, 2013 and 2014.

The percentage of people in agriculture of the total working people has arisen after 2009. In 2014 the percentage was 13,6%. As people in agriculture decreased and

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unemployment increased in the other sectors, a cause of economic crisis (after 2009), the percentage of people employed in agriculture mounted (Bank of Greece, 2014). Agriculture is a sector almost without unemployment (Ereuna apasxolisis ergatikou dunamikou, 2015).

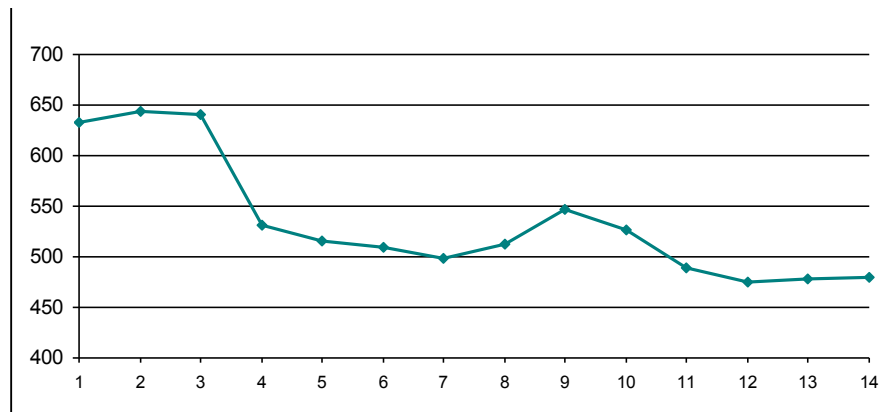


Fig. 1. Number of employed (thousands) per year

In table 1, it becomes evident that only 1 out of 4 workers in agriculture have completed secondary education, while 18% have completed 9 years of primary education and 47,3% have completed the 6 years of primary education. Only a percentage of 4% of workers in agriculture have graduated from tertiary education.

Table 1. Education of people in agriculture

2014	Tertiary education	Completed post secondary technical-vocational education	Completed secondary education	Completed the third grade of 6-year secondary education	Completed primary education	Have not completed primary education
total	3,7%	2,9%	26,8%	18,1%	47,3%	1,6%
men	4,3%	2,6%	28,0%	21,0%	42,4%	1,7%
women	1,8%	3,2%	25,1%	13,8%	54,7%	1,5%

In recent years a lot of young people have decided to acquire agriculture-related education in order to work in agriculture. Some of them want to be expert in agriculture and help the others by introducing to them new technological methods. In major Greek cities (Athens, Thessaloniki) there are agricultural departments in universities and in technological institutes. There are also agricultural departments in other smaller towns.

We use data of candidate students in these departments from year 2007 until 2014. Our objects in this paper are to:

- Analyse the demand of such field of education over the last few years.
- Present the preferences of first-year students.
- Find the most popular Greek agriculture departments.

Check if economic crisis has changed candidates' preference in agriculture education.

2 Greek Agriculture Education

The Greek tertiary education is divided in two parallel sectors, Universities and Technological Institutes (DOATAP, 2015). After completing secondary education, candidate students take exams (named "panellinies") in order to succeed in being admitted in only one department of University or Technological Institute. These exams are the same for all candidates in the country. The government determines the number of students (places) in each department and the questions for the exams (Minedu, 2015).

After the exams, candidates submit their preference for faculty. If they have good ranking in the exams, they manage to enter the department of their first preferences, if there are available places in this department. If there are no places available they may be admitted to another department of their next preference.

There are 13 agricultural departments at Universities and 20 at Technological Institutes. The candidate numbers are shown in figure 2 (first graph for University departments in other towns and second for University departments in Athens). It becomes evident that the number of candidates has increased after 2011 in every agriculture department. Especially candidate numbers have increased in the department (code 273) of Thessaloniki reaching 8000 candidates.

