

A COMPARATIVE STUDY OF THE PERFORMANCE OF FACULTY MEMBERS WORKING ON TENURE TRACK SYSTEM AND BASIC PAY SCALE SYSTEM

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ABSTRACT:

Education is one of the drivers of economy and the role of higher education institutions (HEIs) as knowledge contributors to the nation's economy is significant. Educational organizations being service organizations quality of service depends directly on the capability, commitment, and motivation of faculty who provide it and ensuring quality is a challenge for education managers. One method of ensuring quality is by assessing the performance of faculty and ranking them based on their performance against set standards-Academic Performance Indicators. Teachers of modern education system have to carry out multiple tasks- administrative, teaching, research, Services. This blend descriptive comparative study in the domain of quantitative research approach was aimed to describe the two independent variables, TTS and BPS with a third variable performance of the faculty members in teaching, research publication and services outreach program. The objectives of the study were to identify the difference between teaching performance, research publications and service outreach program of TTS and BPS faculty members. Faculty of public sector universities of Khyber Pakhtunkhwa in Pakistan was the population of the study. Multistage Stratified random sampling was used to select a sample of 370 faculties and 1110 Graduate students from the Social Sciences and Basic Sciences from randomly selected universities. And data have been collected through questionnaires. Statistical analyses were done by employing t-tests, ANOVA through SPSS.

Key words: Comparative Study , Performance, Faculty Members, Tenure Track System , Basic Pay Scale System

INTRODUCTION:

Faculty members at Higher Education are availing two types of service structure that is Tenure Track and Basic Pay scale. Both of these structures are designed to provide stability and support for faculty members, but they operate in different ways and have different benefits and drawbacks. The tenure track system is a service structure that provides faculty members with a pathway to a permanent position after a probationary period of several years. During this probationary period, faculty members are evaluated on their teaching, research, and service to the institution (Gul, R., et al., 2023; Gul, R., & Khilji, G. K. 2022; Tahir, T. et al., 2023; Khan, H. 2023; Gul, R., et al, 2023). If they meet certain performance standards, they may be granted tenure, which provides job security and protections against arbitrary termination. The tenure track system is widely used in higher education institutions in the United States and other countries, and it is often seen as a crucial element of academic freedom and the pursuit of knowledge. The basic pay scale system is a service structure that provides faculty members with a set salary based on their qualifications and experience. This structure is typically used in government institutions, and it is often seen as a more equitable way of compensating employees. The basic pay scale system ensures that faculty members are compensated fairly for their work and experience, and it can help to prevent discrimination and other forms of unfair treatment.



The performance of faculty members employed under different systems, such as the tenure track system (TTS) and the basic pay scale system (BPS), is a critical area of study in higher education. The TTS is a well-established career pathway that offers the possibility of achieving tenure, providing job security and academic freedom (Ahmad, Gul, & Kashif, 2022; Gul & Khilji, 2023; Salameh et al., 2022). This system emphasizes research productivity, teaching effectiveness, and institutional service as key evaluation criteria for faculty members (Clark, 2018). Faculty members on the tenure track are expected to demonstrate a strong publication record, secure external research funding, and actively engage in scholarly activities to enhance their chances of achieving tenure (Ehrenberg & Zhang, 2005;; Gul, R., Ahmad, I., Tahir, T., Ishfaq, U. (2022). Gul, R., Tahir, T. Ishfaq, U., Batool, S. 2021. Tahir, T, K. Khan, Aurangzeb, W. (2019).).


Conversely, the BPS is a compensation system that determines faculty salaries based on predefined scales considering factors like qualifications, experience, and seniority. Unlike the TTS, the BPS does not explicitly link salary progression to research productivity but recognizes experience and loyalty to the institution (Rani Gul et al., 2022; Rani Gul et al., 2022; Zhou et al., 2022). Salary increments in the BPS are typically based on factors such as academic rank and years of service.

