

SOCIOECONOMIC STATUS (SES) SCORES OF TURKISH STATISTICS STUDENTS

Doğan YILDIZ*

Atıf EVREN**

ABSTRACT

Based on the findings of the study which we submitted to TUBITAK in 2007, we tried to estimate SES (socioeconomic status) scores of statistics students' families using some answers on the questionnaire forms of 1794 students in our sample. By analysing SES scores, some sound "distinctions" between the profiles of students from different regions of Turkey (and between those of private university students and public university students as well) may be possible. This point should be emphasized especially in discussing some issues on future of university education. Within last years, opening new universities is on the current agenda of Turkey. Some people emphasize that this expansionary process will increase the lack of quality present in university education. All these criticisms have sound and logical bases. On the other hand, this process itself brings more students more opportunities in university education. The significant differences between SES scores of statistics students lead us to think that opening new universities can create some opportunities for a kind of social mobility.

Keywords: Socioeconomic status scores, Turkish universities.

1. INTRODUCTION

The discussions on the performance of statistics education were intensified especially at the end of nineteen nineties in United States of America. For more than 20 years, ASA (American Statisticians Association) has been organising meetings and symposiums to evaluate the quality of statistics education throughout the world and nowadays there is a vast literature on statistics education. A summary of this process can be found in Yıldız, D., Evren, A. (2009a), and Yıldız, D., Evren, A. (2009b). Besides, some contemporary trends and some important evaluations on the performance of Turkish university education may also be found in Akyol(2010). Statistics is a young discipline in Turkey as far as the establishment years of statistics departments are taken into account. In Turkey, the oldest statistics departments were established in 1960's. An increasing demand for statistical studies from business life is a fact. On the other hand; as a by-product of this rapid growth process; there are some serious educational problems that cannot be vanished easily.

In 2007, we tried to analyze some issues of statistics education in Turkey by valuable contributions of TUBITAK (The Scientific and Technical Research Council of Turkey). Our study was based on the information derived from the questionnaire forms of 1794 students from different statistics departments in Turkey. In this context, questionnaire forms were distributed in 19 universities from 10 different cities of Turkey. The questionnaire forms were analyzed by SPSS 11.0 and SAS 9.4.

* Assist. Prof. Dr., Yıldız Technical University, Faculty of Sciences and Literature, Department of Statistics, Istanbul, e-mail: dyildiz@yildiz.edu.tr

**Assist. Prof. Dr., Yıldız Technical University, Faculty of Sciences and Literature, Department of Statistics, Istanbul, e-mail: aevren@yildiz.edu.tr

Some of the questions present in the questionnaire forms were aimed at investigating the students' evaluations on university education, learning difficulties they encounter, statistics as a prospective profession, or the quality of current statistics education, etc. Besides, there were some questions on consumption patterns, free time activities, or some other questions which might indicate some aspects of socio economic positions of students' families as well. Some findings of this study can be found in Evren, A, Yıldız, D. (2009), Yıldız, D., Evren, A. (2008), Yıldız, N.Ç., et all (2009).

The frequency distribution of sampled students coming from statistics departments of different universities can be investigated by the following table:

Table 1. The frequency distribution of students participating this survey

University	Frequency	Percentage
Anadolu	117	6,522
Ankara	78	4,348
Başkent	37	2,062
Çukurova	58	3,233
Dokuz Eylül	91	5,072
Ege	182	10,145
Gazi	164	9,142
Hacettepe	128	7,135
Istanbul Ticaret	13	0,725
Karadeniz Teknik	72	4,013
Kırıkkale	79	4,404
Mimar Sinan	87	4,849
Muğla	50	2,787
Ondokuz Mayıs	295	16,444
Ortadoğu Teknik	37	2,062
Osmangazi	65	3,623
Selçuk	98	5,463
Yıldız Teknik	119	6,633
Fırat	24	1,338
Total	1794	100

The university with the maximum number of participating students contributes with 295 students (which is equal to the 16.4% of the sampled students) and the university with the minimum number of participating students contributes with 13 students (0.7% of the sample).