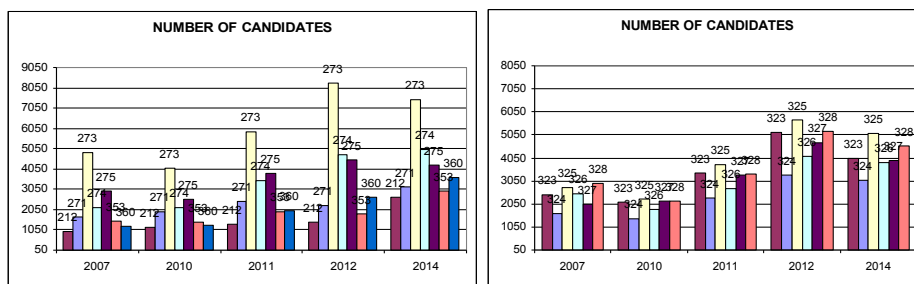


Fig. 2. Candidates per year at university departments

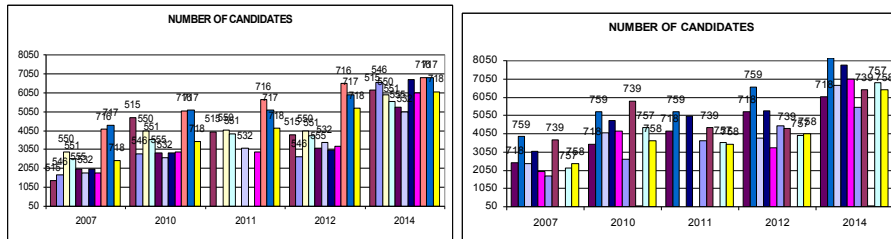


Fig. 3. Candidates per year in departments of Technological Education Institutes

3 Number of First-year Student

The number of first-year students is determined by the government. In figures 4 and 5 the numbers of first- year students in University departments and Technology Institute departments are depicted. The great increase in all departments in 2014 is clearly perceived.

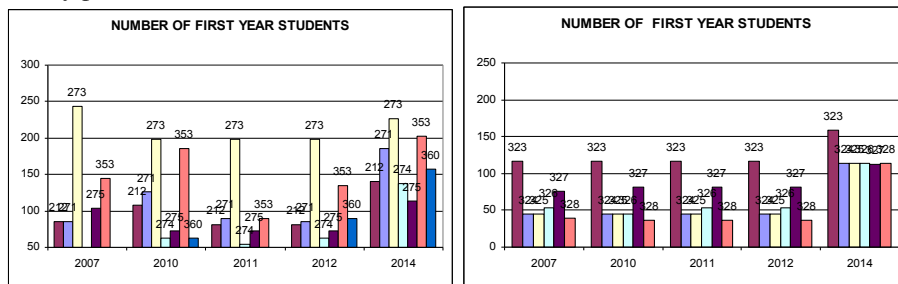


Fig. 4. Number of first- year students per year in university departments.

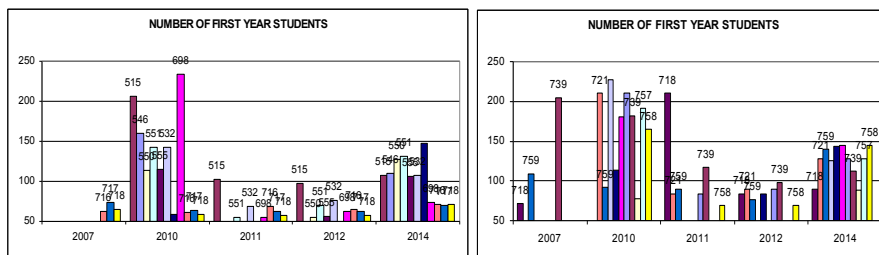


Fig. 5. Number of first-year students per year in Technological Education Institute departments.

4 Percentage of Successful Candidates and Preferences

The percentage of candidates, who succeed in the exams and enter agriculture university departments, is about 5% (Figures 6 and 7).

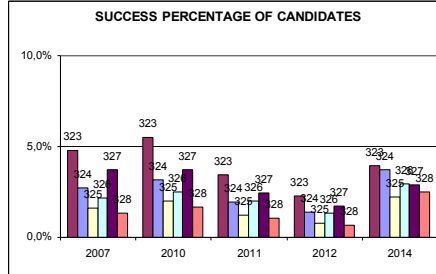
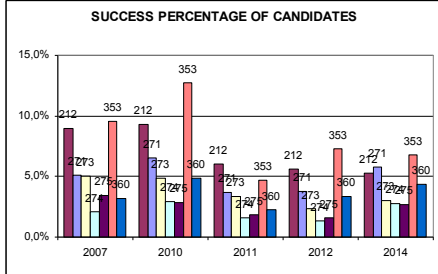


Fig. 6. Percentage of candidates, who succeed in university departments per year.

