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TUBITAK's Scientific Funds in Academic Entrepreneurship Context: Fairness, effectivity

Elyase İSKENDER [1], Hatice Yasemin İSKENDER [2]
[1] Hakkari University, Hakkari, Turkey
[2] Hakkari University, Hakkari, Turkey

Abstract
In this study, a specialized entrepreneurship concept academic entrepreneurship, has been evaluated in the context of TÜBİTAK's Scientific Funding. Scientific and technological research council of Turkey has funded scientific projects for supporting academic entrepreneurship. In this study the equity of the Fund Distribution has been examined. For this aim the data from TUBITAK for funds of 2011-2015 time span has used. Gini coefficients for every years in this time interval has calculated with utilizing this funding data. In addition to this funding amount per capita for cities has examined to find the causes of high Gini values. As a result of this calculation, Ankara, Kocaeli and Isparta cities are the most ruiner of the TUBITAK Scientific Fund Distribution's fairness. Albeit Hakkari, Şırnak, Muş, Mardin and Amasya are the cities which raises the Gini Coefficient, with their short of funding. An interesting finding is the funds sent to Tunceli has been dramatically raised recent years, although its geographic location. Besides this study is the first study in Turkish Literature which is examining the fairness of the TUBİTAK Scientific Funds Distribution with using the Gini Coefficient.
Keywords: *Entrepreneurship, Academic Entrepreneurship, TUBITAK Academic Funding, Gini Coefficient*

1. Introduction

Economy has been an battleground for countries where the last 50 years wars are ongoing. For this reason, creating economic value and accelerating commercial activities play key role to gain freedom and independence of societies. In this sense entrepreneurship concept is one of the key terms of new economy.

Entrepreneurship is a new conctitution changed the existing economic order[1]. A similar vision Shumpeter denoted that the innovation destroyed the existing order and thus he basically characterized the entrepreneurship as "creative destruction''[2].

Academic entrepreneurship, traditionally, has defined as a reconstruction at the universities. Recontruction contains the status of the way of transferring the information and the technology produced by university to innovation or to a venture[3].

Recently, the entrepreneurship concept takes place as creating differences with technical informations and commercial innovations. For this reason, nowadays the concepts of entrepreneurship and academic entrepreneurship can be used interchangeably. The goverment has to provide the formation, development and orientation prosesses of the academic entrepreneurship in the early stages. After a certain maturity, the role of the goverment about the academic entrepreneurship is to control.

Academic entrepreneurship is developing recently in Turkey. For this reason the goverment is transmitting sources to develop this economy. TÜBİTAK is the most important instutition transferring this resources.

In this study, firstly, the entrepreneurship an the academic entrepereneurship concepts are defined. And, explanotory statistical informations are presentating about TÜBİTAK's scientific funds in tables and maps. After, to examine the equality in the distribution of the funds of TÜBİTAK between 2011 to 2015 years, the Gini Coefficient has calculated. The study has finished by given study suggestions for future, after mentioned the probable couses about the height of the Gini Coefficient. The calculated TÜBİTAK Gini Coefficient in this study which is examined equality of the TÜBİTAK funds distrubition is firstly utilization of Gini Coefficient for this purpose in Turkish Literature.

2. Entrepreneurship

Although the meaning of entrepreneurship is changing with the markets technological shift,

basically it is the scientific term which defines the tradesman's converting opportunity to the end product and locating it in the market in a sustainable way.

Entrepreneur is a French Word which have seen first in the french dictionary which name is "Dictionnaire de la langue Francaise" at 1437. At this dictionary three meanings of entrepreneur was given. The most commonly used definition of the word entrepreneur in this dictionary is "Celui qui entreprend quelque chose" an it means "the person who undertake something". This word has been used in French literature since 12th century.

Etymologically the word has two parts. First part is "entre" which means "entrance" in French. Second part of the Word is "preneur" which means receiver (taker) in French. The combination of this two parts describes a process of "making doors available for entrance". The entrepreneur is the person who finds a way to allow the product get into the market.

Cantillon, in his study at 1755, not only gave the meaning of entrepreneurship but also implied the role of entrepreneur is developing the economies[4].

Even becoming an entrepreneur has different meanings for people the characteristic properties of entrepreneur has a common sense. Entrepreneur character has several common properties[5]:

- Starting the innitiative
- Reconstructing social and economic mechanisms to bring together the sources
- Allows the risk, uncertainty and potential failure.

Factors affecting the decison of being entrepreneurship are:

- Entrepreneurship culture in society
- Family structure and social environment
- Economic Factors
- Legal regulations
- Legal, political, structural and administrative factors
- Psychological factors
- Education and the structure of human resources
- Faith and value system

3. Academic Entrepreneurship

Knowledge Corridors has allowed aspiring entrepreneurs, gather necessary resources and complementary assets to produce innovations resulted with commercialization[6].

According to academic product oriented definition, academic entrepreneurship is based on intellectual actor and an entrepreneur[7].

According to another definition academic entrepreneur is the scientist involved in the commercialization of his study[8].

Academic entrepreneur term includes a Professional concept. Academic entrepreneur is an identity which is active in both scientific and commercial senses. Academic entrepreneur is a bridge between academic and commercial environments.

University startups are contributing the economic development by generating economic value added products. These value added products are:

- Creating employment increasing the job opportunities
- Contributing to local economy
- Providing investments for university's technology resources.
- Contributing to university's applied education.
- Diversification of the researches
- Diversification of the commercial technology of universities.
- Decreasing the resource constraints for Project elimination
- Produce huge commercial gain obtained by little costs
- Increasing the brand value of the university
- Attracts succesful students
- Attracts academic personnel
- Contributing to training of students by providing research Works to them.
- Attracts new investments.

According to Murray and Kolev, the nature of relationship between entrepreneurs is seen in the center of the effective commercialization process[9].

The significant finding in Stuart and Ding's study is if the university has academic entrepreneur faculty member, other faculty members in the

university are more likely to become entrepreneur[10].

Kenney and Goe's study has pointed that Stanford has more entrepreneurship supporter culture than University of California and Berkeley[11].

Several university start ups are: Digital Equipment Corporation which was founded by Kenneth Olson while he was working at MIT's Lincoln Laboratory, Wang has founded his company while working at Harvard computer Lab. Google was founded by Stanford PhD Students. Turbogenset was founded by Imperial College[12].

4. Academic Entrepreneurship Environment In Turkey

Technology Transfer Offices (TTOs), Technoparks, TUBITAK's Entrepreneur Innovative University Index (TEIUI) and TUBITAK's Scientific Funds formed in order to develop academic entrepreneurship in Turkey.

This institutions should operate effectively because of their vital role of evolving universities in entrepreneur manner. In this study we examine the fairness and effectiveness of the TUBITAK's scientific fund distributions.

