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Association among Number of Papers and Engagement in Additional Duties of Faculty Members with Research Output in University of Malakand

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Abstract

A portion or the entirety of a researcher's scientific work is assessed and graded based on the publications and citations they obtain from prestigious journals. It is anticipated that a paper's scientific quality would increase as its scientific influence or number of citations increases. The present study aims to assess the factors affecting faculty members' research output which is measure by number of citations. The data are collected from 30 senior faculty members from University of Malakand. Stratified random sampling method is used for identification of faculty member for data collection. The academic faculties are considered as strata. A structure questionnaire is formatted and distributed among faculty members. The data is presented by tables. Multiple regression model is used to identify the significant factors associated with faculty research performance. The number of papers and engagement in additional duties are significant factors associated to number of citation of papers. The faculty member should increase the number of papers and avoid additional duties to increase the number of citation of papers.

Keywords: citation, faculty members, stratified random sampling, number of papers, additional duties

1. Introduction

University ranking is the major factors for attraction of students. Also, high ranked universities get more funds from government which makes the university financially sound. The university ranking is highly associated with research performance of the faculty members (Yang, 2017). The performance is usually measure by number of citation of papers of each faculty members. The citation method for measuring faculty performance is since the beginning of the 20th century. (Nieminen, Carpenter, Rucker & Schumacher, 2006), but it took some time for the concept to advance and statistical tools to measure scientific quality based on citations to be created. The first Social Science Citation Index was released in 1972 by the Institute of Scientific Information (ISI, now Thomson Reuters), and it has been released annually since 1975. Garland, who founded ISI and is credited with inventing modern citation analysis (Bornmann, Schier, Marx & Daniel, 2012), believed that the more significant a publication was to the scientific community, the more often it would be cited by other authors. Many studies identified several factors associate with number of citations of papers. Eckhaus, & Davidovitch (2021) identified that engagement in administrative tasks, and the number of faculty members in the faculty are significant factors affecting the number of citation of the faculty members. Tahamtan et al. (2016) conducted a study to indicate factors influencing the number of citations. In their study three general category are considered which are ''paper related factors'', ''journal related factors'' and ''author(s) related factors''. They identified that factors such as the quality of the paper, journal impact factor, number of authors, visibility and international cooperation are stronger predictors for citations, than authors' gender, age and race; characteristics of results and discussion and so on. Soheili et al. (2022) indicated significant factors effective in the number of citations received by papers in Library and Information Science. In their study some component are identified which are responsible for citation of papers; component of paper, component of author-related features, component of keyword related features. Other factors include prestige of publisher in the field, journals with high impact factors and quartile scores, and authors with higher h-indices and professional webpages as well as updated publication listings and accurate contact information, long complete papers and including keywords in the title and abstract were significantly correlated with the number of citations. Teplitskiy et al. (2022) The results suggest that higher citation counts lead to more meaningful engagement from readers and, consequently, the most highly cited papers influence the research frontier much more than their raw citation counts imply.

Jabbour et al. (2013) identified four factors associated with the citation of paper which is the prestige of the means of publication and indexing, the prestige of the author and research, the international nature of communication and scope of the study at hand, accessibility and quality characteristics of the paper. The present study aims to identify the associated factors affecting the number of citation of faculty members of University of Malakand.

1.1. Objectives of the Study

- To estimate the number of citation of paper of faculty members.
- To identify the significant factors associated with number of citation of faculty members.

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2. Material and Method

2.1. Study area

The University of Malakand (UOM) one of the public sector universities founded in 2001. The university situated in an attractive location near the River Swat. A charter signed by the governor of Khyber Pakhtunkhwa created the official status of UOM. The higher education commission (HEC) of Islamabad has approved it. The UOM offers undergraduate degrees and postgraduate program in number of academic disciplines, these include mathematics, physics, IT, tourism and hotel management, botany, economics, education, biotechnology, political science, software engineering, English, Pashto and oriental languages, statistics, geology, Islamic studies, journalism and mass communication, law, zoology, software engineering, management studies, psychology and sociology.

