

The Impact of Cultural Diversity on the Academic Performance: A Study on Turkish Universities

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Abstract

Universities as science production centers are institutions that bring diverse information together. It is noteworthy that no longer these institutions have more international and heterogeneous structures. Qualified foreign academicians with the educational culture of a different country get universities stronger with these differences and knowledge, and improve the universities' academic performance. Considering this idea in this research the effect of the number of foreign academicians to the academic performance of universities is investigated. For this purpose, the effect and correlation between performance rates of 130 universities of Turkey and the number of the foreign academicians, which is evaluated by University Ranking by Academic Performance Research Laboratory (URAP), have been revealed with correlation and regression analysis. As a consequence, a positive and weak relationship was determined between the number of foreign academicians and performance. Also the number of the foreign instructors affects the performance of the universities positively.

Keywords: University internationalization, cultural diversity, university performance

1. Introduction

The heterogeneity and internationalization of the universities gradually increase with the support of university administrations and the state (Park, 2009). For instance The Scientific and Technological Research Council of Turkey (TUBITAK) offers special support programs for researchers from abroad to do research in Turkey. Due to the heterogeneity and internationalization of the universities, academicians with different research culture can join to these universities. When it is considered that academicians have limited sources and capacities and have the ability to improve their capacity by contacting other researchers (Abbasi&Jaafari,2013) it will be beneficial to have foreign academicians in this network (Barjak & Robinson, 2008). Thus, there is a need for collaboration between academicians in the extraction of new information (Demsetz, 1991).

Academic collaboration will result in academic publishing and so affects the performance of the universities in a positive way. From this point of view, in this research the effect of number of foreign academicians on the performance of the universities was examined. The fact that researches on diversity primarily focus commercial enterprises and lack of such research on universities' performance add to the value of this research. In addition, using the data from an independent evaluation organization- URAP and studying on numerous universities is the strong side of this research. As a result of this research the contribution was provided to the literature about cultural differences on universities. In addition, the lack of such a study on the universities of Turkey offer added value to the study. It is believed that the results of the study will provide guidance to establish the academic staff structures of universities.

2. Conceptual Framework and Hypotheses

2.1 Cultural Diversity-performance Relationship

With regard to employment structure, one tendency, which have begun at the late 1990s and effective for the business life of the 21st century, is increasing diversity phenomena (Higgs, 1996; Lavaty and Kleiner, 2001). Diversity expresses a heterotaxic structure that includes the individuals with different group characteristics in the same social system (Fleury, 1999). If an organization consists of different employees according to workforce profile, demographic, and other characteristics, then it is considered to have a diver structure. The criteria of this diversification includes race, ethnicity, gender, age, physical and mental competence, beliefs, culture, economic class, sexual preference, etc (Dessler, 1998; Galagan, 1991). Although different results have been found on some studies about diversity (Chatman & O'Reilly, 2004; Williams & O'Reilly, 1998) usually it is indicated that diversity affects organizational performance in a positive

way (Milliken & Martins, 1996; Simons, Pelled, & Smith, 1999). The diversity of the group is believed to contribute to the creativity by bringing different perspectives. Also thanks to the diversity, different network ties of group members expand the structure of the group's total network (Ely & Thomas, 2001; Page, 2007). Indeed, Cummings & Cross (2003) stated that sharing external information that arises from individual external professional network would increase the performance of the group. Diversity facilitates the integration of different specialties, it contributes to the successful development of a project and shortens the development time of a new product (Cummings, 2004; Eisenhardt & Tabrizi, 1995; Griffin & Hauser, 1992; Pinto, Pinto, & Prescott, 1993). For this reason, academicians with different abilities, skills, experience and knowledge should work together in a cohesive team (McFadyen, Semadeni, & Cannella, 2009). It is believed that the performance will increase through the internal and external sharing of information within the groups with diversities (Monge, Rothman, Eisenberg, Miller, & Kirste, 1985).