Teaching effectiveness is a fundamental aspect of faculty performance and has a direct impact on student learning outcomes. In the BPS system, faculty members are evaluated based on their teaching abilities and student feedback (Rehman, 2015). Teaching quality is a significant consideration, and faculty members are expected to excel in delivering course content, engaging students, and assessing their learning outcomes (Ahmad & Gul, 2021; Gul, Ayub, et al., 2021; Gul, Muhammad, et al., 2021). Effective pedagogy and continuous improvement in teaching skills are essential for career advancement within the BPS (Alam, Khan, & Nasir, 2017, Gul, R., Ahmad, I., Tahir, T., Ishfaq, U. 2022; Batool, S., Tahir, T., Gul, R., Ishfaq, U. 2021).

In the TTS, teaching is also an important factor in faculty performance evaluation. However, research productivity is typically given higher priority and is often considered the primary indicator of academic excellence (Khattak, 2018). Faculty members on the tenure track are expected to actively engage in teaching, but their success and career advancement largely depend on their research achievements (Ahmad, Gul, & Zeb, 2022; Gul et al., 2022; Gul, Ayub, et al., 2021).

This emphasis on research within the TTS system is driven by the expectation that faculty members make significant scholarly contributions to their respective fields. Research productivity is a crucial factor in evaluating faculty performance as it contributes to knowledge creation and scholarly impact. Under the BPS, faculty members are expected to engage in research activities, although the emphasis on research productivity may vary depending on the discipline and institutional policies (Aman, Tahir, & Tariq, 2014, Tahir, T, U Ishfaq, S Begum, G Shaheen, 2021; Gul, N., Tahir, T., Gul, R., Batool, S. 2022).

While research is recognized, the BPS system may not offer extensive support or incentives directly linked to research productivity (Nayyar, 2012). In contrast, the TTS places significant importance on research output as a primary performance factor. Faculty members on the tenure track are expected to actively contribute to their fields through rigorous research, publishing in reputable journals, and securing external research grants (Khattak, 2018). Research productivity, including the number of publications, citations, and external funding, plays a vital role in career progression and recognition within the TTS system (Bukhari et al., 2021; Gul & Khilji, 2021; Gul, Tahir, et al., 2021). Contributions to institutional services, such as administrative roles, committee participation, and community engagement, are also essential for the overall functioning and development of universities. While the BPS system recognizes the importance of service contributions, it may not explicitly link them to career



advancement or rewards (Aman et al., 2014). Faculty members under the BPS are expected to actively engage in institutional activities, collaborate with colleagues, and contribute to the broader academic community (Nayyar, 2012).

Similarly, the TTS acknowledges the significance of service contributions, but research productivity often takes precedence in evaluation (Alam et al., 2017). Faculty members on the tenure track are encouraged to balance their service commitments with research and teaching responsibilities, ensuring their contributions align with the institutional goals and priorities (Khattak, 2018). The performance of university faculty members is a critical aspect of the higher education system as they are responsible for delivering high-quality education, conducting research, and contributing to the overall academic mission of the institution.

FACTORS AFFECTING FACULTY PERFORMANCE:

Several factors influence the performance of university faculty members. These factors include teaching effectiveness, research productivity, service to the institution and community, professional development, and collaborative efforts with colleagues (Bauer & Baltés, 2002; McAlpine & Weston, 2000, Tahir, T.; W. Ahmed, S. Batool, U Ishfaq(2021), A Zaman; Gul, R., Tehseen, T., Batool, S., Ishfaq, U., & Nawaz, M. H. (2022). Faculty members who demonstrate excellence in these areas contribute to a vibrant academic environment and enhance student learning experiences.

ASSESSMENT METHODS FOR FACULTY PERFORMANCE:

Assessing faculty performance involves a comprehensive evaluation process that takes into account multiple dimensions of their work. Common assessment methods include student evaluations of teaching, peer evaluations, self-assessment, research productivity metrics (such as publications, grants, and citations), contribution to institutional service, and external recognition (Berk, 2013; Tuckman & Young, 2014, Gul, R., Tahir, T., Ishfaq, U. 2020). A combination of qualitative and quantitative measures is often employed to provide a holistic view of faculty performance.

