

Statistical Analysis of the Predictive Power of University Rankings on Job Performance

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Abstract: In this paper, we investigate the impact of university ranking (UR) on employees' job performance (JP) within the context of Saudi Arabia. A quantitative research design was employed, involving students and faculty graduates from universities with varying ranking levels who possessed labor market experience. Data were collected using a structured questionnaire administered via Google Forms, with responses recorded on a seven-point Likert scale. The collected data were analyzed using ADANCO software, applying a range of statistical techniques to ensure measurement accuracy. Reliability and validity were assessed using Cronbach's alpha, convergent validity, and discriminant validity (Fornell-Larcker criterion). Additionally, the coefficient of determination (R^2 and adjusted R^2) and path coefficients were examined to evaluate the model's predictive strength. The findings indicate that job performance is positively and significantly influenced by university ranking. Key attributes of university ranking—namely teaching quality, academic reputation, and student satisfaction—were found to be significant predictors of job performance dimensions, including knowledge, motivation, and leadership. Although the study is not exhaustive, it provides practical empirical evidence on the predictive capacity of university ranking, an area that has been underexplored in prior literature.

Keywords: University Ranking; Job Performance; Coefficient of Determination; Convergent Validity; Path Coefficient.

List of Abbreviations

UR: University Ranking

JP: Job Performance

R^2 : Coefficient of Determination

AVE: Average Variance Extracted Method

(β): Path Coefficient

1. Introduction:

The international university ranking (URs) is one of the significant assessment tools of a higher learning institution, and has been used by potential students in the past decade. The university ranking is becoming a significant factor among employers in the process of distinguishing between job applicants with comparable competencies and work experience [1]. Thus, the ranking of a university can be taken in correlation with the perceived quality of university graduates and can be referred to the productivity of the employers and their performance on the job. The URs play a major role in building the quality and prestige image of the institution. Conforming to this view, [2] observed that highly ranked universities that put more resources into the development of students consequently enhance the educational outcomes. As a result, university ranking is typically perceived as a measure of competence and quality of graduates.

In addition, there is also a positive relationship between studying in a popular school and college and positive career achievement. According to [3], the reputation and status of the university are measures of graduate competency. Consequently, it is typical to come across several universities that strive to enhance their reputation to the rest of the population. These reputational cues, nevertheless, tend to cause biases that are advantageous to the graduates of the high-ranking institutions and detrimental to the graduates of the lower-ranking universities; thus, the graduates of the former institutions have certain difficulties in earning an employment opportunity.

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The quality of teaching, consultancy, interactions with society, and the effectiveness of the administration are the main criteria according to which the ranking of universities is determined [4]. Along this line, [5] also noted the quality of teaching, student satisfaction, and the reputation of the employer as the key elements of university ranking. One of the practices that has been identified to forecast motivations of expectancy value among students is teaching quality through the establishment of meaningful relationships, identification of emotional issues, collaborative motivation, autonomy-supportive language, adaptive challenges, emphasis on learning processes, classroom activities, and care [6]. In addition, [7] noted that other major universities are also marked with qualified staff, superior academic facilities, and renowned lecturers and guest speakers, which eventually translate into enhanced learning and performance. In the same manner, [8] found that postgraduates of good institutes are better placed in career and human capital formation.

2. Literature:

2.1. (UR)

The prestige and reputation of the universities play a key part in identifying the higher education systems both at the national and global scales, and at times even influence the students in their academic and career lives. University reputation is an important sign of entry-level products that employers often use when carrying out hiring and selection processes, particularly in low-level jobs [8]. Among various factors that are considered when ranking universities, there are academic reputation, perception by employers, research output, faculty quality, and the ratio of faculty and students. All these are contributing to the graduate quality perceptions.

Students continue to believe that a university degree is a gateway that is imperative in the acquisition of knowledge, ability, and marketability in the ever-competitive job market. In Ref. [9] the authors examined the influence of institutional attributes and performance in academic performance as variables on the productivity of employees who work in a single organization. The findings presented meant that academic major is a predictor of starting salary, university reputation, and GPA were positively correlated with promotion and career growth in the long-run.