Daft (2003:440) examines the diversity in the form of a binary distinction as “base dimensions” and “secondary dimensions”. According to the author, basic dimensions exercise influence over individual throughout their entire life or express innate differences. Basic dimensions include race, ethnicity, gender, physical or mental competency of individuals, and factors such as self-image and the core elements that can shape worldview. Secondary dimensions are the qualifications that individuals acquire throughout their lives, in other words, acquired later in their life and changeable qualifications. Cultural diversity in organizations is included in the scope of secondary dimension of Daft (2003) and has important effects on individuals' attitudes, behaviour, and perceptions. Individual or group-specific properties arising from cultural differences in organisations may affect employees' sense of identity. Moreover the way of perceiving the others and management style, patterns of organizational behaviour and differences in communication patterns are mostly rooted in cultural influences (Frey-Ridgway, 1997; Karoc-Kakabadse & Kouzmin, 2001; Mwaura, Sutton & Roberts, 1998).

When these dimensions of diversity are expressed at two levels as superficial and deep, superficial diversity contains biological features that provide a strong foundation for social categorization and sightful superficial features (Jackson, Stone, & Alvarez, 1993). Besides, there are differences that cannot be noticed immediately at deep-level heterogeneity (Harrison et al., 2002). Deep-level diversity contains the differences between group members' attitudes, norms and beliefs. It is indicated that this diversity have a positive effect on the performance (Larson, 2007; Mitchell, Nicholas, & Boyle, 2009; Tyran & Gibson, 2008). Because of the fact that there are differences among employees from different nationalities in terms of worldview, behavior patterns, values, and norms, the majority of the employees of different nationalities refers to deep-level heterogeneity as cultural diversity (Hambrick, Davison, Snell, & Snow, 1998; Jackson et al., 1995). In line with the paradigm of diversity, it is stated that group members of different nationalities have a positive effect on group performance (Ely & Thomas, 2001; Hambrick et al., 1998; Maznevski, 1994; Oosterhof et al., 2009). Furthermore considering the internationalisation of today's universities, group members with different national backgrounds will be beneficial for group performance. The benefit will not be limited to the knowledge and experience of academicians but also include language skills (Lauring & Selmer, 2010). Moreover, previous network ties of foreign academicians would contribute to the available resources, information, and the publication rate

Studies on the effects of cultural diversity began in the 1960s. Hoffman & Maier (1961) have stated that culturally heterogeneous groups found better solutions than homogeneous ones. Similarly, Triandis, Hall and Ewen (1965) said that heterogeneous groups were more creative than homogeneous groups at the same skill level. Concordantly Watson, Kumar, and Michael (1993) have found that heterogeneous groups were more successful in problem solving and finding solutions than homogeneous groups over time. On the other hand, Feldman, Sam, McDonald, & Bechtel, (1980) have mentioned that working together for heterogeneous groups were more challenging and stressful. However, there are many studies demonstrate that such differences will lead to creativity and positive outcomes (Epton, Payne, & Pearson, 1985; Jackson et al., 1995; Jehn et al., 1999; McLeod & Lobe, 1992). Lillis & Curry (2006) have indicated that academicians living in non-English speaking countries work with foreigners who are good at English skills. Barjak & Robinson (2008) have found that academic research teams at the middle level cultural diversity are more successful. Looking at 16 sections of three universities in Denmark, Lauring and Selmer (2010) found that cultural diversity has a positive influence on satisfaction and performance. More relevant to this research, Mamiseishvili and Rosser, (2010) have found that international diversity had a positive impact on performance. Based on the theories and studies above, the following hypothesis has been developed.

Hypothesis: Cultural diversity (the number of foreign academicians) has a positive effect on the academic performance of a university.

2.2 Status of Universities in Turkey

The first university in Turkey in the Republican period, was established in 1933, ten years later than the founding of the Republic. The University of the Ottoman which means “Darülfünun” eliminated and instead “Istanbul University” was

established in accordance with the law no.2252 that enacted on 31 May 1933 (Dölen, 2009; İhsanoğlu, 2010). In 1944, Istanbul Technical University was established in Istanbul. In 1946 Ankara University was established in Ankara. By the year 1982, the number of universities has increased to 27. Up until the establishment of Bilkent University in 1985 as a private, all of the universities were public universities. Although only 29 universities have been established in 59 years until 1992, 23 universities have been founded in one year (1992) with the government decision. Until 2006 no public university has been established but 22 private universities have been founded from 1996 to 2005. In 2006 and 2007, again in accordance with the ‘a university for each city’ decision of the government, 32 universities were founded in various cities. Currently 193 universities continue their operation in till 2015. Hence 109 of these universities are public universities, and 84 of them are private universities. The number of universities in Turkey by years could be observed in Figure 1. As seen in the chart, in recent years there has been a marked increase in the number of private universities and the gap between the number of public and private universities has reduced. With the opening of new public and private universities new university students have been provided the opportunity to choose between universities. This makes it difficult for the university to attract the best students. This situation is considered as an indicator of the competition between universities that increase day by day.