CHALLENGES IN FACULTY PERFORMANCE:

University faculty members face various challenges that can impact their performance. These challenges include heavy workloads, time management, maintaining a balance between teaching and research responsibilities, securing research funding, navigating administrative processes, and addressing the diverse needs of students (Hendry & Dean, 2002; Sorcinelli & Austin, 2017, Gul, R., Tahir, T., & Ishfaq, U. (2023). Additionally, external pressures to meet publication expectations and tenure requirements can contribute to stress and impact overall performance (Pittinsky et al., 2010).

STRATEGIES FOR IMPROVING FACULTY PERFORMANCE:

To enhance faculty performance, universities can implement strategies to provide adequate support and resources. These strategies may include professional development opportunities, mentoring programs, sabbatical leaves, research funding, teaching and learning workshops, recognition and rewards for outstanding performance, and creating a positive work environment that fosters collaboration and innovation (Gmelch, 2001; Kezar & Maxey, 2014, Gul, R., Tahir, I. U., & Batool, (2021). Additionally, establishing clear expectations, offering feedback and constructive evaluation, and promoting work-life balance can contribute to faculty success and well-being. The performance of faculty members working under the tenure track system (TTS) and the basic pay scale system (BPS) is a topic of interest in higher education. In university research, it is undeniable that the HEC plays a critical role in setting the tone. However, an examination of university performance in this area over the past ten years suggests that

the sector must redouble its efforts to promote high-impact and collaborative research (Ayub, Gul, Ali, et al., 2021; Gul, Tahir, et al., 2021)

PERFORMANCE IN TEACHING:

Faculty members under both the tenure track system and the basic pay scale system are responsible for delivering quality education to students. Studies have shown that faculty members in both systems can exhibit high levels of teaching effectiveness (Hamid, et al., 2021; Rizvi, 2015, Aurangzeb; Tahir.T; Khan, K, 2020).

Effective teaching involves engaging students, promoting critical thinking, providing feedback, and creating a conducive learning environment. While the systems themselves may not directly impact teaching performance, factors such as workload, job security, and institutional support can influence faculty members' ability to excel in teaching (Bexley et al., 2011; Ruiz-Casares et al., 2015, Gul, R., Khan, S. S., Mazhar, S., & Tahir, T. (2020).

PERFORMANCE IN RESEARCH:

Research productivity is another important aspect of faculty performance. The tenure track system often places a significant emphasis on research output and expects faculty members to contribute to their respective fields through publications, grants, and scholarly activities. Studies have indicated that faculty members in the tenure track system tend to have higher research productivity compared to those in the basic pay scale system (Gul, Tahir, et al., 2020; Gul, Zakir, et al., 2021; Said et al., 2021). The expectations, incentives, and support structures within the tenure track system can contribute to a greater focus on research activities, leading to increased productivity.

PERFORMANCE IN SERVICE:

Service to the institution and the academic community is an essential component of faculty roles. This includes participating in committees, engaging in professional development activities, mentoring students, and contributing to the broader academic community (Batool et al., 2021; Gul, Kanwal, et al., 2020; Gul et al., 2023; Muhammad Tufail et al., 2022; Salameh et al., 2022). While the emphasis on service may vary between the tenure track system and the basic pay scale system, both systems recognize the importance of faculty involvement in service-oriented activities. Faculty members in both systems can contribute significantly to institutional governance and community engagement (Sorcinelli et al., 2013, Bashir S, Ishfaq; Tahir.T, 2022, Ali, M; Tahir.T, Ishfaq, U, 2022). However, the specific expectations and incentives for service may differ based on the system and institutional context.

The performance of faculty members under the tenure track system and the basic pay scale system is influenced by various factors (Ahmad, Gul, & Imtiaz, 2022; Ali et al., 2021; Batool et al., 2022; Gul, Khan, et al., 2020). While the tenure track system tends to prioritize research productivity, both systems recognize the importance of teaching and service. The effectiveness of faculty members in these areas is influenced by workload, institutional support, job security, and incentives provided within the system. Institutions should consider these factors when designing and evaluating performance assessment systems to ensure the overall effectiveness and satisfaction of faculty members.