4.1 Technology Transfer Offices

TTOs have several purposes for academic entrepreneurship context. These are:

- Commercialization of the knowledge products by converting them to solutions.
- Adding value to knowledge products in Social/Economic/Cultural senses.
- Providing collaboration between universities and Industry
- Contributing as a solution center for industry.
- Full filling the industry's needs of knowledge and technology by universities.

TUBITAK has two programs for supporting the establishment and development of TTOs called 1503 and 1601.

In Turkey, 72 universities have established TTOs. The list of this universities is given in Table 1.

Table 1 Turkish Universities which established TTO (June 2016)

Turkish Universities which established TTO	
Abdullah Gül University	Kırklareli University
Adıyaman University	Kocaeli University
Afyon Kocatepe University	Marmara University
Anadolu University	Medipol University
Ankara University	Melikşah University
Atatürk University	Mersin University
Başkent University	Muğla Sıtkı Koçman University
Bilkent University	Mustafa Kemal University
Bitlis Eren University	Namık Kemal University
Boğaziçi University	Ortadoğu Teknik University
Çankaya University	Osmangazi University
Dokuz Eylül University	Özyeğin University
Düzce University	Pamukkale University
Ege University	Recep Tayyip Erdoğan University
Erciyes University	Sabancı University
Gazi University	Sakarya University
Gaziantep University	Sinop University
Gaziosmanpaşa University	Şehir University
Gebze Teknik University	TOBB Ekonomi e Teknoloji University
Gediz University	Trakya University
Gelişim University	Tunceli University
Hacettepe University	Uludağ University
Hasan Kalyoncu University	Üsküdar University
İnönü University	Yaşar University
İstanbul Sabahattin Zaim University	Yıldız Teknik University
İstanbul Teknik University	İzmir Eonomi University
İzmir ileri teknoloji University	Niğde University
Kadirhas University	İskenderun Teknik University
Karadeniz Teknik University	Işık University
Karamanoğlu Mehmet Bey University	Selçuk University
Kastamonu University	Fırat University
Kırıkkale University	Çukurova University
Kahramanmaraş Sütçü İmam University	Atılım University
İzmir Katip Çelebi University	
Okan University	Akdeniz University
Koç University	İstanbul University

4.2 Technoparks

Research Parks on the widespread use in the US or Science Parks as the common name in european countries or Technology Parks as the common name in the asian countries[13] are very important facilities for commercialization of the knowledge products through the production and transfer of technology.

Technoparks are facilities established for producing collaboration between universities and industry firms. In technopark facilities research Project groups from university and investor / commercial firms from industry take place. ScienceParks in which universities act as shareholders in Turkey are given in Table 2.

Table 2 Turkish Universities which are Shareholder of Technoparks

Turkish Universities which are Shareholder of Technoparks	
Afyon Kocatepe University	Dokuz Eylül University
Akdeniz University	Düzce University
Anadolu Üniersitesi	Ege University
Ankara University	Erciyes University
Ankara University	Fırat University
Atatürk University	Gazi Osman Paşa University
Atılım University	Gazi University
Başkent University	Gaziantep University
Bilkent University	Gebze University
Boğaziçi University	Hacettepe University
Bozok University	Hacettepe University
Cumhuriyet University	Hatay University
Çanakkale 18 mart University	İnönü University
Çankaya University	Yüzüncü Yıl University
İstanbul Sabahattin Zaim Univer	Namık Kemal University
İstanbul University	Niğde University
İTÜ University	On dokuz Mayıs University
İzmir Ekonomi University	Orta Doğu Teknik
İzmir Yüksek Teknoloji Universit	Pamukkale University
Kahramanmaraş Sütçü İmami Un	Sakarya University
Kocaeli University	Selçuk University
Kocaeli University	Süleyman Demirel University
KTÜ University	TOBB ETÜ University
Medeniyet University	Trakya University
Mersin University	Trakya University
Mersin University	Uludağ University
Muğla Sıtkı Koçman University	Yıldız Teknik University
Mustafa Kemal University	

4.3 Entrepreneurial and Innovative University Index

TÜBİTAK has initiated an index for creating awareness on entrepreneurship and innovation to university administrations called Turkish Universities Entrepreneural and Innovativeness Index (TEIUI). TUBITAK has calculated TEIUI every year starting from 2012. This index contains 50 Universities and published this firs 50 universities every year.

This index consists of 23 indicators for 5 dimensions. These dimensions are:

- Scientific and Technical research competence
- Intellectual Property pool
- Collaboration and interaction
- Entrepreneurship and Innovation culture
- Economic Contribution and Commercialization

The 23 indicators are given in Table 3.

Table 3 Indicators of TEIUI

Indicators of TEIUI
Number of Scientific Publication
Number of Citations
Number of Projects of R&D Innovation Program
Amount of fund taken from R&D Innovation Program
Number of Scientific Awards
Number of PhD Person
Patent application number
Number of Patent documents
Number of utility model / industrial design registration
Number of international patent registration
Number of R&D Innovation Projects with University industry collaboration
Üniversite-sanayi işbirliğinde yapılan Ar-Ge ve yenilik projelerinden alınan fon tutarı
Number of R&D Projects with international collaboration
Amount of fund taken from international R&D Innovation Projects
Dolaşımdaki öğretim elemanı/öğrenci sayısı
Number of lessons related with technological management, innovation and entrepreneurship
The number of full time employees which are working at TTO, Tech Center, Technopark, Incubation Center
Availability of TTO
Number of course or certificate programs related with technological management, innovation and entrepreneurship to outside of the university
The number of ffirms belonged to academicians which are working at TTO, Tech Center, Technopark, Incubation Center
The number of ffirms belonged to university students or alumnies of last 5 years which are working at TTO, Tech Center, Technopark, Incubation Center
The number of employees which are working for the firms belonged to academicians which are working at TTO, Tech Center, Technopark, Incubation Center
The number of international patent / utility model / industrial design licensed