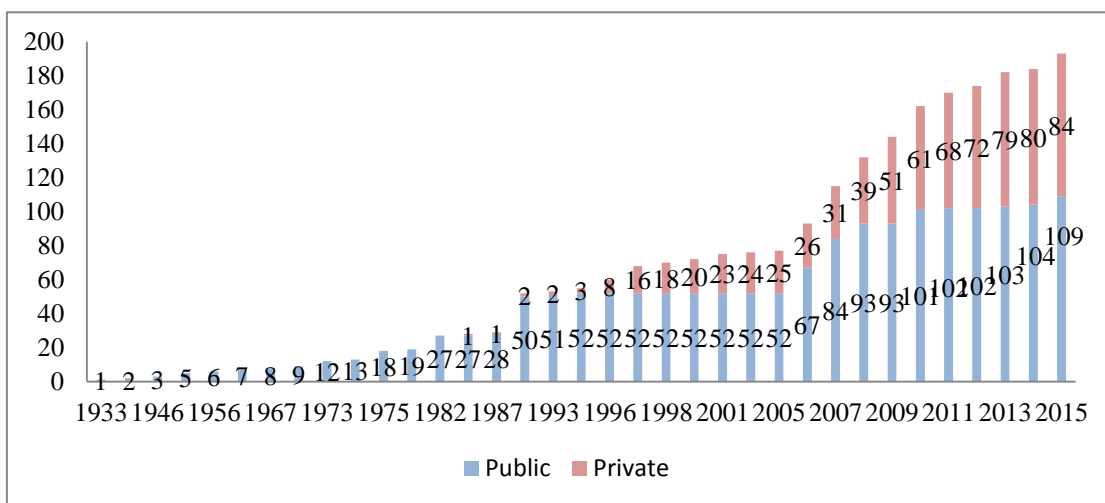


Figure 1. The Number of Public and Private Universities in Turkey by Years

Since the early years of the Republic foreign academicians have been considered important. Thus the Turkish historian, Stanford Shaw stated that Atatürk and Hasan Âli Yücel, Minister of National Education, has led to significant development of scientific institutions and universities in Turkey by bringing hundreds of people who are exported from education and science by Hitler to Turkey. The numbers of foreign teaching staff by years are presented in Figure 2.

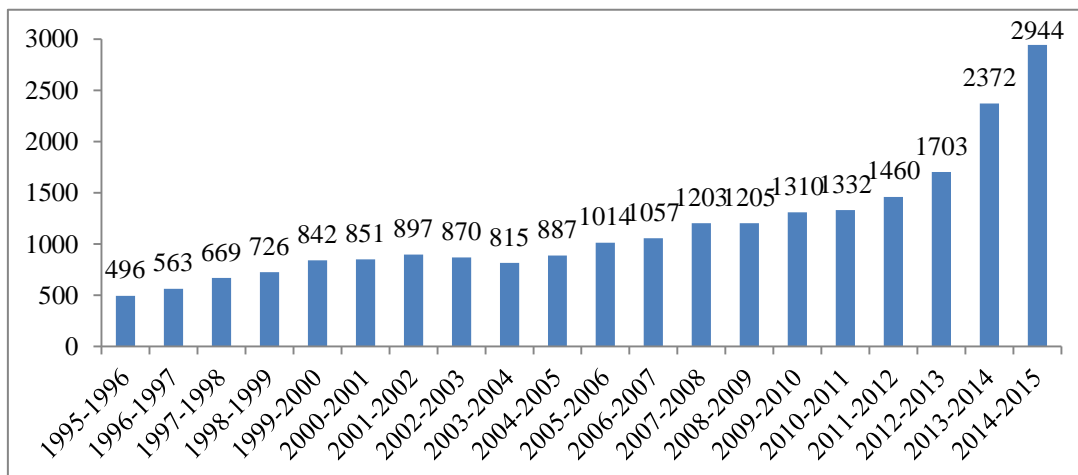


Figure 2. The Numbers of Foreign Academicians in Turkey, by years

2.3 Evaluation of Academic Performances of the Universities and the Place of Turkish Universities in the World

There are quite a number of organizations that evaluates universities' academic performance publish ranking reports.