2.2. (JP)

The behavioral, action, and results of the employees, which are either directly or indirectly linked to the organizational goals, may be defined as job performance [10]. Three key factors play a central role in the influence on JP: they are declarative knowledge, procedural skills, and motivation. Besides, general mental ability is always cited as the single most reliable predictor of job performance in various jobs. The preceding studies have led to the development of role-based performance measurement scales, which are largely considered healthy tools to measure job performance in organizational settings [11]. Some of the organizational outcomes that are related to JP include productivity, quality of services, work efficiency, and employee satisfaction. Job performance consequently possesses diverse antecedents and far-reaching consequences as far as the overall organizational productivity is concerned.

2.3. JP and Motivation

Motivation is also a crucial element in enhancing the readiness of employees to work well and tirelessly to meet the organizational goals. Motivated employees will reflect a higher level of commitment, efficiency, and innovativeness, which will positively influence the success of an organization [12]. Being very motivated individuals would look at their work as an opportunity for their growth rather than the need to do the job. However, employee motivation is not a direct cut job for managers due to the fact that employees are considered one of the best assets of an organization in terms of long term success. [13] emphasized that motivation is a good indicator of job performance. Engaged and committed employees who are goal-oriented would be in a better position to perform at a higher level.

2.4. JP and Leadership

Leadership is an issue that is quite familiar as a determining factor of organizational behavior and performance management. The interactions within the organization reveal that leadership is an influential factor in the attitudes, behaviors, and performance results of the employees [14]. It has also been mentioned that good leadership supervision is a key factor in organizational development and sustainability. Strategic and visionary leadership is seen as a long-term competitive advantage, which enhances the performance of organizations and employee development. The visionary leaders engage in communicating the goals, modeling the desired behaviors, and developing commitment among the employees, hence effective communication [15]. Visionary leadership contributes to cohesion, loyalty, enthusiasm, and dedication, leading ultimately to job performance in the dynamic organizational environment.

2.5. JP and Knowledge

Job knowledge refers to the technical information, facts and procedural knowledge required to be in a position to execute the

job duties in an organization. Satisfaction and motivation Job-related knowledge are essential variables that influence the performance of employees [4]. Organizations are fond of written job knowledge tests in selecting and recruiting employees, training and developing them [16]. The tests tend to examine the factual, theoretical, and process knowledge required by employees to work well in their jobs. The employees have the power to perform their jobs effectively through job knowledge, which enables them to troubleshoot and adapt to new job requirements, making it a paramount job outcome.

2.6. Conceptual Framework

A conceptual framework is given in Figure 1. In the study, two variables will be utilized: UR and JP. The model shows a correlation between the two variables. The UR and JP are the independent and dependent variables, respectively. In this study, three indicators of UR, which include teaching quality, improved academic reputation, and student satisfaction, are found. On the other hand, JP has been depicted in three factors that are Knowledge, motivation, and leadership. Based on the current research, it can be anticipated that UR will lead to a better JP, and the impact of this factor will be substantial. Table 1 represents the research hypotheses.

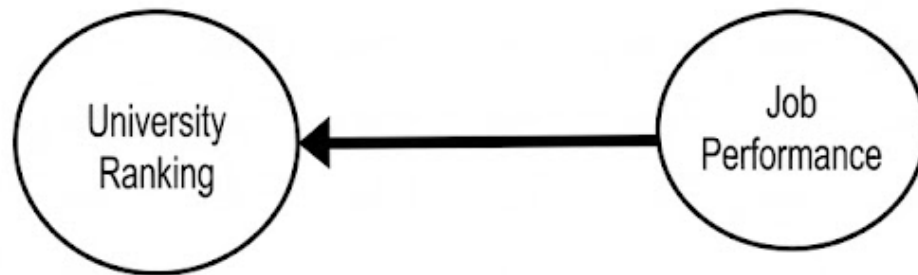


Fig. 1: Conceptual Framework

Table 1: Research Hypotheses

Numbers	Hypotheses
H1	Ranking in university significantly influences the knowledge for high job performance.
H2	Ranking in university has a significant influence on motivation for high job performance.
H3	Ranking in university significantly influences leadership skills for high job performance.

3. Methodology

The research design applied in the study is the quantitative research design, to examine the impact of the University Ranking (UR) on Job Performance (JP) prediction. The greatest objective was to make an empirical measure of whether the attributes regarding the university ranking possessed significant capacity to decipher individual job performance results. The cross-sectional study was employed because the data collected were acquired on similar respondents, albeit with varied professional and educational backgrounds at a particular time. The target population was composed of those university-going and university-passed individuals who had a past history or had current experience in the labor market. The study targeted the respondents who occupied various academic courses and fields of occupation between the ages of 22 and 45 years in Lahore. A hundred and eight valid responses, comprising respondents with a graduate level to doctoral level, were acquired.