Another table may be helpful to analyze frequency distribution of students with respect to their class identifications.

Table 2. The frequency distribution of sampled students with respect to their classes

Group	Frequency	Percentage	Cumulative Percentage
Freshman	311	17,34	17,34
Sophomore	415	23,13	40,47
Junior	469	26,14	66,61
Senior	599	33,39	100
Total	1794	100	

We intended to include half of the total statistics students (2142 of 4282 students) in the sample. Besides some forms from 2142 students could not be used. So we could have evaluated 1794 of 2142.

We adopted a kind of quota sampling strategy. The quotas are as follows:

1-Quota on classes: It is observed that most of the students in the sample are especially from higher classes. This is not purely coincidental. Because we think that as the levels of engagement of the students in statistics departments increase, their evaluations on their departments or on their profession will inevitably become more objectivistic and more sound. For this reason most of the students are sampled from the third and fourth classes intentionally.

Table 3. Quota on classes

Classes	Planned		Realized	
	%	Fi	%	Fi
1	10	214	17,3	311
2	20	428	23,2	415
3	30	642	26,1	469
4	40	856	33,4	599
Total	100	2142	100,0	1794

2-Quota on gender: We planned that 52% of the students in the sample be female. Here the percentages of male and female students that would appear in the sample were based on the figures taken from statistics departments. So 52%, and 48% are average figures based on the data we got from statistics departments. The planned and realized figures on this issue are given below:

Table 4. Quota on gender

Gender	Planned		Realized	
	%	Fi	%	Fi
Female	52	1114	52	982
Male	48	1028	48	862
Total	100	2142	100,0	1794

3-Quota on education program: The percentages of students from the first educational program and those from the second educational program that would be in the sample were based on the figures taken from statistics departments. So 85%, and 15% are average figures based on the data we got from statistics departments. The planned and realized figures on this issue are given below:

Table 5. Quota on education program

Program	Planned		Realized	
	%	Fi	%	Fi
First module	85	1820	84,1	1509
Second module (night program)	15	322	15,9	285
Total	100	2142	100,0	1794

2. BASIC DISCUSSIONS ON DETERMINING THE SOCIO-ECONOMIC STATUS

While engaging in any reform effort on university education programs, one should consider the general cultural and economic level of students and instructors as a crucial starting point. Because current living conditions of these people inevitably affect their scientific background and cultural level.

There is not a unique formula for determining SES scores. In 2006, Turkish marketing researchers made an agreement on some formulations and further researches were developed via this agreement. In our study we also adopted their approach. The criteria defined and the conventional points given to each item or answer are as below. There are 5 basic criteria in calculating SES scores:

Criterion 1 or SES 1: The ownership of durable consumption goods

Table 6. Points related to ownerships of durable goods

	POINTS	
	PRESENT	ABSENT
REFRIGIRATOR	0	-13
TELEVISION	0	-10
WASHING MACHINE	0	0
DISH WASHER	11	0
DRYING MACHINE	14	-4
MUSIC SET	0	0
VIDEO	4	0
VIDEO CAMERA	12	0
DVD PLAYER	6	0
DESKTOP COMPUTER	10	0
PRINTER	10	0
LAPTOP COMPUTER	14	0
MICROWAVE OWEN	11	0
AIR CONDITION	15	0

Criterion 2 or SES 2: Real-Estate and Vehicle Ownership**Table 7. Points related to real-estate ownership**

	POINTS	
	PRESENT	ABSENT
REGULAR	25	0
SUMMER HOUSE	20	0
COLLECTIVE OWNERSHIP FOR SUMMER HOUSES	15	0
AUTOMOBILE	10	0
YACHT/SAILING- BOAT	30	0

Criterion 3 or SES 3: Education Level**Table 8: Points related to education level**