Academic Ranking of World Universities (ARWU) which is also known as Shanghai Ranking origin of China, Center for World University Rankings origin of Saudi Arabia, LEIDEN origin of Netherlands, WEBOMETRICS origin of Spain, and Times Higher Education World University Rankings (THE) and QS origin of the United Kingdom are among these type of organizations. These rankings could be decisive for students and academicians while choosing a university to study or work. Research supporting organizations view university's rank in the world as an evaluation criteria to support the PhD and post-doc researches. For example, in Turkey, one criteria of TUBITAK, a research supporting organization, is the academic ranking of the university.. For these reasons, being among the top ranks is an important feature for universities.

Similar to the organization mentioned above, the research laboratory URAP (University ranking by academic performance) was founded within the structure of Informatics Institute of Middle East Technical University in 2009. The aim of URAP is to develop scientific methods for evaluating higher education institutions according to their academic achievements, and to share the results of the researches to public opinion. As the products of these researches 2000 world universities were ranged by URAP World Ranking, and more than 100 universities in Turkey were ranged by URAP Turkey Ranking according to various criterias of academic performances. URAP does not aim to categorise universities as good and bad. The goal of URAP is provide to compare universities' own academic performance with other universities and to be aware of improvable aspects according to specified criterias with the data obtained as a result of researches. According to URAP world rankings, in the academic year 2014-2015 ranking; there are 5 Turkish universities in the top 500, 19 Turkish universities in the top 1000 and 76 Turkish universities in the top 2000. According to the other research institutions mentioned above, many Turkish universities rank among the top 500 to 1000 in the academic year 2014-2015. As a result of this situation it has been thought that Turkish universities have mid-level position among the world universities and some universities take place among the best universities in the world. URAP have used the data of Web of Science/In Cites and the council of higher education (YOK) in 2015-2016 university assessment. Nine indicators of URAP Turkey Ranking that are used for ranking universities are given at Table 1.

Table 1. Indicators used by the URAP Turkey Ranking

No	Indicator	Aim	Source	Statement
1	The Number of Articles	Research	InCites	The Number of Articles included in the scan of SCI, SSCI and AHCI in 2014
2	The Number of Articles per Lecturer	Research	InCites and YOK	The Number of Articles included in the scan of SCI, SSCI and AHCI in 2014 / The Number of Lecturers in 2014
3	The Number of Citations	Research	InCites	The total number of citations received between the years 2012-2014
4	The Number of Citations per Lecturer	Research	InCites and YOK	The total number of citations received between the years 2012-2014 / The Number of Lecturers in 2014
5	The Total Number of Scientific Documents	Research	InCites	The total number of publication, notification, etc made between the years 2012-2014
6	The Number of Total Scientific Documents per Lecturer	Research	InCites and YOK	The total number of publication, notification, etc made between the years 2012-2014 / The Number of Lecturers in 2014
7	The Number of PhD Students	Education and Research	YOK	The number of PhD students in the academic year 2014-2015
8	The Rate of PhD Students	Education and Research	YOK	The number of PhD students in the academic year 2014-2015 /the total number of students in the same period
9	The Number Of Students per Lecturer	Education	YOK	The total number of students in the academic year 2014-2015 / The Number of Lecturers in 2014

Resource: http://tr.urapcenter.org/2015/2015-2016_Turkiye_Siralamasi_26_EKIM_2015.pdf

1st, 3rd and 5th indicators given in chart are in favor of major universities and it should not be ignored that these institutions contribute to world science more than others. It is natural to get a high score due to these contributions. 2nd, 4th and 6th indicators in the chart, measure productivity per person regardless of the size of the university. Thus, the major universities has a chance to receive a high score thanks to the total output and minor ones takes scores thanks to their productivity. When the continuity of the performance have been measured by 3rd, 4th, 5th, and 6th indicators, actuality of performance have been evaluated by the other indicators. Moreover the endeavour of the universities that have limited articles in magazines listed in the indexes of SCI, SSCI and AHCI, but have many scientific works in conferences, book chapters, etc. is evaluated by the 5th and 6th indicators. The nine indicators used in the ranking has equal weight percentages.