The university has 7,000 students, 284 teaching faculty, 750 employees, 28 departments (University of Malakand). The 2023 QS world rankings placed the University of Malakand among the top 351–400 in Asia. (Press, 2022 and University of Malakand home page)

2.2. Data Description

The population of this study is the teaching faculty members of University of Malakand. From the population, faculty members are selected by stratified random sampling method. For this purpose the population is divided into strata and then from each stratum equal samples are selected. Academic faculties are consider as strata, and from each faculties sample are selected by simple random sampling method. The University of Malakand has nine faculties; sciences, arts and humanities, social Sciences, law, biological sciences, information technology, engineering, education, management sciences. From each faculty three teachers are identified by stratified random sampling equal allocation method. A structured questionnaire is formatted and distributed among the selected respondents. All the faculty members fill the questionnaires and returned. Thus, response rate is 100 percent.

2.3. Multiple Linear Regression Model

Multiple linear regression is extension of ordinary least square regression model because it consist of more than one independent variable. It is used to predict the average value of response variable on the basis of several explanatory variables. The job of multiple linear regression model is to model the linear relationship among the independent variables and dependent variable (Keith, 2019).

The coefficient of determination (R-squared) is used to measure how much of the variation in dependent variable can be explained by the variation in the independent variables. One of the features of R^2 is that it always increases as more predictors are added to the multiple linear regression model, even though the predictors may not be related to the dependent variable.

Thus R^2 cannot be used as selection criteria for independent variables. The range of R^2 is between 0 and 1, where 0 indicates that the independent variable cannot explain the dependent variable and 1 indicates that independent variable can predict the dependent variable perfectly without error.

One of the assumptions of multiple regression, beta coefficients are valid while holding all other variables constant ("all else equal"). The output from a multiple regression can be displayed horizontally as an equation, or vertically in table form.

Thus, multiple linear regression model is as under,

$$Yi = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_p X_p + e_i$$

Where,

Yi= response variable

β_0 = intercept

β_i =*partial regression coefficient, i=1,2,……,p*

e_i = disturbance term

The intercept term and partial regression coefficient are estimated by ordinary least square method.

3. Result and Discussion

Total of 27 samples are selected, 3 from each faculty. The 27 sample consists of 18 male and 9 female faculty members from the University of Malakand.

Table 1 shows the characteristics of the selected faculty members. Most of the faculty has age 35 to 45 i.e 16(59%) faculty members' lies in this age range. Six (22%) and five (19%) faculty members are in age range, 25—34 and 45—54 respectively. The table further present the number of faculty members having additional duties in addition teaching. Fifteen (56%) faculty members have not been assigned additional duty, while 12 (14%) faculty members are performing additional duties in various posts in addition to teaching and research activities. The Table further show the number of research publication (papers) faculty members published in last five years. The Table reveals 12(44%) faculty members published 0 to 19 papers, 9(33%) faculty members published 20 to 39 pares, and 6(22%) faculty members published 40 and above papers in the last five years.

In order to assess the significant factors affecting citation of paper, model regression model is run. We considered several factors related to characteristic of faculty members. Out of which only two are found significantly related

to the response variable number of citation of papers of faculty members. The result of multiple regressions is presented in Table 2. The Table shows that number of papers published and additional duty assigned to faculty members are significantly related to number of citation of papers. The p values are less than 0.05 showing significance of these factors. According to Eckhaus, & Davidovitch (2021) engagement in additional duties in university affects the number of citation of papers. The reason behind this correlation may be faculty member gave more time to additional duties which negatively affect the quality of their paper as a result less people cite their papers. Moreover, number of papers increases the chances of citation if the papers are high quality. The result indicating that faculty members of University of Malakand are published quality papers. Because the more papers of faculty member have high citation.