EDUCATION LEVEL	POINTS
LITERATE	-14
PRIMARY SCHOOL	-2
SECONDARY SCHOOL	3
HIGH SCHOOL	9
UNDERGRADUATE	18
GRADUATE	24

Criterion 4 or SES 4: Profession**Table 9. Points related to profession**

	POINTS
RETIRED	5
RENTIERS	10
UNEMPLOYED	-11
BIG CAPITALIST (PRODUCTION / SERVICES, EMPLOYING MORE THAN 50 PEOPLE)	25
MIDDLE-SIZED CAPITALIST (PRODUCTION/SERVICES, EMPLOYING BETWEEN 10 AND 50)	20
SMALL-SIZED CAPITALIST (PRODUCTION/SERVICES, EMPLOYING LESS THAN 10 PEOPLE)	15
BIG MERCHANT / BIG WHOLESALER / BIG TRADER	23
MIDDLE- SIZED TRADER / MEDIUM-SIZED EMPLOYER	18
SMALL-TRADER / SMALL-SIZED EMPLOYER	10
DRIVER HAVING HIS/HER OWN VEHICLE	9
DOCTOR / PHARMACIST / DENTIST /ARCHITECT, ETC.	20
TOP MANAGER IN EITHER PUBLIC OR PRIVATE SECTOR (WITH EMPLOYEES MORE THAN 50)	19
HIGH MANAGER (WITH EMPLOYEES BETWEEN 10 AND 50)	16
HIGH MANAGER (WITH EMPLOYEES LESS THAN 10)	14
MEDIUM LEVEL MANAGER IN EITHER PUBLIC OR PRIVATE SECTOR (WITH MORE THAN 50 EMPLOYEES)	15
MEDIUM LEVEL MANAGER (WITH EMPLOYEES BETWEEN 10 AND 50)	14
MEDIUM LEVEL MANAGER (WITH EMPLOYEES LESS THAN 10)	12
LOW LEVEL MANAGER IN EITHER PUBLIC OR PRIVATE SECTOR	10
EMPLOYEE IN PUBLIC OR PRIVATE SECTOR /BANKING SECTOR EMPLOYEES, ETC.	9
UNSKILLED PUBLIC OR PRIVATE SECTOR EMPLOYEES	4
DOCTOR / PHARMACIST / DENTIST / ARCHITECT ETC.	18
SALES PERSON, MARKETER	9
NURSE / HOSTESS / WAITRESS / BARMEN, SECRETARY	10
TEACHER	10
ACADEMICIAN	12
OFFICER AND SUBOFFICER	12
HIGH OFFICER (CAPTAIN AND HIGHER)	16
DRIVER	8
QUALIFIED WORKERS	10
TECHNICIANS, PHARMACY REPRESENTERS, ETC.	8

Criterion 5 or SES 5: Monthly Total Income

The frequency distribution of the monthly incomes of 1794 students' families are given in the following table.

Table 10. Income distribution of 1794 students' families

Monthly Income	Frequency	Percentage	Cumulative Percentage
less than 750 YTL	170	9,476	9,476
between 750 and 1500 YTL	930	51,839	61,315
between 1501 and 2250 YTL	321	17,893	79,208
between 2251 and 3000 YTL	230	12,821	92,029
more than 3000 YTL	143	7,971	100
Total	1794	100	

Total income data are converted into scores ranging between 1 and 69. Then these scores are evaluated as the total income component of SES scores.