3. Methodology

In this study the subjects, whether there is a correlation between the number of foreign staff and the academic performances of the universities in Turkey, and in what ways the number of foreign staff affects the academic performances were aimed to investigate. For this purpose, data on the number of foreign academics of universities in Turkey were obtained from the official website of the council of higher education (YOK) (<http://www.yok.gov.tr/>) and they were transferred to the Excel spreadsheet. Then data on the academic performance of the universities in Turkey were obtained from the website of University Ranking by Academic Performance Research Laboratory (URAP) (http://tr.urapcenter.org/2015/2015_t9.php) and they were transferred to another Excel spreadsheet. Then the data in these two tables by matching with the VLOOKUP command in Excel on the basis of the University was made into a single Excel spreadsheet. Afterwards this generated Excel spreadsheet were transferred to Spss, and correlation and regression analyses were conducted through this program.

In the preparation of the data set, for the numbers of foreign academics of universities data of 2013 and for the University performance data of 2014 were used. Considering the process of article publication which takes approximately one year, the previous year's data were used for the numbers of foreign academics. An example of a data set is given in Table 2. The complete set of data is in the appendix.

Table 2. Example of a Data Set

University	Article (1)	Citation (2)	Foreign Scholars (3)
Middle East Technical University	167.35	188.6	45
Hacettepe University	155.16	159.88	32
Istanbul University	153.51	154.97	64
Bilkent University	169.62	187.63	179

The second column which is shown as number (1) at the Table 2 has been called as The Article Point. This column has been calculated as the number of articles point in 2014 + the number of articles point in 2014 per lecturer.

The third column in the chart is named as number (2) and it have been termed as Citation Point. It refers to the number of citations (given to the articles published between the years 2012-2014) point + the number of articles (given to the articles published between the years 2012-2014) point in 2014 per lecturer.

Finally, the 4th column, the column number (3) refers to the number of foreign scholars of the universities in 2013.

4. Findings

Number (1) and (2) column data in the data set refer the performance indicators of the universities and the column number (3) refers the number of foreign staff. Correlation and regression analyses were made between columns number (3), (1) and (2) in the study. The normality test had been conducted before analyses and it was found that the dependent variables have normal distribution. Test results and histogram diagrams related to the normality test is presented in the appendix. As a result of the analysis, the results of the correlation analysis and the values of the averages and the standard deviation presented in the Table 3.

Table 3. Mean, Standard Deviation and Correlations Values

	Mean	S. Dev.	1 Article	2 Citation
1. Article	92,3436	36,13480		
2. Citation	94,9539	36,91187	,843**	
3. Foreign Scholars	14,8154	23,17670	,344**	,393**

** p< 0,01 ; * p< 0,05 .

As seen from Table 3, there is positive, meaningful, and just under the middle level relationship between the numbers of foreign academics in universities and the academic performance computed according to the articles. In the same way there is positive, meaningful and just under the middle level relationship between the number of foreign academicians and academic performance that is calculated by citations. The relationship, which is based on the number of citations is a little more high than the number of articles. It is considered that the previous works of foreign scholars is a factor.

Table4. Regression Analysis Results of Foreign Scholars on Academic Performance (Article and Citation)

	Article			Citation		
	Beta	t	Sig	Beta	t	Sig
Foreign Scholars	.344	4.149	.000	.393	4.835	.000
Adjusted R ²	.112			.148		
F ratio	17.213			23.374		
F ratio P	.000			.000		

According to the results of regression analysis (Table 4), the number of foreign academicians causes 11,2% of the change in performance according to the article points. Moreover the number of foreign academicians causes 14,8% of the change in performance according to the citation point of universities. In this case, it was determined that the hypothesis established in the research was supported by the result of the regression of analysis.