STATEMENT OF THE PROBLEM

Pakistan's Higher Education Commission has taken several steps to improve higher education. TTS is one of the programs to improve the performance of public universities. This system has inspired the academic community to conduct more studies. TTS pays well to entice academics with outstanding credentials. Basic Pay Rates (BPS) is the uniform pay scales used by the Pakistani government across the country. The standard rate of pay is applied to the base pay (before any allowances). According to the

type of organization, the responsibilities and obligations of each official job differ, and the pay scale is structured based on what tasks are being performed. As of 2002, Pakistan's tenure track system had been implemented. However, most of the staff is unfamiliar with the system's rules and regulations. TTS and its procedures in Pakistan are the focus of this study, which examines faculty members working in public sector institutions' perceptions of their familiarity with them.

OBJECTIVES OF THE STUDY

1. To identify the difference between the teaching performance of TTS and BPS faculty Members.
2. To find out the difference between TTS and BPS Faculty members in research publications.

HYPOTHESIS OF THE STUDY:

It was hypothesized that there is no significant difference between BPS and TTS performance in terms of:

Ho1: Teaching of TTS and BPS faculty members.

Ho2: Research publications of TTS and BPS faculty members.

SIGNIFICANCE OF THE STUDY

The finding of the research are significant for the policymakers and academic leaders in higher education institutions make informed decisions about which employment system to adopt to attract and retain talented faculty members and promote excellence in teaching, research, and service.

RESEARCH DESIGN

The descriptive comparative and quantitative survey-type research design was adopted to carry out this study.

POPULATION AND SAMPLE:

The population of the study comprised of all the general Public Universities of Khyber Pakhtunkhwa. The sample of the study consisted of 370 BPS and TTS out of 4560 faculty and 1110 graduates' students out of 50871 of the Public universities of the Khyber Pakhtunkhwa.

RESEARCH INSTRUMENT

Two research tools were developed and consequently employed to collect the data from the sample. A performance of teaching scale based on four point Likert techniques was developed with the help of supervisor and senior experts in the field. And another questionnaire was developed to examine the performance in Research Publication.

DATA ANALYSIS

Table 1. Difference between mean score of BPS and TTS in teaching

| Comparative group | N | Mean Score | SD | t | P |
|-------------------|-----|------------|---------|------|------|
| BPS | 185 | 25.5702 | 2.62233 | .187 | .825 |
| TTS | 185 | 25.6204 | 2.54049 | | |

Table 1 showed BPS and TTS faculty's comparison for teaching, The test statistic measures the difference between the sample means showed that the calculated t values are $t = .187$ and the significant value is $.825$. Thus, p-value is greater than the common significance level of 0.05; there is no significant difference between teaching performance of BPS and TTS.



Table 2: Difference between mean score of BPS and TTS in Behavior/Dealing during teaching

| Comparative group | N | Mean Score | SD | t | P |
|-------------------|-----|------------|---------|------|------|
| BPS | 185 | 9.6895 | 1.26689 | .570 | .421 |
| TTS | 185 | 9.7667 | 1.33747 | | |

Table 2 showed the BPS and TTS faculty’s comparison for behavior during teaching. The test statistic measures the difference between the sample means showed that the calculated t values are $t=.570$ and the significant value is $.421$. Thus, the p-value is greater than the common significance level of 0.05 there is no significant difference between behavior/dealing performance of BPS and TTS.

Table 3: Difference between mean score of BPS and TTS in Classroom Management

| Comparative group | N | Mean Score | SD | t | P |
|-------------------|-----|------------|---------|-------|------|
| BPS | 185 | 9.6211 | 1.24496 | 1.370 | .945 |
| TTS | 185 | 9.7944 | 1.18561 | | |

Table 3 showed the BPS and TTS faculty’s comparison for classroom management during teaching. The test statistic measures the difference between the sample means showed that the calculated t values are $t=1.370$ and the significant values are $.945$. Thus the p-value is 0.945 . The p-value is greater than the common significance level of 0.05 , there is no significant difference between Classroom Management performance of BPS and TTS.