3. THE DETERMINATION OF STUDENTS' FAMILIES' SES SCORES

Total SES point is calculated by simply adding 5 SES score components as follows:

$$\text{SESTOTAL} = \text{SES1} + \text{SES2} + \text{SES3} + \text{SES4} + \text{SES5} \quad (1)$$

To be able to make comparisons between the SES scores of overall Turkish population and those of the students' families in the sample, we give the percentages of socioeconomic groups of Turkish population as follows:

Table 11. The percentages of SES groups of Turkish population

Groups	Urban Areas	Rural Areas	General
A	1,5	0	1,1
B	12,2	2,2	9,1
C1	23,3	8,9	18,9
C2	31,8	31,2	31,6
D	23,3	40,3	28,5
E	7,9	17,4	10,8

In our study, before calculating 5 components of SES scores of each student, we first tested the consistency of some of the answers with respect to some others by means of correlations and cross-tabulations. Besides, apart from the general evaluation on Turkish population, here the groups D and E are united as a single group intentionally. The reason for this is that the number of students coming from group E is so small that the students from this group can be simply added to group D. The class limits for each SES group can be seen through the following table:

Table 12. SES scores and groups

SES Groups	Points
A	201 and over
B	between 146 and 200
C1	between 105 and 145
C2	between 70 and 104
D and E	69 and lower

Then we have the frequency distribution of students with respect to their group identifications as follows:

Table 13. Frequency distribution of SES scores of 1794 students

Groups	Frequency	Percentage	Cumulative Percentage
A	168	9,36	9,36
B	538	29,99	39,35
C1	543	30,27	69,62
C2	353	19,68	89,3
D & E	192	10,7	100
Total	1794	100	

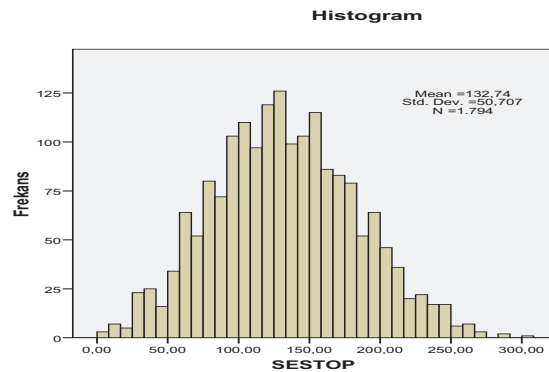


Figure 1. Frequency distribution of SESTOP scores

As can be seen from the previous histogram, total SES scores follow a symmetrical distribution roughly.

4. COMPARISONS OF THE PERCENTAGES OF SES GROUPS IN TURKISH POPULATION AND THOSE OF THE STUDENT POPULATION IN STATISTICS DEPARTMENTS

Besides, we wondered if each SES group contribute university populations proportionally or not. By uniting the entries of Table 8 and Table 10, we obtain Figure 2 from which we can easily conclude that all socioeconomic groups do not contribute equally to the student population in statistics departments. To make more sound comparisons, the following figure might be functional.

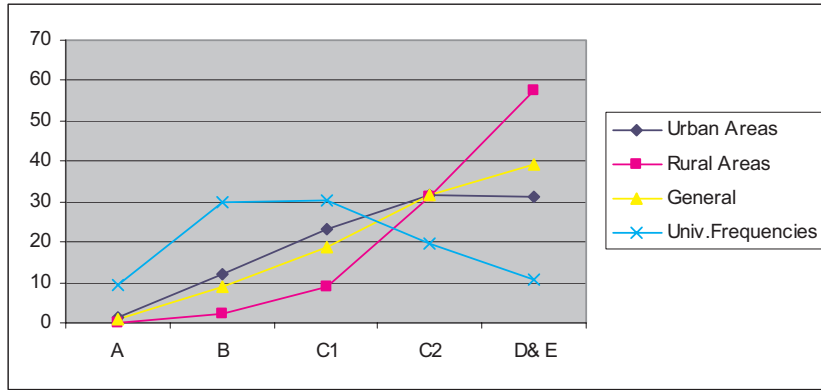


Figure 2. SES scores distributions within Turkish population and within statistics departments

In general, higher income groups A, B and C1 contribute to the population of statistics students much more than their relative weights in Turkish population. Approximately 10% of statistics students come from group A, while only 1% of the total Turkish population is from the same group. The figures for groups B, and C1 are not proportionate with what is expected under the social equality hypothesis either. For the groups C2, D and E the situation is worse. For example 39,3% of the population makes only 10,7% of the statistics students population in the universities. All these arguments will suffice to show that there are considerable inequalities between social groups in contributing to university populations based on the figures of sampled statistics students. It can be simply deduced that higher education is still a matter for higher classes because of high educational costs and maybe because of the existence of social inequalities .