The sampling technique used was a non-probability convenience sampling due to the time and accessibility considerations. The sampling was considered appropriate to the level of exploratory and pilot research, and the researcher was able to produce data with minimal time spent on the readily available participants. Although convenience sampling may be associated with sampling bias, it is suitable in those situations when the researcher has to be able to relate variables and not make any generalizations concerning the rest of the population. The study instrument was separated into two sections. The previous

part included the demographic information, including age, gender, and educational level. The second section was the questions that evaluated the study variables, i.e., university ranking attributes and job performance indicators. In order to emphasize the value of the perceptions of the respondents, the items were rated on 7 pointslikert scale with 1 (strongly disagree) and 7 (strongly agree) being the extremes.

The data were collected using the structured questionnaire, which was primarily applied to distribute the questionnaire using Google Forms to have a greater number of responses and simplify the questionnaire answers. In addition to the primary data, secondary sources such as academic journals, e-books, and scholarly articles were also accessed to assist in justifying the research structure. The obtained data were analyzed with the help of ADANCO software, which is suitable in cases when structural equation modeling and variance analysis should be observed.

4. Results Analysis

4.1. Reliability and Validity

Reliability and validity of the measurement model were measured using factor loadings in determining how strongly each of the items was to describe the respective construct. The loading of factors was determined to determine the extent of contribution of each indicator towards the study variables. The acceptable lower loading of the construct was placed at 0.40 because items with this and above significant numbers were making a significant contribution to the construct [10]. The ones that had the loadings close to zero were made to represent weak indicators, whose contribution to the variable is minimal. The practice was done to ensure that only valid and reliable items of measurement were retained to be further analyzed.

Table 2: Factor Loading

Indicator	University Ranking	Job Performance
Rank 1	0,5214	-
Rank 2	0,6982	-
Rank 3	0,5449	-
Rank 4	0,6594	-
Rank 5	0,7237	-
Rank 6	0,7696	-
Rank 7	0,7603	-
Rank 8	0,7574	-
Rank 9	0,6497	-
Rank 10	0,6428	-
Rank 11	0,7316	-
Job Performance 1	-	0,8166
Job Performance 2	-	0,8339
Job Performance 3	-	0,7493
Job Performance 4	-	0,8
Job Performance 5	-	0,7942