The 2012 – 2015 years universities and their rank in TEIUI are given in Table 4

Table 4 2012 - 2015 TEIUI Ranks of Universities

UNIVERSITY	RANK			
	2012	2013	2014	2015
ABDULLAH GÜL UNIVERSITY	-	-	-	17
ABANT İZZET BAYSAL UNIVERSITY	50	-	-	-
AFYON KOCATEPE UNIVERSITY	-	46	-	-
AKDENİZ UNIVERSITY	22	25	34	30
ANADOLU UNIVERSITY	37	16	13	16
ANKARA UNIVERSITY	23	26	29	32
ATATÜRK UNIVERSITY	33	37	43	50
ATILIM UNIVERSITY	26	20	17	26
BAHÇEŞEHİR UNIVERSITY	18	24	27	36
BAŞKENT UNIVERSITY	-	48	-	-
BOĞAZİÇİ UNIVERSITY	6	4	3	3
ÇANAKKALE ONSEKİZ MART UNIVERSITY	45	-	-	-
ÇANKAYA UNIVERSITY	17	19	22	20
ÇUKUROVA UNIVERSITY	20	17	18	22
DOKUZ EYLÜL UNIVERSITY	27	32	33	23
DÜZCE UNIVERSITY	36	31	41	38
EGE UNIVERSITY	12	14	15	15
ERCİYES UNIVERSITY	13	21	21	13
ESKİŞEHİR OSMANGAZİ UNIVERSITY	-	49	42	49
FATİH UNIVERSITY	-	39	30	29
FIRAT UNIVERSITY	39	34	46	45
GALATASARAY UNIVERSITY	49	-	39	-
GAZİ UNIVERSITY	15	12	16	18
GAZİANTEP UNIVERSITY	28	28	25	24
GAZİOSMANPAŞA UNIVERSITY	-	47	-	46
GEBZE TEKNİK UNIVERSITY	9	13	12	11
GEDİZ UNIVERSITY	-	-	-	41
HACETTEPE UNIVERSITY	11	10	14	14
IŞIK UNIVERSITY	32	43	-	-
İHSAN DOĞRAMACI BİLKENT UNIVERSITY	3	3	4	4
İNÖNÜ UNIVERSITY	-	-	-	48
İSTANBUL MEDENİYET UNIVERSITY	-	-	40	48
İSTANBUL ŞEHİR UNIVERSITY	-	50	36	-
İSTANBUL TEKNİK UNIVERSITY	5	5	7	6
İSTANBUL UNIVERSITY	35	36	32	31
İZMİR EKONOMİ UNIVERSITY	34	35	28	39
İSTANBUL MEDENİYET UNIVERSITY	-	-	20,2	8
İSTANBUL ŞEHİR UNIVERSITY	-	28	17,4	37
KAHRAMANMARAŞ SÜTÇÜ İMAM UNIVERSITY	41	33	23	33
KARADENİZ TEKNİK UNIVERSITY	31	30	38	35
KARAMANOĞLU MEHMETBEY UNIVERSITY	43	-	44	-
KOCAELİ UNIVERSITY	24	23	24	27
KOÇ UNIVERSITY	8	8	5	5
MARMARA UNIVERSITY	47	-	-	43
MELİKŞAH UNIVERSITY		40	37	34
MERSİN UNIVERSITY	29	27	31	44
NİĞDE UNIVERSITY	42	38	49	-
OKAN UNIVERSITY	46	41	35	40
ONDOKUZ MAYIS UNIVERSITY	-	44	50	-
ORTA DOĞU TEKNİK UNIVERSITY	2	1	1	2
ÖZYEĞİN UNIVERSITY	4	7	6	7
PAMUKKALE UNIVERSITY	40	42	48	42
SABANCI UNIVERSITY	1	2	2	1
SAKARYA UNIVERSITY	38	-	45	21
SELÇUK UNIVERSITY	16	11	10	12
SÜLEYMAN DEMİREL UNIVERSITY	14	22	20	28
TOBB EKONOMİ VE TEKNOLOJİ UNIVERSITY	10	9	8	9
TRAKYA UNIVERSITY	44	-	-	-
ULUDAĞ UNIVERSITY	25	29	19	19
YEDİTEPE UNIVERSITY	21	18	26	25
YILDIZ TEKNİK UNIVERSITY	19	15	11	10
ZİRVE UNIVERSITY	-	-	-	47

5. Methods And Findings

The most important factor affecting the entrepreneurship decision is the ability to Access the financial resources. For this reason the mentorship to faculty members about accessing to funds is a key factor of academic entrepreneurship.

TUBITAK is the most important institution offering financial support to research projects. TUBITAK as a public institution should distribute the research funds equally, country wide coverage. In this sense, equality of the distribution of scientific funds should be kept under control. The Gini Coefficient can be used as a measure of control. The main purpose of this study is examining the fairness of TUBITAK's scientific fund distribution for cities of Turkey at population base.

In order to calculate Gini Coefficient of TUBITAK scientific fund distribution, the data covering the 2011 – 2015 time period has been utilized. This data has obtained from TUBITAK's website[14]. With this dataset, the population of Turkey dataset gathered by TUIK has merged.

Lorenz curves for 2011 – 2015 has plotted using this data. Gini coefficients are calculated with this Lorenz curves. Gİni coefficient is a measure of inequality which takes values between 0 and 1. The higher the Gini means the higher the inequality.

In this study the ineq and ggplot2 libraries of R are used for drawing Lorenz curves and calculating the Gini values. Maps are drawn using cartodb.com with contribution of openstreetmaps and turkeyshapefile.com.

Colouring of the map has 7 scales. This colouring process is constituted with utilizing the amount of scientific fund per person

5.1 TUBITAK Scientific Fund Distribution of 2011

TUBITAK has distributed 130 million $ support. 58 million $ of this support was transfered to researchers from city of Ankara. There are 272742 students and 19377 teaching staff in Ankara according to 2016 data. The second highest amount of support transfered to city of İstanbul which has 581954 students and 30128 academicians. The third highest support transfered to city of Kocaeli which has 78275 students and 2628 teaching staff. The fourth highest amount of scientific fund transfered to city of İzmir which has 159801 students and 9722

faculty members. The remaining 6 cities of the top ten list are: Antalya, Eskişehir, Isparta, Konya, Trabzon and Çanakkale.

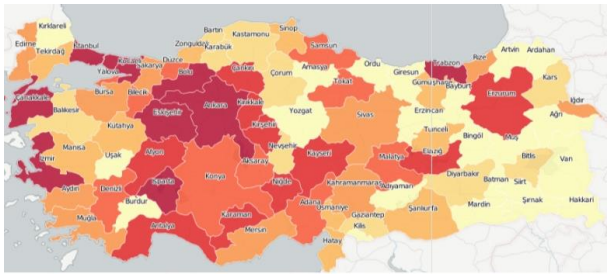


Figure 1 2011's TUBITAK's Scientific Fund amount Per capita coloured Map

The last 12 cities in the list have not taken any support from TUBITAK in 2011. These cities are: Adıyaman, Ağrı, Amasya, Bayburt, Erzincan, Giresun, Hakkari, Kırklareli, Kilis, Mardin, Siirt and Şırnak.

TUBITAK's Gini Coeficient's value of 2011 is 0.639 while Turkey's Gini value was 0.404. This value of Gini is nearly every country's Gini coefficients.The Lorenz curve of 2011 for Tubitak's scientific fund distribution is given in Figure 2.

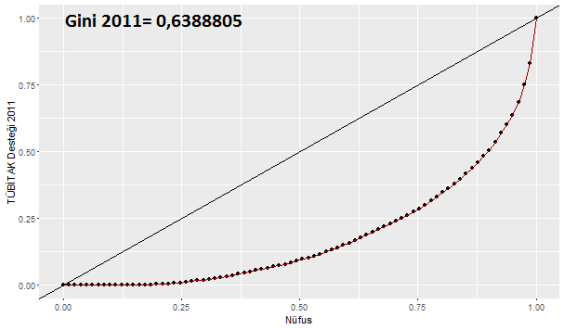


Figure 2 2011 TUBITAK Supports Lorenz Curve

The amount of support transfered by TUBITAK to Ankara are higher than the sum of the 50 cities of Turkey. (Turkey has 81 cities). The city of Isparta has taken more support than the sum of last 35 cities in 2011. The city of Çanakkale has taken more support than the sum of last 31 cities. Amount of support transfered to the cities of Turkey in 2011 is shown in Table 5.