5. COMPARISON OF THE AVERAGES OF TOTAL SES SCORES OF STUDENTS FROM DIFFERENT STATISTICS DEPARTMENTS

It is worthwhile to ask whether there are significant differences between the average total SES scores between different statistics departments. The following figure will show the variation between statistics departments of different universities.

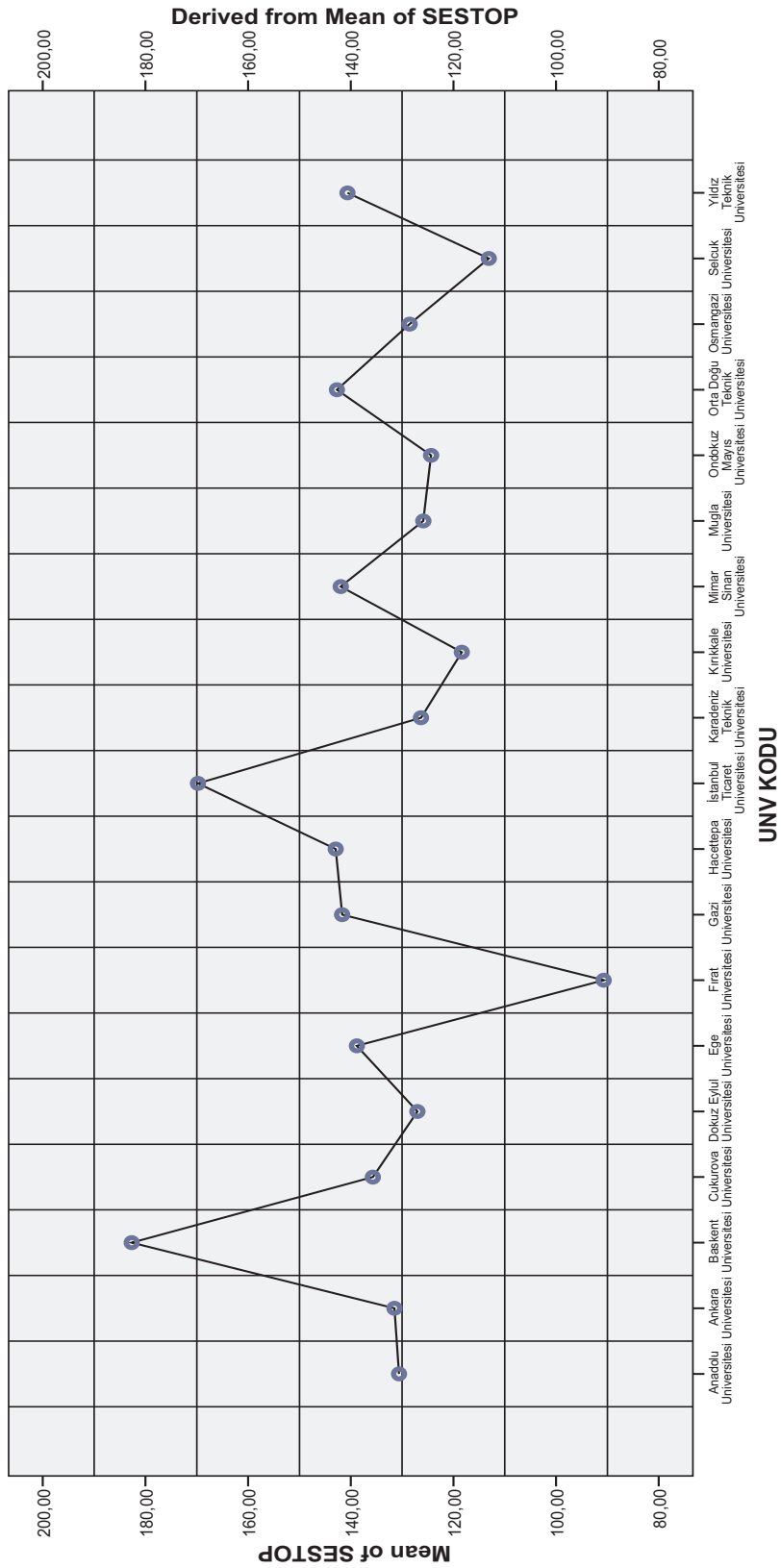


Figure 3. The average total SES scores of different statistics departments

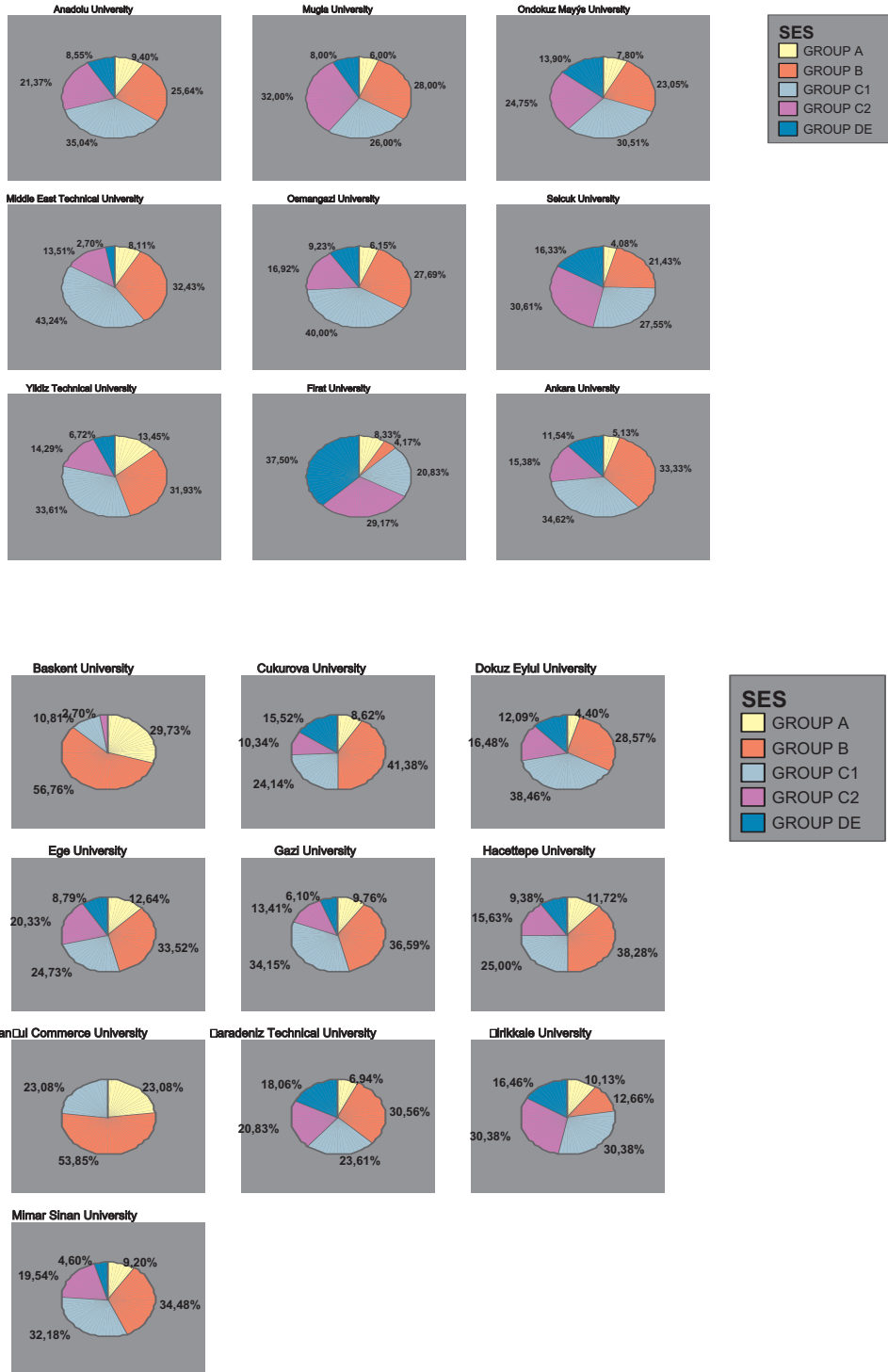


Figure 4. SES scores distributions within statistics departments*

*The exact figures are given in Appendix.

6. DISCUSSION

The findings of our empirical study show that there are significant differences between the SES scores of statistics students. The average total SES scores of two private universities take the two top positions as can be expected a priori. Then come the statistics departments in three metropolitan cities of Turkey (İstanbul, Ankara and İzmir). This result can also be predicted by considering the economic and cultural development levels of these cities. Finally, the students from the statistics departments established either in