5. Discussion and Conclusion

With the increase of transportation and communication facilities, accessing to goods and services has become easier for customers. Thus this case have increased customers' opportunities to obtain information about goods and services and has provided the opportunity to compare the goods and services with each other. Similarly a serious competition has emerged among universities in terms of including the best students in their structure and providing research funds and state support. In this environment, it is considered academical performance that published by independent international organizations create a perception about the quality of the universities. It can be thought that this perception might be played an active role to attract academicians and researchers.

The presence of foreign academicians within the university is considered to be beneficial for contribution of these scholars with their knowledge, skills, and infrastructures. Hence as a result of the study, number of foreign academicians of universities has a positive impact on academial performances in terms of articles and citations of universities have been found. This situation has enabled to reach a judgment that the hypothesis established in this research has been supported. This situation coincides with the previous studies (Mamiseishvili & Rosser, 2010; Lauring & Selmer, 2010).

As a result, cultural diversity of the academicians in a university has a positive influence on performance. From the light of this result, the development of human resources practices related to presence of foreign academicians at the universities will be positive in terms of improving the performance of the university. The language advantages of foreign academicians will be beneficial to overcome the language problems of articles. It is considered that examining especially English articles by more people provides to increase the number of citations and thus to increase the citation performance of the university. Academic qualifications of foreign scholars have a positive effect on the studies. Moreover the networks that come from previous working and education places of the foreign academicians, can contribute to doing researches and publish them.

In addition to all these benefits, to increase the number of foreign academicians too much in universities could result in universities alienated from the country and society and give harm to the universities feature of being institutions that seeking solutions to country's problems. For this reason, it is thought that foreign academics should be evaluated as a catalyst.

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Appendix A

Table A1. Data Set

University	Article (1)	Citation (2)	Foreign Scholars (3)
Middle East Technical University	167,35	188,66	45
Hacettepe University	155,16	159,88	32
Istanbul University	153,51	154,97	64
Bilkent University	169,62	187,63	179
Ankara University	146,15	141,29	6
Istanbul Teknik University	150,92	149,33	48
Gebze Institute Of Technology	139,72	164,13	9
Ege University	147,15	145,92	3
Gazi University	148,95	136,87	9
Sabanci University	152,49	166,62	41
Koc University	138,53	170,23	83
Bogazici University	143,74	129,92	70
Ataturk University	130,41	131,28	17
Yildiz Teknik University	136,74	126,29	13
Erciyes University	136,77	142,78	45
Izmir Institute Of Technology	135,58	110,16	15
Marmara University	115,27	131,15	49
Selcuk University	126,4	131,24	14
Dokuz Eylul University	124,27	128,46	25
Karadeniz Teknik University	129,99	129,02	10
Baskent University	122,05	113,19	19
Cukurova University	124,15	121,18	0
Akdeniz University	124,37	123,24	3
Ondokuz Mayis University	126,05	121,09	1
Suleyman Demirel University	126,06	122,21	0
Dogus University	146,26	113,67	12
Dicle University	126,63	117,76	0
Atilim University	116,05	161,75	17
Uludag University	119,04	120,83	15
Firat University	120,11	126,84	0
Fatih University	109,91	127,03	78
Ozyegin University	112,11	169,75	41
Gaziantep University	124,9	111,77	23
Sakarya University	122,24	109,85	0
Eskisehir Osmangazi University	113,78	114,54	9
Tobb Ekonomi Ve Teknoloji University	124,76	105,62	7
Inonu University	112,05	113,98	20
Canakkale Onsekiz Mart University	120,11	114,61	32
Kocaeli University	113,75	118,05	0
Gaziosmanpasa University	119,57	109,48	6
Anadolu University	89,31	109,43	31
Yuzuncu Yil University	110,87	108,95	10
Yeditepe University	99,62	107,85	71
Pamukkale University	114,72	108,23	3
Celal Bayar University	116,01	104,35	0
Mersin University	110,92	97,85	18
Abant Izzet Baysal University	112,02	110,64	0
Cankaya University	102,5	161,12	12
Duzce University	107,09	110,11	0
Mustafa Kemal University	115,26	109,27	4
Recep Tayyip Erdogan University	106,84	109,81	4
Kahramanmaraş Sutcu Imam University	105,42	98,07	14
Acibadem University	95,87	104,03	6
Afyon Kocatepe University	108,25	108,42	13
Harran University	101,89	105,67	6
Bulent Ecevit University	101,29	104,78	4
Adnan Menderes University	88,46	94,09	9
Kirikkale University	98,51	85,58	3
Namik Kemal University	96,44	83,01	7
Dumlupinar University	93,95	106,42	5
Mugla Sitki Kocman University	94,86	87,26	6
Neveshir Haci Bektas Veli University	102,21	112,89	3
Trakya University	83,96	91,89	30
Necmettin Erbakan University	95,03	68,99	10
Nigde University	98,77	101,9	6
Balikesir University	97,18	102,14	1
Cumhuriyet University	98,44	117,32	11
Bahcesehir University	84,41	100,43	39
Bozok University	113,37	99,76	8