Table 4: Difference between mean score of BPS and TTS in Course Presentation

| Comparative group | N | Mean Score | SD | t | P |
|-------------------|-----|------------|---------|-------|------|
| BPS | 185 | 12.7684 | 1.52508 | -.465 | .374 |
| TTS | 185 | 12.8389 | 1.37887 | | |

Table 4 showed the BPS and TTS faculty’s comparison for course presentation during teaching. The test statistic measures the difference between the sample means showed that the calculated t values are $t=-.465$ and the significant values are $.374$. Thus the p-value is 0.945 . The p-value is greater than the common significance level of 0.05 , there is no significant difference between Course Presentation performance of both faculty BPS and TTS.

Table 5: Difference between mean score of BPS and TTS in Total Teaching Evaluation by Students.

| Comparative group | N | Mean Score | SD | t | P |
|------------------------------|-----|------------|---------|------|------|
| Total Evaluation by Students | | | | | |
| BPS | 185 | 57.6491 | 5.73732 | .621 | .996 |
| TTS | 185 | 58.0204 | 5.75586 | | |

Table 5 showed BPS and TTS faculty’s comparison of Total Evaluation by Students for teaching. The test statistic measures the difference between the sample means showed that the calculated t values are $t=.621$ and the significant values are $.996$. Thus the p-value is 0.945 . Thus, the p-value is greater than the common significance level of 0.05 , there is no significant difference between overall teaching performance of both faculty BPS and TTS.



Table 6: Difference between mean score of BPS and TTS in Paper Published at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|---------------|-----------|------------|------------|---------|-------|------|
| Impact factor | Author | BPS | 22.1789 | 7.56276 | 2.517 | .012 |
| | | TTS | 24.2667 | 8.38434 | | |
| | Co-Author | BPS | 13.1368 | 4.42243 | 1.328 | .185 |
| | | TTS | 12.5667 | 3.78928 | | |

Table 6 showed BPS and TTS faculty’s comparison in paper publishing at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=2.517 and 1.328 and the significant value are .012 and .185. Thus, the mean score for papers published at the national level as Author appears to be higher for faculty members under the TTS compared to those under the BPS. The t-value of 2.517 suggests that the difference between the means is statistically significant at the given level of significance (assuming a significance level of 0.05). The p-value of 0.012 indicates that there is a 1.2% probability of observing such a difference in means by chance alone. And there is no significant difference between the paper published (Impact factor category) at National level as Co-Author of both faculty BPS and TTS.

Table 7: Difference between mean score of BPS and TTS in Paper under evaluation at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|---------------|-----------|------------|------------|---------|-------|------|
| Impact factor | Author | BPS | 15.3158 | 5.43409 | 3.723 | .000 |
| | | TTS | 17.5000 | 5.84960 | | |
| | Co-Author | BPS | 9.3632 | 3.35386 | 2.761 | .006 |
| | | TTS | 10.3500 | 3.52085 | | |

Table 7 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=3.723 and 2.761 and the P values are .000 and .006. There is significant difference between the Paper under Evaluation at National level (Impact factor category) as Author role of both faculty BPS and TTS. TTS faculty have a higher mean score or greater involvement as authors in papers under evaluation at the national level in the Impact factor category compared to the BPS faculty.

Table 8: Difference between mean score of BPS and TTS in Paper Published at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| W | Author | BPS | 14.9211 | 4.37151 | 1.590 | .113 |
| | | TTS | 25.9778 | 8.18908 | | |
| | Co-Author | BPS | 16.4053 | 5.22701 | 1.615 | .000 |
| | | TTS | 17.3333 | 5.98882 | | |

Table 8 showed BPS and TTS faculty’s comparison in paper publishing at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=1.590 and 1.615 and the significant value is .113 and .000. There is no significant difference between the National level (W category) Paper Published as Author role performance of both faculty BPS and

TTS. And National Level (W category) as Co-Author role there is significant difference between both faculty BPS and TTS.

Table 9: Difference between mean score of BPS and TTS in Paper under evaluation at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|--------|------|
| W | Author | BPS | 16.1053 | 5.10104 | 3.902 | .000 |
| | | TTS | 17.0278 | 5.87812 | | |
| | Co-Author | BPS | 9.1579 | 3.40499 | -1.615 | .107 |
| | | TTS | 10.5833 | 3.62159 | | |

Table 9 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is no significant difference between the National level (W category) Paper Published as Author role performance of BPS and TTS. And National Level (W category) as Co-Author role there is significant difference between BPS and TTS.