Table 5 2011's TUBITAK's Scientific Fund amount Per capita (TL)

City	F/P	City	F/P	City	F/P
Ankara	32,70	Kayseri	3,27	Bilecik	1,98
Kocaeli	15,92	Antalya	3,25	Kahraman	1,96
Isparta	12,88	Niğde	3,10	Rize	1,93
Çanakkale	9,34	Çankırı	3,06	Sakarya	1,88
Eskişehir	6,65	Kırşehir	2,98	Aydın	1,87
Trabzon	6,45	Samsun	2,53	Edirne	1,70
İzmir	6,33	Düzce	2,43	Muğla	1,68
Bolu	6,16	Konya	2,40	Bursa	1,48
İstanbul	4,46	Aksaray	2,13	Mersin	1,43
Afyon	4,36	Malatya	2,13	Iğdır	1,38
Elazığ	4,30	Denizli	2,11	Sivas	1,38
Erzurum	4,19	Tokat	2,08	Kütahya	1,24
Karaman	3,72	Yalova	2,02	Gümüşhar	1,20
Kırıkkale	3,41	Adana	2,01	Zonguldak	1,13
Tunceli	1,12	Çorum	0,58	Batman	0,06
Tekirdağ	0,99	Gaziantep	0,57	Adıyaman	0,00
Sinop	0,95	Bitlis	0,54	Ağrı	0,00
Osmaniye	0,93	Kastamon	0,52	Amasya	0,00
Şanlıurfa	0,91	Uşak	0,46	Bayburt	0,00
Manisa	0,88	Burdur	0,40	Erzincan	0,00
Hatay	0,87	Yozgat	0,40	Giresun	0,00
Karabük	0,87	Ordu	0,31	Hakkari	0,00
Kars	0,86	Bingöl	0,27	Kırklareli	0,00
Balıkesir	0,84	Van	0,27	Kilis	0,00
Nevşehir	0,83	Ardahan	0,21	Mardin	0,00
Bartın	0,78	Artvin	0,15	Siirt	0,00
Diyarbakır	0,74	Muş	0,08	Şırnak	0,00

5.2 TUBITAK Scientific Fund Distribution of 2012

TUBITAK has distributed 146 million $ support. 41 million $ of this support was transfered to researchers from city of Ankara. The second highest amount of support transfered to city of İstanbul. The third highest support transfered to city of Kocaeli. The fourth highest amount of scientific fund transfered to city of İzmir. The remaining 6 cities of the top ten list are: Antalya, Isparta, Konya, Eskişehir, Adana and Çanakkale.

The last 8 cities in the list have not taken any support from TUBITAK in 2012. These cities are: Amasya, Artvin, Bartın, Batman, Hakkari, Şırnak

and Kırklareli. Colored scale map of Turkey has shown in Figure 3.

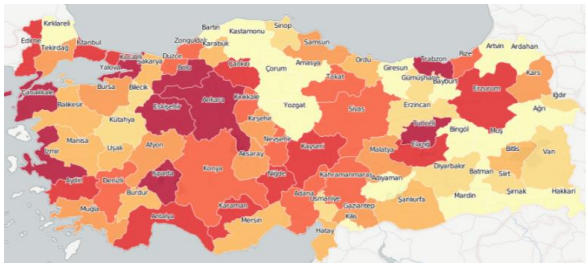


Figure 3 2012's TUBITAK's Scientific Fund amount Per capita colored Turkey Map

The 2012 list of TUBITAK Scientific Supports per people classified by cities are shown in Table 6.

Table 6 2012's TUBITAK's Scientific Fund amount Per capita (TL)

City	F/P	City	F/P	City	F/P
Ankara	23,59	Çankırı	3,07	Denizli	1,85
Kocaeli	32,15	Niğde	2,99	Adana	1,79
Isparta	13,43	Antalya	2,90	Rize	1,77
Çanakkale	8,48	Aydın	2,79	Malatya	1,76
İzmir	5,78	Edirne	2,72	Tekirdağ	1,75
Tunceli	5,71	Kayseri	2,68	Kars	1,74
Eskişehir	5,32	Düzce	2,57	Samsun	1,71
Bolu	5,11	Tokat	2,47	Aksaray	1,70
Yalova	4,85	Konya	2,41	Afyon	1,51
Trabzon	4,57	Kahramanmaraş	2,37	Kırşehir	1,32
İstanbul	4,26	Kırıkkale	2,30	Muğla	1,25
Karaman	4,13	Nevşehir	2,19	Bursa	1,21
Erzurum	3,73	Sivas	2,09	Gaziantep	1,15
Elazığ	3,55	Zonguldak	1,89	Burdur	1,00
Karabük	0,92	Iğdır	0,50	Giresun	0,13
Sakarya	0,92	Siirt	0,48	Bingöl	0,12
Manisa	0,90	Erzincan	0,47	Çorum	0,11
Mersin	0,88	Kütahya	0,47	Muş	0,08
Hatay	0,85	Van	0,45	Mardin	0,00
Bitlis	0,76	Diyarbakır	0,45	Bartın	0,00
Şanlıurfa	0,67	Sinop	0,36	Artvin	0,00
Balıkesir	0,57	Yozgat	0,30	Batman	0,00
Uşak	0,57	Adıyaman	0,27	Amasya	0,00
Ordu	0,55	Ağrı	0,27	Bayburt	0,00
Bilecik	0,54	Kilis	0,26	Hakkari	0,00
Gümüşhane	0,54	Ardahan	0,25	Kırklareli	0,00
Osmaniye	0,53	Kastamonu	0,13	Şırnak	0,00

TUBITAK's Gini Coeficient's value of 2012 is 0.656 while Turkey's Gini value was 0.402. The Gini coefficient of TUBITAK's scientific fund distribution increased in time period of 2011 to 2012 while Turkey Gini value has decreased. The Lorenz curve of 2012 for Tubitak's scientific fund distribution is given in Figure 4.

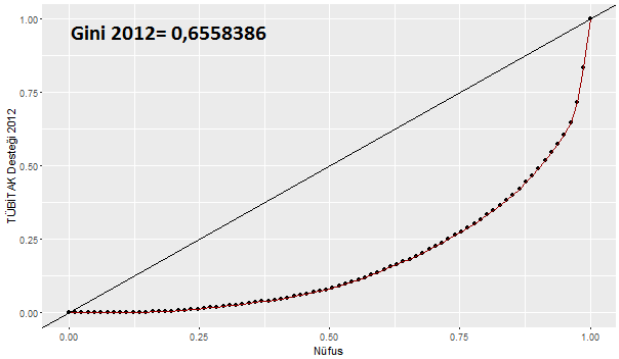


Figure 4 2012 TÜBİTAK Supports Lorenz Curve

5.3 TUBITAK Scientific Fund Distribution of 2013

TUBITAK has distributed 147 million $ support. 41 million $ of this support was transfered to researchers from city of Ankara. The second highest amount of support transfered to city of İstanbul. The third highest support transfered to city of Kocaeli. The fourth highest amount of scientific fund transfered to city of İzmir. The remaining 6 cities of the top ten list are: Antalya, Kayseri, Eskişehir, Erzurum, Isparta and Adana.