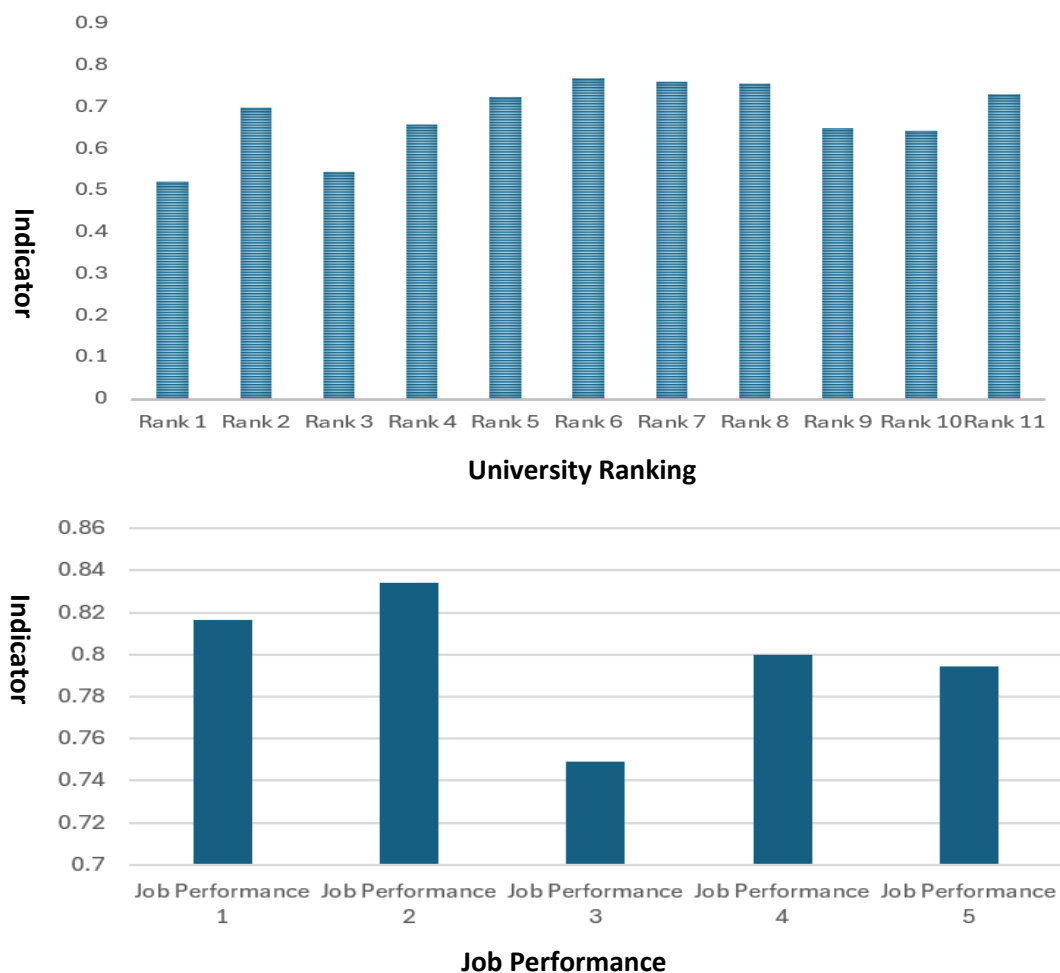


Fig. 2: the relationship between the indicators and (a) university ranking and (b) the job performance.

4.2. Internal Consistency

The internal consistency was tested with the use of cronbachs alpha since most measurement scales' reliability is determined through the method. A fairly acceptable degree of establishing adequate internal consistency among the scale items is 0.70 [12]. The Cronbach alpha of all the constructs in this study is greater than the acceptable value, which indicates that the measurement items are highly consistent. These results confirm that the items of both constructs were a justifiable measurement of the same concept. Therefore, the measurement tool used in this study can be referred to as a valid tool that will be implemented in future statistical analysis.

Table 3: Cronbach's alpha

Construct Cronbach's alpha(α)	
University Ranking	0.8848
Job Performance	0.8586

4.3. Convergent Validity (AVE)

The convergent validity was assessed using the Average Variance Extracted (AVE) method to identify the degree of the convergence of the measurement items in measuring the constructs they are measuring. AVE is the degree of variance that a construct explains in comparison with the degree of variance due to measurement error. One of the recommended values of

convergent validity is an AVE of 0.50 or higher. However, any value more than 0.40 can be considered acceptable in certain circumstances of the research. The AVE values in the current study were not below the acceptable levels, and it was proven that the constructs had a high degree of convergent validity and measurement quality.

Table 4: Convergent Validity

Construct	AVE
University Ranking	0.4663
Job Performance	0.6389

4.4. Discriminant Validity: Fornell- Larcker Criterion

It was determined that the measure of the discriminant validity was the Fornell-Larcker criterion, which is extremely popular in determining the uniqueness of latent constructs within a measurement model. Based on this criterion, the square root of the mean variance extracted (AVE) of each of the constructs is expected to be greater than its correlations with other constructs. It is a relative resemblance of shared constructs variance and explained constructs variance. It is through the Fornell-Larcker approach that the researcher will be able to know whether a given construct is indeed measuring another construct and not too strongly correlated with others, which will generate satisfactory levels of discriminant validity.

Table 5: Fornell- Larcker Criterion

Construct	University Ranking	Job Performance
University Ranking	0.4663	
Job Performance	0.5272	0.6389

4.5. Coefficient of Determination (R^2) and Adjusted (R^2)

Discriminant validity was measured using the Fornell-Larcker criterion, and these are in Table 5. By this criterion, the square root of the average variance extracted (AVE) of each construct should be greater than the amount of correlation between this construct and the other constructs. The square root of the AVE of University ranking (0.4663) and Job performance (0.6389) values are the two diagonal values as specified in the table, and the other inter-construct correlations are the off-diagonal values. These results suggest that the two constructs exhibit more variance with what they measure than the other constructs, which supports the adequacy of discriminant validity between University Ranking and Job Performance [12]-[19].