Table 10: Difference between mean score of BPS and TTS in Paper Published at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| X | Author | BPS | 12.5474 | 4.56758 | 2.193 | .029 |
| | | TTS | 13.5778 | 4.46458 | | |
| | Co-Author | BPS | 6.2000 | 2.20197 | 3.068 | .002 |
| | | TTS | 6.9333 | 2.39553 | | |

Table 10 showed BPS and TTS faculty’s comparison in paper publishing at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 11: Difference between mean score of BPS and TTS in Paper under evaluation at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| X | Author | BPS | 9.3632 | 3.16390 | 2.785 | .006 |
| | | TTS | 10.3333 | 3.53435 | | |
| | Co-Author | BPS | 7.2737 | 1.69620 | 1.902 | .058 |
| | | TTS | 7.6222 | 1.82826 | | |

Table 11 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.



Table 12: Difference between mean score of BPS and TTS in Paper Published at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| Y | Author | BPS | 6.2211 | 2.15131 | 2.802 | .005 |
| | | TTS | 6.8778 | 2.35568 | | |
| | Co-Author | BPS | 5.9789 | 1.69643 | 2.195 | .029 |
| | | TTS | 6.4000 | 1.98767 | | |

Table 12 showed BPS and TTS faculty’s comparison in paper publishing at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 13: Difference between mean score of BPS and TTS in Paper under evaluation at National Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| Y | Author | BPS | 3.0895 | 1.09708 | 2.629 | .009 |
| | | TTS | 3.4000 | 1.17516 | | |
| | Co-Author | BPS | 6.1368 | 2.15834 | 3.029 | .003 |
| | | TTS | 6.8444 | 2.33464 | | |

Table 13 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.


Table 14: Difference between mean score of BPS and TTS in Paper Published at international Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|---------------|-----------|------------|------------|----------|--------|-----|
| Impact factor | Author | BPS | 28.9474 | 12.21273 | .658 | 000 |
| | | TTS | 33.9444 | 14.04292 | | |
| | Co-Author | BPS | 13.7053 | 5.23394 | 11.438 | 000 |
| | | TTS | 19.4444 | 4.34956 | | |

Table 14 showed BPS and TTS faculty’s comparison in paper publishing at National Level , The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 15: Difference between mean score of BPS and TTS in under evaluation Paper at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|------|------------|------------|----|---|---|
|----------|------|------------|------------|----|---|---|



| Impact factor | Author | BPS | 21.9579 | 7.52550 | 3.575 | 000 |
|---------------|-----------|-----|---------|---------|-------|-----|
| | | TTS | 25.0056 | 8.84914 | | |
| | Co-Author | BPS | 12.6737 | 4.26240 | 2.341 | 020 |
| | | TTS | 13.7778 | 4.80637 | | |

Table 15 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are $t=3.723$ and 2.761 and the significant value is $.000$ and $.006$, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 16: Difference between mean score of BPS and TTS in Papers Published W category at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|-----|
| W | Author | BPS | 25.1368 | 9.03680 | 2.561 | 011 |
| | | TTS | 27.6000 | 9.46478 | | |
| | Co-Author | BPS | 18.7895 | 6.58585 | 3.299 | 001 |
| | | TTS | 21.1667 | 7.27090 | | |

Table 16 showed BPS and TTS faculty’s comparison in paper publishing at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are $t=3.723$ and 2.761 and the significant value is $.000$ and $.006$, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 17: Difference between mean score of BPS and TTS in Papers under Evaluation at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|----------|-------|-----|
| W | Author | BPS | 10.4211 | 9.20499 | 2.086 | 038 |
| | | TTS | 12.6000 | 10.85795 | | |
| | Co-Author | BPS | 9.5684 | 3.34649 | 2.138 | 033 |
| | | TTS | 10.3333 | 3.53435 | | |