The last 7 cities in the list have not taken any support from TUBITAK in 2012. These cities are: Bayburt, Bingöl, Hakkâri, Kilis, Mardin, Muş and Şırnak. Colored scale map of Turkey has shown in Figure 5.

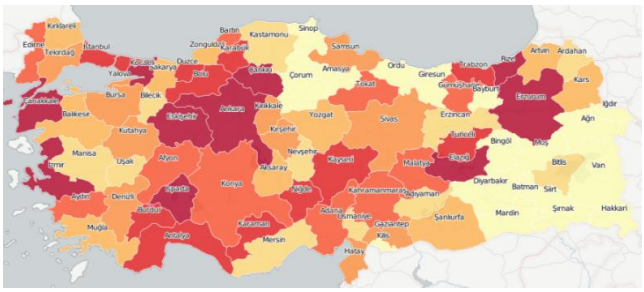


Figure 5 2013's TUBITAK's Scientific Fund amount Per capita colored Turkey Map

The 2013 list of TUBITAK Scientific Supports per people classified by cities are shown in Table 7.

Table 7 2013 TUBITAK's Scientific Fund amount Per capita (TL)

City	F/P	City	F/P	City	F/P
Ankara	23,55	Karaman	6,03	Aydın	2,88
Kocaeli	37,70	Kayseri	5,58	Adana	2,82
Isparta	15,35	Tunceli	4,49	Konya	2,72
Çankırı	11,30	Düzce	4,40	Kırıkkale	2,68
Erzurum	8,94	Niğde	4,32	Samsun	2,16
Eskişehir	8,82	Karabük	4,28	Sivas	2,07
Çanakkale	8,35	Antalya	3,91	Yalova	2,06
Rize	8,22	Afyon	3,89	Denizli	1,92
İzmir	7,45	Bartın	3,85	Kütahya	1,90
Elazığ	7,04	Gümüşhane	3,53	Kırşehir	1,78
Trabzon	6,97	Tokat	3,43	Gaziantep	1,76
Burdur	6,89	Edirne	3,39	Hatay	1,61
Bolu	6,70	Kahramanmaraş	3,12	Bursa	1,57
İstanbul	6,07	Malatya	3,03	Tekirdağ	1,56
Zonguldak	1,52	Manisa	0,87	Sinop	0,39
Yozgat	1,47	Erzincan	0,85	Ağrı	0,21
Artvin	1,46	Osmaniye	0,84	Çorum	0,18
Kırklareli	1,32	Uşak	0,80	Iğdır	0,10
Aksaray	1,30	Ardahan	0,74	Giresun	0,09
Muğla	1,14	Nevşehir	0,66	Batman	0,05
Balıkesir	1,08	Bilecik	0,57	Bingöl	0,00
Kars	1,03	Bitlis	0,56	Muş	0,00
Sakarya	1,02	Van	0,55	Bayburt	0,00
Şanlıurfa	1,00	Diyarbakır	0,49	Hakkari	0,00
Mersin	0,98	Amasya	0,47	Kilis	0,00
Adıyaman	0,94	Ordu	0,46	Mardin	0,00
Kastamonu	0,90	Siirt	0,43	Şırnak	0,00

The Lorenz curve of 2013 for Tubitak's scientific fund distribution is given in Figure 6.

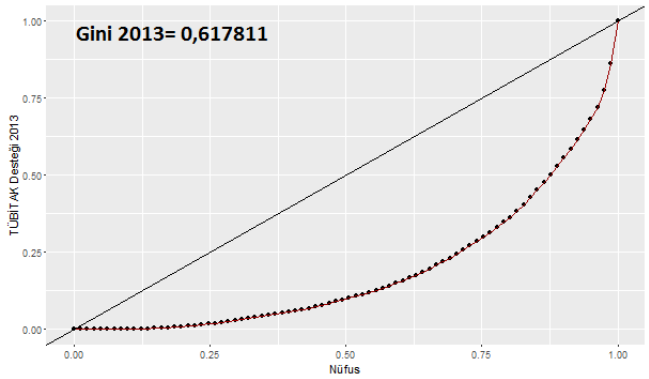


Figure 6 2013 TÜBİTAK Supports Lorenz Curve

TUBITAK's Gini Coeficient's value of 2013 is 0.618 while Turkey's Gini value was 0.400. The Gini coefficient of TUBITAK's scientific fund distribution decreased in time period of 2012 to 2013 while Turkey Gini Value has decreased as well.

5.4 TUBITAK Scientific Fund Distribution of 2014 Colored scale map of Turkey has shown in Figure 7.

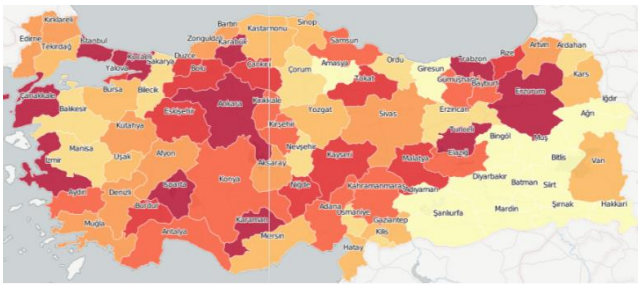


Figure 7 2014 TUBITAK's Scientific Fund amount Per capita colored Turkey Map

The 2014 list of TUBITAK Scientific Supports per people classified by cities are shown in Table 8.