eastern (Fırat University) or central parts (Selçuk and Kırıkkale Universities) of Turkey have the lowest average total SES scores. These results are in harmony with the general economic positions or development levels of the various regions of Turkey.

Within last years, opening new universities is on the current political agenda in Turkey. Some people emphasize that this expansionary process will increase the lack of quality in present university education. All these criticisms have sound and logical bases. On the other hand, this process itself brings more students more opportunities in higher education. Therefore we think that this expansionary process supported by quality will be beneficial for all. This might be achieved by changing some priorities of the macro plans for allocations of resources by the governments.

7. REFERENCES

Akyol, T., 2010. Bilim ve Yanılgı, Dođan Kitap, Geniřletilmiş 7. Baskı, İstanbul.

Çađdař, C., 2007. IAA Power Point Sunumu.

<http://baybul.com/pazarlama-ve-satis/374618-turkiyenin-yeni-sosyo-ekonomik-statues-profil.html>.

http://www.mayak.com.tr/documents/MSESI_sunum.pdf.

ESOMAR Standard Demographic Classification, 1997. <http://www.esomar.com>.

Yıldız D. vd., 2007. Türkiye’de Tüm İstatistik Bölümleri Bazında İstatistik Eğitiminin Öğrenci ve Öğretim Üyesi Gözüyle Deđerlendirilmesi. TÜBİTAK Proje No:105K171, İstanbul.

Evren, A., Yıldız, D., 2009. İstatistik Bölümü Öğrencileri Anketi ve Öğrencilerin İstatistik Bölümlerinden Duyduđu Memnuniyet Üzerine Bir Faktör Regresyon Modeli. 18. İstatistik Arařtırma Sempozyumu, 2009.

Yıldız, D., Evren, A., 2008. Some Results from the Survey on Turkish Statistics Education. 6th International Conference Sustainable Development Culture and Education, Conference Proceeding CD, June 4-7 2008, Eskiřehir, Turkey, 816-830.

Yıldız, N. Ç., Yıldız, D., Evren, A., 2009. Türkiye’deki İstatistik Bölümlerinin Belirli Etkenler Açısından Karřılařtırılması. I. Ulusal Eređli Meslek Yüksek Okulu Tebliđ Günleri, 1(1):363-377.

Yıldız, D., Evren, A., 2009a. Yurtdışında İstatistik Programlarının Reforma Tabi Tutulma Çabaları. VI. İstatistik Günleri Sempozyumu Bildiriler Kitabı, 2009, Samsun, 59-65.

Yıldız, D., Evren, A., 2009b. On Some Reform Initiatives on Statistics Education throughout the World. Selçuk Journal of Applied Mathematics, 10(1):95-106.