The coefficient of determination (R^2) explains the proportion of variance in an endogenous variable that is accounted for by the independent variable(s). R^2 values range from 0 to 1, with higher values indicating stronger explanatory power (Wang et al., 2025). Adjusted R^2 further refines this estimate by accounting for model complexity. The values below 0.02 mean that the latent variables do not have a strong explanatory relationship. In this study, both R^2 and Adjusted R^2 values exceeded 0.02, indicating that the predictive relationship between University Ranking and Job Performance is meaningful and not weak. The reason behind the credible explanatory significance and utility of the model has been justified by the above findings.

Table 6: Structural Model

Construct	Coefficient of determination (R^2)	Adjusted (R^2)
Job Performance	0.5272	0.5228

4.6. Path Coefficient

Path coefficient of the reason, primarily referred to as the beta value (β), indicates the association of two things. It has a range of -1 to +1. A negative value (-1) represents a negative correlation, and a positive value (+1) represents a positive

correlation. In case the value is 0, it is not related to any other association (F. Hair Jr, 2014). Table 6 shows a relationship between UR and JP is one of significance and positive between the two variables ($=0.7261$).

Table 7: Path Coefficient (β)

Independent Variable	Dependent Variable
	Job Performance
University Ranking	0.7261

4.7. Graphical Representation of the Model:

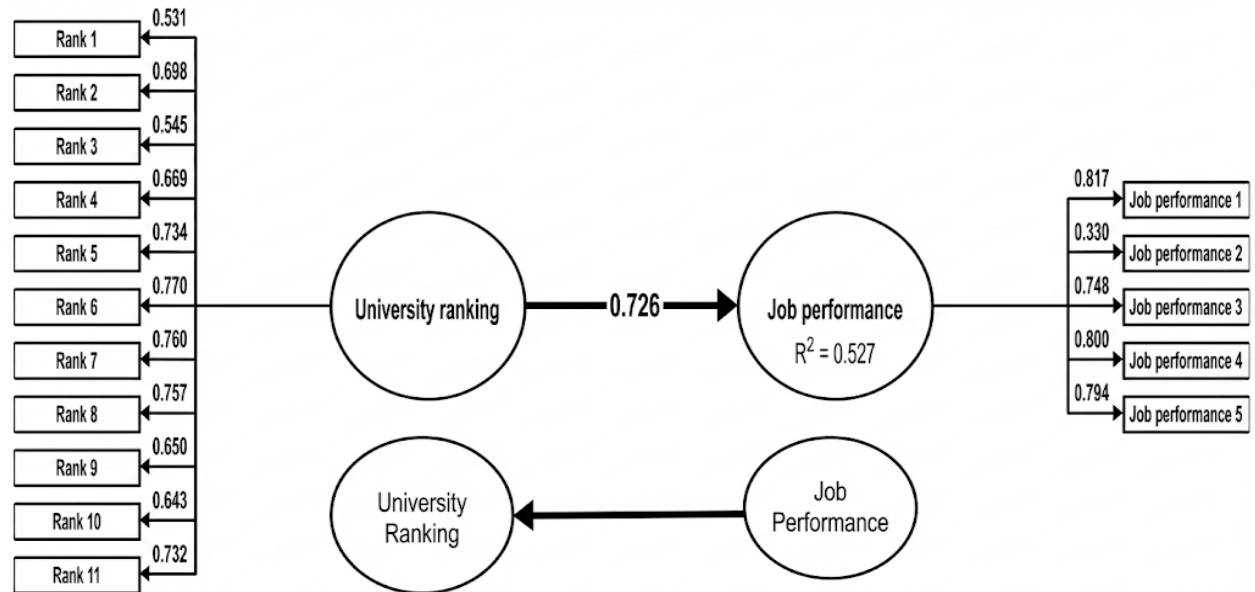


Fig. 3: Graphical Representation of the Model

5. Conclusion

In conclusion, the statistical analysis revealed a significant and strong positive relationship between University Ranking (UR) and Job Performance (JP), as evidenced by the path coefficient analysis. Factor loading results further confirmed the significance of key university rating attributes—namely teaching quality, academic reputation, and student satisfaction—in contributing to UR. Similarly, within the JP construct, the dimensions of knowledge, motivation, and leadership emerged as statistically significant. These findings collectively demonstrate that UR serves as a meaningful statistical predictor of JP, offering employers a quantifiable metric to inform hiring decisions.

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