Table 8 2014 TUBITAK's Scientific Fund amount Per capita (TL)

City	F/P	City	F/P	City	F/P
Ankara	35,81	Malatya	5,43	Adana	3,18
Kocaeli	49,23	Niğde	5,23	Kırıkkale	3,04
Karabük	33,18	Düzce	4,98	Gümüşhane	2,94
Isparta	17,63	Çankırı	4,77	Samsun	2,82
Tunceli	9,76	Eskişehir	4,71	Kahramanmaraş	2,66
Trabzon	9,08	Rize	4,71	Denizli	2,50
İzmir	8,61	Tokat	4,25	Afyon	2,49
Çanakkale	7,78	Burdur	4,18	Bartın	2,41
Erzurum	7,74	Elazığ	3,90	Muğla	2,41
Karaman	7,70	Antalya	3,66	Kütahya	2,24
İstanbul	7,19	Kırşehir	3,63	Zonguldak	2,12
Yalova	7,18	Bayburt	3,49	Sivas	2,04
Kayseri	7,09	Aydın	3,25	Edirne	1,98
Bolu	6,91	Konya	3,23	Artvin	1,94
Aksaray	1,88	Sakarya	1,23	Siirt	0,42
Kırklareli	1,85	Manisa	1,13	Diyarbakır	0,39
Tekirdağ	1,81	Erzincan	1,07	Amasya	0,35
Kars	1,76	Kilis	0,91	Bitlis	0,35
Uşak	1,72	Balıkesir	0,86	Bingöl	0,24
Gaziantep	1,67	Bilecik	0,86	Iğdır	0,18
Hatay	1,55	Ordu	0,84	Mardin	0,16
Bursa	1,54	Çorum	0,78	Hakkari	0,12
Kastamonu	1,52	Osmaniye	0,72	Adıyaman	0,11
Van	1,49	Nevşehir	0,68	Ağrı	0,09
Yozgat	1,47	Ardahan	0,56	Muş	0,00
Mersin	1,44	Şanlıurfa	0,48	Batman	0,00
Sinop	1,35	Giresun	0,42	Şırnak	0,00

TUBITAK has distributed 187 million $ support. 63 million $ of the total support was transfered to researchers from city of Ankara The second highest amount of support transfered to city of İstanbul. The third highest support transfered to city of Kocaeli. The fourth highest amount of scientific fund transfered to city of İzmir. The remaining 6 cities of the top ten list are: Kayseri, Antalya, Karabük, Isparta, Trabzon and Adana. The last 3 cities in the list have not taken any support from TUBITAK in 2012. These cities are: Muş, Batman and Şırnak.

TUBITAK's Gini Coeficient's value of 2014 is 0.630 while Turkey's Gini value was 0.391. The Gini coefficient of TUBITAK's scientific fund distribution increased in time period of 2013 to 2014 while Turkey Gini Value has decreased. The Lorenz curve of 2014 for Tubitak's scientific fund distribution is given in Figure 8.

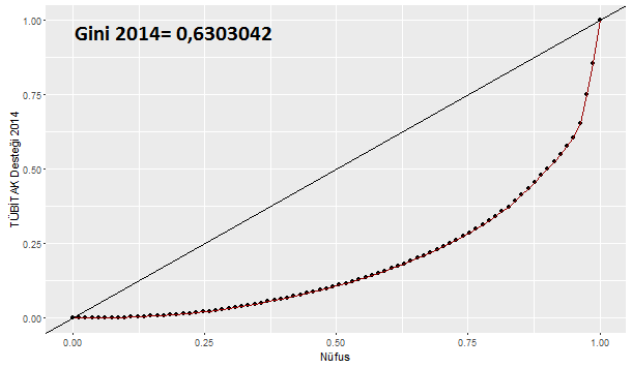


Figure 82014 TÜBİTAK Supports Lorenz Curve

5.5 TUBITAK Scientific Fund Distribution of 2015

TUBITAK has distributed 233 million $ support. 91 million $ of this support was transfered to researchers from city of Ankara. The second highest amount of support transfered to city of İstanbul. The third highest support transfered to city of Kocaeli. The fourth highest amount of scientific fund transfered to city of İzmir. The remaining 6 cities of the top ten list are: Antalya, Kayseri, Konya, Eskişehir , Adana and Isparta

The last 2 cities in the list have not taken any support from TUBITAK in 2012. These cities are: Hakkari and Muş. Colored scale map of Turkey has shown in Figure 9.

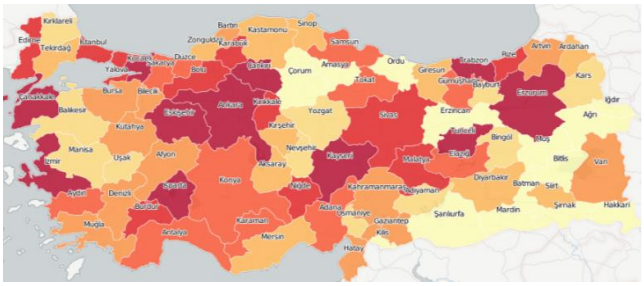


Figure 9 2015 TUBITAK's Scientific Fund amount Per capita colored Turkey Map

The 2015's list of TUBITAK Scientific Supports per people classified by cities are shown in Table 9.

Table 9 2015's TUBITAK's Scientific Fund amount Per capita (TL)

City	F/P	City	F/P	City	F/P
Ankara	51,74	Kırıkkale	7,01	Karaman	3,84
Kocaeli	59,77	Sivas	6,69	Tokat	3,81
Isparta	18,04	Edirne	6,36	Adana	3,60
Tunceli	16,69	Burdur	6,31	Sakarya	3,40
Çankırı	10,27	Bolu	5,72	Aydın	3,15
Erzurum	9,94	Malatya	5,58	Kahramanmaraş	2,68
Eskişehir	9,88	Karabük	5,31	Van	2,64
İzmir	9,73	Yalova	5,25	Denizli	2,58
Çanakkale	9,57	Gümüşhane	5,24	Muğla	2,20
Trabzon	9,52	Antalya	5,06	Kütahya	2,20
Kayseri	8,51	Samsun	4,87	Afyon	2,19
Niğde	7,92	Düzce	4,86	Hatay	2,11
Rize	7,91	Elazığ	4,73	Bartın	2,06
İstanbul	7,64	Konya	4,19	Bursa	2,00
Gaziantep	1,97	Ardahan	1,15	Şanlıurfa	0,59
Artvin	1,91	Yozgat	1,09	Kilis	0,45
Bilecik	1,89	Uşak	1,00	Batman	0,36
Tekirdağ	1,86	Kars	0,98	Ordu	0,34
Kastamonu	1,82	Manisa	0,95	Erzincan	0,30
Sinop	1,72	Osmaniye	0,91	Bitlis	0,25
Siirt	1,46	Balıkesir	0,82	Iğdır	0,17
Mersin	1,45	Adıyaman	0,81	Ağrı	0,10
Aksaray	1,42	Bayburt	0,81	Amasya	0,09
Giresun	1,29	Nevşehir	0,78	Şırnak	0,07
Kırşehir	1,27	Bingöl	0,78	Mardin	0,02
Diyarbakır	1,26	Kırklareli	0,75	Muş	0,00
Zonguldak	1,18	Çorum	0,60	Hakkari	0,00

TUBITAK's Gini Coeficient's value of 2015 is 0.633. The Gini coefficient of TUBITAK's scientific fund distribution increased in time period of 2014 to 2015. The Lorenz curve of 2015 for Tubitak's scientific fund distribution is given in Figure 10.