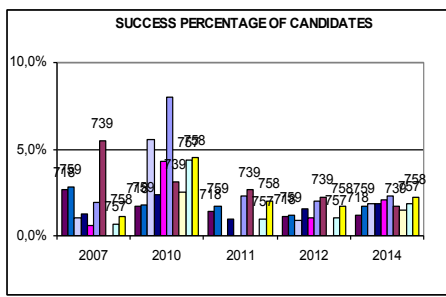
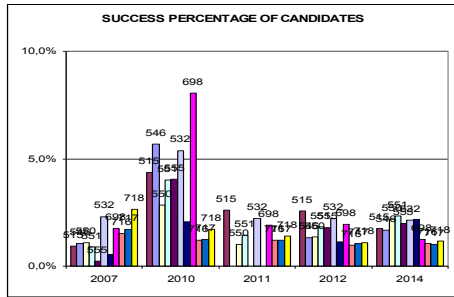


Fig. 7. Percentage of candidates per year, who succeed in Technological Education Institute departments.

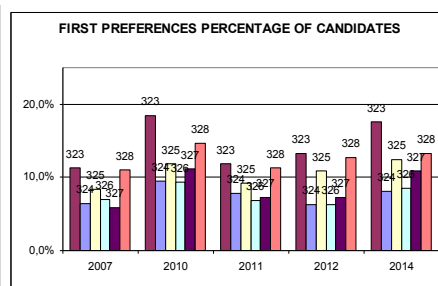
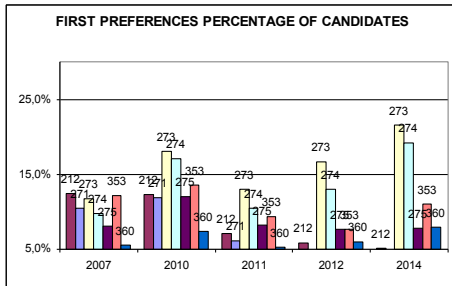


Fig. 8. Percentage of first preference of University departments of candidates per year.

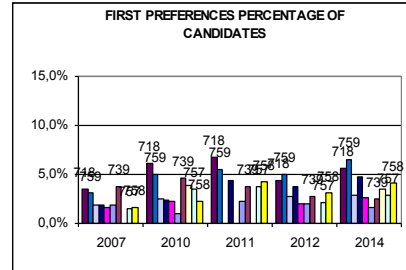
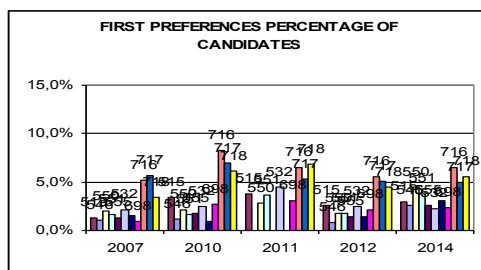


Fig. 9. Percentage of first preference of Technological Education Institute departments of candidates per year

The percentage of candidates who select university departments in first, second or third order of preference is from 10% to 15%.

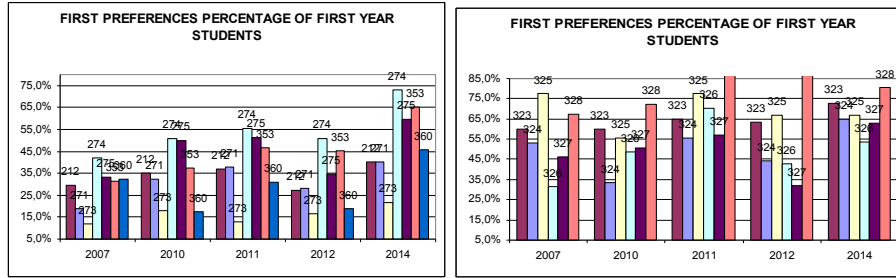


Fig. 10. Percentage of preference for University departments of first year students per year.

However, for the successful first year students, the percentage of those who expressed preference (first until sixth) was from 60% to 80% in 2014. Only three university departments (code 273-Thessaloniki, code 212-Orestiada, code 271-Agrinio) have a percentage of 25%-35% satisfaction of first year students.

The percentage of first - year students who had expressed preference (first until sixth) for the departments of Technological Education Institutes is about 30%-50% in 2014. Only three departments (code 716-Athens, code 717- Thessaloniki, code 758-Crete) have a percentage of 60%-80% satisfaction of first year students.

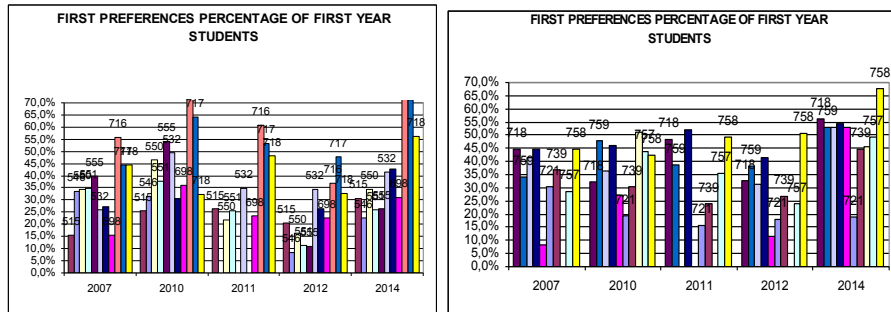


Fig. 11. Percentage of preference for Technological Education Institutes of first year students per year.