University	Article (1)	Citation (2)	Foreign Scholars (3)
Turgut Ozal University	95,68	49,32	9
Adiyaman University	107,98	77,55	3
Kafkas University	103,39	60,83	24
Istanbul Bilim University	82,32	91,22	2
Sinop University	90,79	91,88	2
Kadir Has University	77,74	67,82	18
Aksaray University	85,73	104,09	3
Erzincan University	98,71	79,97	0
Hitit University	90,12	75,48	9
Isik University	72,32	85,35	19
Izmir Ekonomi University	83,09	70,84	63
Galatasaray University	41,4	71,96	5
Osmaniye Korkut Ata University	78,24	92,92	0
Kastamonu University	79,1	89,51	9
Karamanoglu Mehmetbey University	85,97	101,52	3
Ahi Evran University	81,89	79,75	3
Cag University	131,49	68,18	21
Yalova University	52,79	92,3	7
Bitlis Eren University	82,19	83,01	2
Maltepe University	39,13	57,88	11
Yasar University	64,26	63,45	35
Cankiri Karatekin University	65,44	82,42	5
Bartın University	71,89	86,8	6
Mimar Sinan Guzel Sanatlar University	57,23	23,9	1
Istanbul Kultur University	49,55	69,45	1
Karabuk University	68,24	69,93	0
Zirve University	67,13	64,37	36
Amasya University	86,21	74,52	0
Ordu University	66,99	56,72	0
Gumushane University	79,97	95,01	6
Istanbul Ticaret University	41,75	50,77	5
Mehmet Akif Ersoy University	71,85	52,86	1
Bilecik Seyh Edebali University	73,82	70,19	0
Ufuk University	49,4	85,49	0
Batman University	68,27	62,91	2
Bingol University	63,85	88,96	4
Okan University	48,71	43,9	34
Istanbul Bilgi University	52,87	46,18	63
Giresun University	66,74	73,35	2
Siirt University	61,28	85,02	7
Artvin Coruh University	55,33	53,91	1
Izmir University	79,96	43,59	4
Hakkari University	58,77	76,59	4
Agri Ibrahim Cecen University	44,34	103,08	0
Tunceli University	58,99	53,36	0
Istanbul Aydin University	43,85	29,36	0
Kirklareli University	47,58	65,08	2
Uşak University	44,07	47,68	6
Istanbul Arel University	39,87	29,03	4
Bayburt University	54,64	81,5	5
Halic University	16,46	31,77	3
Mus Alparslan University	56,98	64,16	4
Gediz University	34,15	43,12	12
Sirnak University	6,64	100,87	9
Kilis 7 Aralik University	46,2	48,6	3
Ardahan University	20,97	28,6	0
Igdir University	29,41	38,26	5
Mardin Artuklu University	16,23	17,96	35
Kto Karatay University	51,27	17,55	2
Beykent University	32,42	38,2	7
Yeni Yuzyil University	14,88	21,63	5

Appendix B

Table B1. Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Article	,059	130	,200*	,986	130	,207
Citation	,052	130	,200*	,988	130	,312