TÜRKİYE'DE İSTATİSTİK BÖLÜMLERİNDE OKUYAN ÜNİVERSİTE ÖĞRENCİLERİNİN SOSYO-EKONOMİK STATÜ (SES) PUANLARI

ÖZET

2007 yılında TÜBİTAK'a sunduğumuz çalışmamızın verilerinden hareketle örnekleme dahil edilen 1794 öğrencinin ailelerinin sosyo ekonomik statü (SES) puanlarını hesapladık. SES puanlarının analiz edilmesi ile Türkiye'nin farklı üniversitelerindeki öğrencilerin profilleri arasında (aynı zamanda özel üniversite öğrencilerinin profilleri ile kamu üniversitelerinde okuyan öğrencilerin profilleri arasında) bazı anlamlı "farklılıkların" saptanmasının mümkün olduğunu düşünüyoruz. Bu noktanın vurgulanması özellikle üniversite eğitiminin geleceği ile ilgili bazı sorunların tartışılmasında yararlı olacaktır. Son yıllarda yeni üniversitelerin açılması Türkiye'de gündemdedir. Bazı insanlar bu genişleme sürecinin şimdiki üniversite eğitiminde bulunan kalite eksikliğini arttıracaklarını vurgulamaktadırlar. Bu türden eleştirilerin anlamlı ve mantıksal bir temeli vardır. Bununla birlikte bu süreç daha çok öğrenciye üniversite eğitiminde daha fazla olanaklar getirmektedir. İstatistik öğrencilerinin SES puanları arasında anlamlı farklılıkların gözlenmiş olması açılan yeni üniversitelerin bir tür sosyal hareketlilik olanağı sunabileceğini bizlere düşündürmüştür.

Anahtar Kelimeler: Sosyo-ekonomik statü puanları, Türkiye'deki üniversiteler.

APPENDIX: Exact Frequency Distributions of SES Scores within Universities

	SES				
	GROUP A	GROUP B	GROUP C1	GROUP C2	GROUP DE
Anadolu University	9,4%	25,6%	35,0%	21,4%	8,5%
Ankara University	5,1%	33,3%	34,6%	15,4%	11,5%
Baskent University	29,7%	56,8%	10,8%	2,7%	,0%
Cukurova University	8,6%	41,4%	24,1%	10,3%	15,5%
Dokuz Eylul University	4,4%	28,6%	38,5%	16,5%	12,1%
Ege University	12,6%	33,5%	24,7%	20,3%	8,8%
Gazi University	9,8%	36,6%	34,1%	13,4%	6,1%
Hacettepe University	11,7%	38,3%	25,0%	15,6%	9,4%
Istanbul Commerce	23,1%	53,8%	23,1%	,0%	,0%
Kadir Has University	,0%	,0%	,0%	,0%	,0%
Karadeniz Technical	6,9%	30,6%	23,6%	20,8%	18,1%
Afyon Kocatepe University	,0%	,0%	,0%	,0%	,0%
Kirikkale University	10,1%	12,7%	30,4%	30,4%	16,5%
Mimar Sinan University	9,2%	34,5%	32,2%	19,5%	4,6%
Mugla University	6,0%	28,0%	26,0%	32,0%	8,0%
Ondokuz Mayıs University	7,8%	23,1%	30,5%	24,7%	13,9%
Middle East Technical	8,1%	32,4%	43,2%	13,5%	2,7%
Osmangazi University	6,2%	27,7%	40,0%	16,9%	9,2%
Selcuk University	4,1%	21,4%	27,6%	30,6%	16,3%
Ufuk Universitesi	,0%	,0%	,0%	,0%	,0%
Yildiz Technical University	13,4%	31,9%	33,6%	14,3%	6,7%
Yasar Universitesi	,0%	,0%	,0%	,0%	,0%
Firat University	8,3%	4,2%	20,8%	29,2%	37,5%