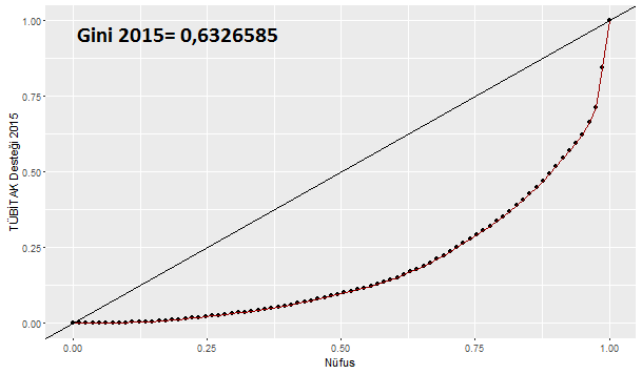


Figure 10 2015 TÜBİTAK Supports Lorenz Curve

5.6 TÜBİTAK's Gini Coefficient and An Overview

Turkey's Gini Coefficient's value has declined every year from 2011 to 2014. However TUBITAK's Gini coefficient shows fluctuating trend in 0.618 – 0.656 value interval. TUBITAK's Gini coefficient haven't been close to Turkey's Gini ever. The Gini coefficients for Turkey and TUBITAK is shown in Figure 11.

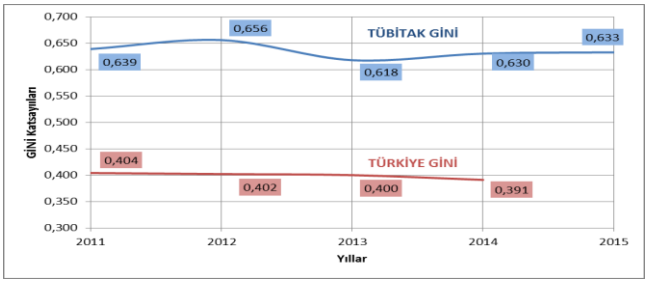


Figure 11 Turkey's and TUBITAK's Gini

This higher steadily Gini coefficient values are evidence of the non equality in the fund distribution problem is systematic. In other words the model / or the decision makers forms this inequality.

Isparta, Karabük, Çanakkale, Tunceli, Eskişehir, Erzurum, Çankırı, Bolu and Kayseri is in the top 14 rank. The reasons of this order should examined.

University Suleyman Demirel University's rank at TEIUI declined from 14 to 28. This shows that scientific funds distributed by TUBITAK does not promote academic entrepreneurship.

City of Karabuk's Scientific fund amount drammatically increased in 2014 should be highlighted.

City of Çanakkale's received amount of scientific funds highly above of the national average value. Despite this the university of this city has entered to the TEIUI list in 2012 from 45th rank once in the 2012 – 2015 time period. This is another evidence of the TUBITAK's scientific fund distribution does not encourage academic entrepreneurship.

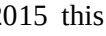
City of Tunceli received amount of scientific funds highly above of the national average value in 2014 and 2015. Despite this the university of this city has not entered to the TEIUI list in the 2012 – 2015 time period. This is another evidence of the TUBITAK's scientific fund distribution does not encourage academic entrepreneurship.

The 2011 – 2015 TUBITAK's support amounts is given in the maximum average to minimum average order in Table 10.

Table 10 TUBITAK's Scientific Fund amount Per capita in cities for 2011 – 2015 time period

City		Support per People					
	AVERAGE	2011	2012	2013	2014	2015	Graph
Kocaeli	38,95	15,92	32,15	37,70	49,23	59,77	
Ankara	33,48	32,70	23,59	23,55	35,81	51,74	
Isparta	15,46	12,88	13,43	15,35	17,63	18,04	
Karabük	8,91	0,87	0,92	4,28	33,18	5,31	
Çanakkale	8,70	9,34	8,48	8,35	7,78	9,57	
İzmir	7,58	6,33	5,78	7,45	8,61	9,73	
Tunceli	7,55	1,12	5,71	4,49	9,76	16,69	
Trabzon	7,32	6,45	4,57	6,97	9,08	9,52	
Eskişehir	7,08	6,65	5,32	8,82	4,71	9,88	
Erzurum	6,91	4,19	3,73	8,94	7,74	9,94	
Çankırı	6,49	3,06	3,07	11,30	4,77	10,27	
Bolu	6,12	6,16	5,11	6,70	6,91	5,72	
İstanbul	5,92	4,46	4,26	6,07	7,19	7,64	
Kayseri	5,43	3,27	2,68	5,58	7,09	8,51	
Karaman	5,08	3,72	4,13	6,03	7,70	3,84	
Rize	4,91	1,93	1,77	8,22	4,71	7,91	
Niğde	4,71	3,10	2,99	4,32	5,23	7,92	
Elazığ	4,70	4,30	3,55	7,04	3,90	4,73	
Yalova	4,27	2,02	4,85	2,06	7,18	5,25	
Düzce	3,85	2,43	2,57	4,40	4,98	4,86	
Antalya	3,76	3,25	2,90	3,91	3,66	5,06	
Burdur	3,75	0,40	1,00	6,89	4,18	6,31	
Kırıkkale	3,69	3,41	2,30	2,68	3,04	7,01	
Malatya	3,59	2,13	1,76	3,03	5,43	5,58	
Edirne	3,23	1,70	2,72	3,39	1,98	6,36	
Tokat	3,21	2,08	2,47	3,43	4,25	3,81	
Konya	2,99	2,40	2,41	2,72	3,23	4,19	
Afyon	2,89	4,36	1,51	3,89	2,49	2,19	
Sivas	2,85	1,38	2,09	2,07	2,04	6,69	

Table 10 TUBITAK's Scientific Fund amount Per capita in cities for 2011 – 2015 time period cont.