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

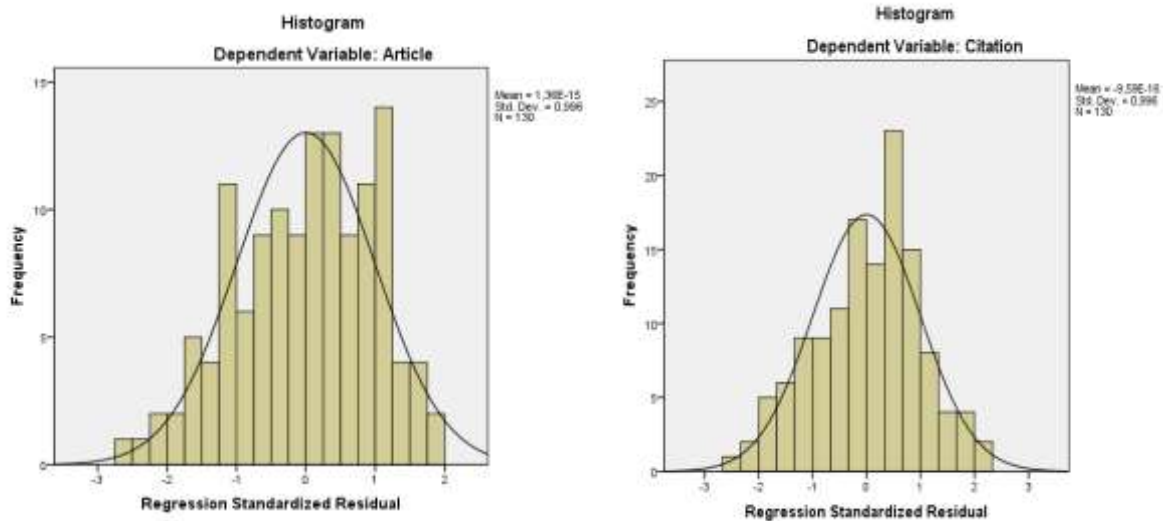


Figure B1. Histogram of the regression standardised residual

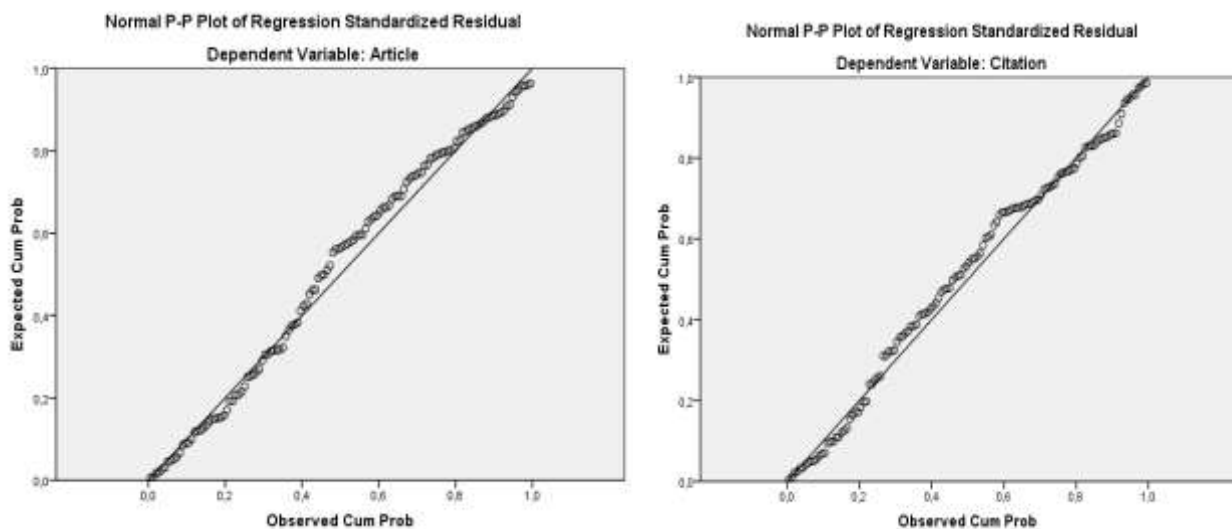


Figure B2. Normal P-P of the regression standardised residual

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