Table 1 Characteristics of selected Faculty Members of University of Malakand

Age	N	Percentage	Cumulative Percentage
25—34	6	22	22
35—44	16	59	81
45—54	5	19	100
Additional duty			
No	15	56	56
Yes	12	44	100
Gender			
Male	18	67	67
Female	9	33	100
Papers			
0—19	12	44	44
20—39	9	33	77
40 and above	6	23	100

Table 2 Multiple Regression Model coefficients

	Coefficient	P Value
Constant	-133	0.330
Papers	23.70	0.007
Additional duty	-1759	0.002

R^2=0.43

The coefficient of determination R^2 is 0.43 indicating 83% of variation in response variable number of citation of papers is explained by predictor's variables which are number of papers and assignment of additional duty. This means that these two factors have high effect on the number of citation.

4. Conclusion

The present study identified the most significant factor affecting the number of citation of faculty members. These factors are their number of papers and assignment of additional duties to them. The number of paper increases the number of citation increases. Thus positive relationship, while assignment of additional duty to faculty member is negatively associated with number of citation of papers. Thus teacher should avoid the additional duties that their number of citation increases.

Reference

Almog, T., & Almog, A. (2020). *All the lies of academia*. Tel aviv: Yedhiot Sfarim.

Bornmann, L., Schier, H., Marx, W., & Daniel, H.-D. (2012). What factors determine citation counts of publications in chemistry besides their quality? *Journal of Informetrics, 6*(1), 11-18.

Eckhaus, E., & Davidovitch, N. (2021). Academic Rank and Position Effect on Academic Research Output--A Case Study of Ariel University. *International Journal of Higher Education*, *10*(1), 295-307.

Garfield, E. (1972). Citation analysis as a tool in journal evaluation. *Science, 178*(4060), 471- 479.

Jabbour, C. J. C., Jabbour, A. B. L. D. S., & de Oliveira, J. H. C. (2013). The perception of brazilian researchers concerning the factors that influence the citation of their articles: A study in the field of sustainability. *Serials Review*, *39*(2), 93-96.

Keith, T. Z. (2019). *Multiple regression and beyond: An introduction to multiple regression and structural equation modeling*. Routledge.

Lariviere, V., Kiermer, V., MacCallum, C. J., McNutt, M., Patterson, M., Pulverer, B., . . . Curry, S. (2016). A simple proposal for the publication of journal citation distributions. *BioRxiv*, 1-3.

Lee, C. J., Sugimoto, C. R., Zhang, G., & Cronin, B. (2013). Bias in peer review. *Journal of the American Society for Information Science and Technology*, *64*(1), 2-17.

Nieminen, P., Carpenter, J., Rucker, G., & Schumacher, M. (2006). The relationship between quality of research and citation frequency. *BMC Medical Research Methodology*, *6*(1), 1-8.

Soheili, F., Khasseh, A. A., Mokhtari, H., & Sadeghi, M. (2022). Factors Affecting the Number of Citations: A Mixed Method Study. *Journal of Scientometric Research*, *11*(1), 1-14.

Tahamtan, I., Safipour Afshar, A., & Ahamdzadeh, K. (2016). Factors affecting number of citations: a comprehensive review of the literature. *Scientometrics*, *107*, 1195-1225.

Teplitskiy, M., Duede, E., Menietti, M., & Lakhani, K. R. (2022). How status of research papers affects the way they are read and cited. *Research Policy*, *51*(4), 104484

Yair, G., Gueta, N., & Davidovitch, N. (2017). The law of limited excellence: Publication productivity of Israel prize laureates in the life and exact sciences. *Scientometrics*, *13*(1).

Yang, J. C. C. (2017). A study of factors affecting university professors' research output: Perspectives of Taiwanese professors. *Journal of College Teaching & Learning (TLC)*, *14*(1), 11-20.