5 Influence of Economic Crisis in Agriculture Education

The ratio (percentage) of first preferences (1st, 2nd, 3rd, 4th, 5th, 6th) of first year students divided by the total number of first year students gives us the “satisfaction” percentage of first year students. This average “satisfaction” is shown in the table 2 per year. There is significant difference among years as we can conclude by analysis of variance (table 3).

Table 2. Percentage of satisfaction per year

YEAR	2007	2010	2011	2012	2014	total
Satisfaction %	37,5%	43,2%	47,0%	35,0%	51,0%	42,7%

In 2014 and 2007 the departments with the greatest satisfaction percentages are shown in the table 4. In 2014, the satisfaction is higher in more departments than 2007. In 2014 and 2007, the departments with the highest candidate numbers are shown in table 5. In 2014, the numbers are almost double than 2007. The departments with the highest candidate numbers are departments of Technology Education Institutes. The only exception is the Agriculture University Department of Thessaloniki.

Table 3. Results of Anova for successful percentage

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0,557	4	0,139	5,018	0,001
Within Groups	4,218	152	0,028		
Total	4,775	156			
successful percentage	year	N	Subset for alpha = 0.05		
			1	2	
Duncan	2012	32	34,96%		
	2007	32	37,48%		
	2010	33	43,23%		43,23%
	2011	27			46,99%
	2014	33			51,01%
	Sig.		0,065		0,083

Table 4. Higher satisfaction percentages in 2014 and 2007

2014			2007		
Code	name	satisfaction	Code	name	satisfaction
328 (univ)	Food Science and Human Nutrition Athens	80%	325 (univ)	Biotechnology Athens	80%
716 (tei)	Food Technology Athens	72%	328 (univ)	Food Science and Human Nutrition Athens	70%
717 (tei)	Food Technology Thessaloniki	71%	323 (univ)	Crop Production Science Athens	60%
273 (univ)	School of Agriculture Thessaloniki	70%	716 (tei)	Food Technology Athens	55%
274 (univ)	Agriculture Crop Production and Rural Environment Volos Thessaly	70%	324 (univ)	Animal Production Science Athens	50%
323 (univ)	Crop Production Athens	70%	327 (univ)	Natural Resources Management-Agricultural Engineering Athens	50%
325 (univ)	Biotechnology Athens	70%			
353 (univ)	Argotic Development Orestiada Thrace	70%			

Table 5. The highest candidate numbers in 2014 and 2007

2014			2007		
Code	name	candidates	Code	name	candidates
759 (tei)	Agricultural technology Thessaloniki	8180	273 (univ)	School of Agriculture Thessaloniki	4835
761 (tei)	Agricultural technology Larisa Thessaly	7828	717 (tei)	Food Technology Thessaloniki	4339
273 (univ)	School of Agriculture Thessaloniki	7474	716 (tei)	Food Technology Athens	4134
762 (tei)	Agricultural technology Florina Macedonia	7025	759 (tei)	Agricultural technology Thessaloniki	3898
717 (tei)	Food Technology Thessaloniki	6843	739 (tei)	Food Technology Karditsa Thessaly	3715
716 (tei)	Food Technology Athens	6829			
757 (tei)	Agricultural technology Arta Ipiros	6822			
557 (tei)	Agricultural technology Amaliada Patra	6749			

6 Conclusions

In Greece, the agriculture sector is a big part of economy. A percentage 13,6% of all employed people older than 15 years old work in agriculture. The percentage of people in agriculture of all employed people has increased after 2009 when economic crisis began. In recent years, many young people decided to study in schools relevant to agriculture in order to work in agriculture. We have concluded that the candidates' numbers have doubled for some agriculture departments of tertiary education. The departments with the highest candidate numbers are the departments of Technological Education Institutes.

The number of first year students is decided by the government. There was a great increase in 2014 in all departments. The percentage of candidates who succeed in the exams and enter agriculture university departments is about 5%. The percentage of candidates who have chosen the university departments in first, second or third order of preference is about 10% -15%.

For the successful first year students, the percentage of those who had stated preference (first until sixth) was from 60% to 80% in 2014 for University departments. For the departments of Technological Education Institutes this percentage was from 30% to 50% in 2014. The departments with the greatest satisfaction percentages have changed from 2007 until 2014.

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