Samsun	2,82	2,53	1,71	2,16	2,82	4,87	
Aydın	2,79	1,87	2,79	2,88	3,25	3,15	
Gümüşhane	2,69	1,20	0,54	3,53	2,94	5,24	
Adana	2,68	2,01	1,79	2,82	3,18	3,60	
Kahramanmaraş	2,56	1,96	2,37	3,12	2,66	2,68	
Kırşehir	2,19	2,98	1,32	1,78	3,63	1,27	
Denizli	2,19	2,11	1,85	1,92	2,50	2,58	
Bartın	1,82	0,78	0,00	3,85	2,41	2,06	
Muğla	1,73	1,68	1,25	1,14	2,41	2,20	
Sakarya	1,69	1,88	0,92	1,02	1,23	3,40	
Aksaray	1,69	2,13	1,70	1,30	1,88	1,42	
Kütahya	1,61	1,24	0,47	1,90	2,24	2,20	
Tekirdağ	1,59	0,99	1,75	1,56	1,81	1,86	
Zonguldak	1,57	1,13	1,89	1,52	2,12	1,18	
Bursa	1,56	1,48	1,21	1,57	1,54	2,00	
Gaziantep	1,42	0,57	1,15	1,76	1,67	1,97	
Hatay	1,40	0,87	0,85	1,61	1,55	2,11	
Kars	1,27	0,86	1,74	1,03	1,76	0,98	
Mersin	1,24	1,43	0,88	0,98	1,44	1,45	
Bilecik	1,17	1,98	0,54	0,57	0,86	1,89	
Artvin	1,09	0,15	0,00	1,46	1,94	1,91	
Van	1,08	0,27	0,45	0,55	1,49	2,64	
Nevşehir	1,03	0,83	2,19	0,66	0,68	0,78	
Kastamonu	0,98	0,52	0,13	0,90	1,52	1,82	
Sinop	0,96	0,95	0,36	0,39	1,35	1,72	
Yozgat	0,95	0,40	0,30	1,47	1,47	1,09	
Manisa	0,95	0,88	0,90	0,87	1,13	0,95	
Uşak	0,91	0,46	0,57	0,80	1,72	1,00	
Bayburt	0,86	0,00	0,00	0,00	3,49	0,81	
Balıkesir	0,83	0,84	0,57	1,08	0,86	0,82	
Osmaniye	0,79	0,93	0,53	0,84	0,72	0,91	
Kırklareli	0,78	0,00	0,00	1,32	1,85	0,75	
Şanlıurfa	0,73	0,91	0,67	1,00	0,48	0,59	
Diyarbakır	0,67	0,74	0,45	0,49	0,39	1,26	
Ardahan	0,58	0,21	0,25	0,74	0,56	1,15	
Siirt	0,56	0,00	0,48	0,43	0,42	1,46	
Erzincan	0,54	0,00	0,47	0,85	1,07	0,30	
Ordu	0,50	0,31	0,55	0,46	0,84	0,34	
Bitlis	0,49	0,54	0,76	0,56	0,35	0,25	
Iğdır	0,47	1,38	0,50	0,10	0,18	0,17	
Çorum	0,45	0,58	0,11	0,18	0,78	0,60	
Adıyaman	0,43	0,00	0,27	0,94	0,11	0,81	
Giresun	0,38	0,00	0,13	0,09	0,42	1,29	
Kilis	0,32	0,00	0,26	0,00	0,91	0,45	
Bingöl	0,28	0,27	0,12	0,00	0,24	0,78	
Amasya	0,18	0,00	0,00	0,47	0,35	0,09	
Ağrı	0,13	0,00	0,27	0,21	0,09	0,10	
Batman	0,09	0,06	0,00	0,05	0,00	0,36	
Mardin	0,04	0,00	0,00	0,00	0,16	0,02	
Muş	0,03	0,08	0,08	0,00	0,00	0,00	
Hakkari	0,02	0,00	0,00	0,00	0,12	0,00	
Şırnak	0,01	0,00	0,00	0,00	0,00	0,07	

While TUBITAK's support of scientific projects for Isparta increased 50% from 2011 to 2015 this city's

City of Erzurum's received amount of scientific funds highly above of the national average value. Despite this the university of this city has not entered to the TEIUI list in the 2012 – 2015 time period. This is another evidence of the TUBITAK's scientific fund distribution does not encourage academic entrepreneurship.

City of Çankırı's received amount of scientific funds highly above of the national average value. Despite this the university of this city has not entered to the TEIUI list in the 2012 – 2015 time period. This is another evidence of the TUBITAK's scientific fund distribution does not encourage academic entrepreneurship.

City of Bolu's received amount of scientific funds highly above of the national average value. Despite this the university of this city has entered to the TEIUI list in 2012 from 50th rank once in the 2012 – 2015 time period. This is another evidence of the TUBITAK's scientific fund distribution does not encourage academic entrepreneurship.

The cities could be classified as shown in Table 11 according to their average amount of scientific fund they received.

Table 11 The regions of TUBITAK's Support amount

1. Region	Kocaeli, Ankara, Isparta
2. Region	Karabük, Çanakkale, İzmir, Tunceli, Trabzon, Eskişehir, Erzurum, Çankırı, Bolu, İstanbul, Kayseri, Karaman, Rize, Niğde, Elazığ, Yalova, Düzce, Antalya
3. Region	Burdur, Kırıkkale, Malatya, Edirne, Tokat, Konya, Afyon, Sivas, Samsun, Aydın, Gümüşhane, Adana, Kahramanmaraş, Kırşehir, Denizli, Bartın, Muğla, Sakarya, Aksaray, Kütahya, Tekirdağ, Zonguldak, Bursa
4. Region	Gaziantep, Hatay, Kars, Mersin, Bilecik, Artvin, Van, Nevşehir, Kastamonu, Sinop, Yozgat, Manisa, Uşak
5. Region	Bayburt, Balıkesir, Osmaniye, Kırklareli, Şanlıurfa, Diyarbakır, Ardahan, Siirt, Erzincan, Ordu, Bitlis, Iğdır, Çorum, Adıyaman, Giresun, Kilis, Bingöl, Amasya, Ağrı, Batman, Mardin, Muş, Hakkari, Şırnak

The first two class's fund should decreased and the 4th and fifth class's fund must increased in order to decrease Gini value.

6. Conclusion

This study shows that the distribution of Scientific funds by TUBITAK is not fair and does not promote the university's academic entrepreneurship.

TUBITAK as a public institution must reconstruct the decision model used for chosing the supported

projects in order to decrease Gini Values and provide more equal distribution.

The addition of The student / Faculty member ratio as a factor in the decision model could be decreased Ankara, Eskişehir, Bolu, Adana's share as well as most of the 5th region cities.

Gini coefficient could be utilized in order to check the TUBITAK's scientific fund distribution.

TUBITAK should make rearrangements to decrease the Gini value at least Turkey's Gini level.

TUBITAK as an public institution must consider the country wide coverage of the scientific fund distribution.

TUBITAK and/or the controller institution must study the reasons of positively discrimination of Ankara, Kocaeli, Isparta, Antalya, Çankırı, Kayseri, Karabük, Karaman, Bolu, Erzurum, Adana and negatively discrimination of Bayburt, Balıkesir, Osmaniye, Kırklareli, Şanlıurfa, Diyarbakır, Ardahan, Siirt, Erzincan, Ordu, Bitlis, Iğdır, Çorum, Adıyaman, Giresun, Kilis, Bingöl, Amasya, Ağrı, Batman, Mardin, Muş, Şırnak and Hakkari.

Nowadays over 1 billion $ valued firms called unicorns could established with a good business idea, software developer, graphic designer and a manager so the proximity to the industrial regions is not an advantage in entrepreneurship manner.

New technology bring the data mining front of all researches. In mean time the countries must establish Socio Parks[15] for studying sociological issues. In this facilities data mining specialists and sociologists collaborate in research projects.

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First Author Elyase iskender take his PhD on Quantiative Methods at 2016, MS on Transportation Management at 2010 and Bachelor Degree on Physics at 2003. He worked in some University

Preparation courses and at Parking Management Company's R&D Department, Marmara University as Research Assistant and he is working at Hakkari University. He has several research papers from the year 2010.

Second Author Hatice Yasemin iskender take her Bachelor Degree on Physics at 2004. She worked in some University Preparation courses and at Gas Distribution Company of İstanbul Metropolitan Municipality. She is working as Specialist at Hakkari University Engineering Faculty.