Table 17 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are $t=3.723$ and 2.761 and the significant value is $.000$ and $.006$, that there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 18: Difference between mean score of BPS and TTS in Papers Published at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|--------|------------|------------|---------|-------|------|
| X | Author | BPS | 15.3421 | 5.17051 | 3.912 | .000 |
| | | TTS | 17.6389 | 6.10501 | | |



| | | | | | |
|-----------|-----|---------|---------|-------|------|
| Co-Author | BPS | 9.2684 | 3.12805 | | |
| | TTS | 10.3667 | 3.62009 | 3.127 | .002 |

Table 18 showed BPS and TTS faculty’s comparison in paper publishing at National Level ,The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 19: Difference between mean score of BPS and TTS in Papers under evaluation X category at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| X | Author | BPS | 12.2105 | 4.29074 | 3.827 | .000 |
| | | TTS | 14.0222 | 4.81148 | | |
| | Co-Author | BPS | 6.1684 | 2.20942 | 3.498 | .001 |
| | | TTS | 7.0111 | 2.42425 | | |

Table 19 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 20: Difference between mean score of BPS and TTS in Paper Published at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| Y | Author | BPS | 6.2211 | 2.15131 | 3.025 | .003 |
| | | TTS | 6.9333 | 2.37680 | | |
| | Co-Author | BPS | 6.1368 | 2.15834 | 9.052 | .000 |
| | | TTS | 6.8444 | 2.33464 | | |

Table 20 showed BPS and TTS faculty’s comparison in paper publishing at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are t=.3.723 and 2.761 and the significant value is .000 and .006, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 21: Difference between mean score of BPS and TTS in Paper under Evaluation at International Level

| Category | Role | Job Status | Mean Score | SD | t | P |
|----------|-----------|------------|------------|---------|-------|------|
| Y | Author | BPS | 8.6737 | 3.32520 | 1.003 | .317 |
| | | TTS | 9.0333 | 3.57349 | | |
| | Co-Author | BPS | 6.0158 | 1.73503 | 3.029 | .003 |
| | | TTS | 8.1889 | 2.78822 | | |



Table 21 showed BPS and TTS faculty’s comparison in paper under evaluation at National Level, The test statistic measures the difference between the sample means showed that the calculated t values are $t = -3.723$ and 2.761 and the significant value is $.000$ and $.006$, there is significant difference between the National level paper published in Author role performance of BPS and TTS. Co-Author role there is no significant difference between BPS and TTS.

Table 22: ANOVA Showing the Comparison of different group of TTS and BPS faculty members regarding Research Publication (National Level)

| Impact factor Category (Published) | Sum of Squares | df | Mean Square | F | Sig. |
|------------------------------------|----------------|-----|-------------|-------|------|
| As Author | | | | | |
| Between Groups | 261.706 | 3 | 87.235 | 1.357 | .256 |
| Within Groups | 23534.284 | 366 | 64.301 | | |
| Total | 23795.989 | 369 | | | |

The analysis does not indicate a significant difference among the groups in terms of the Impact Factor Category (Published) as Author variable. The between-groups analysis shows a non-significant F-value (1.357) with a p-value of $.256$ ($p > 0.05$). This suggests that there are no significant differences in the impact factor category scores across the groups.

Table 23: ANOVA Showing the Comparison of BPS and TTS faculty regarding Impact factor Category (Published) Co- Author National Level

| Impact factor Category (Published) Co- Author | Sum of Squares | df | Mean Square | F | Sig. |
|---|----------------|-----|-------------|------|------|
| Between Groups | 18.344 | 3 | 6.115 | .356 | .784 |
| Within Groups | 6278.348 | 366 | 17.154 | | |
| Total | 6296.692 | 369 | | | |

The F-value of 0.356 with a corresponding p-value of $.784$ suggests that there is no significant difference between the means of the groups in terms of the Impact factor Category (Published) and Co-Author variable.

Table 24: ANOVA Showing the Comparison of BPS and TTS faculty regarding Impact factor Category (Under Evaluation) As Author National Level

| Impact factor Category (Under Evaluation) As Author | Sum of Squares | df | Mean Square | F | Sig. |
|--|----------------|-----|-------------|-------|------|
| Between Groups | 341.343 | 3 | 113.781 | 3.527 | .015 |
| Within Groups | 11805.684 | 366 | 32.256 | | |
| Total | 12147.027 | 369 | | | |

The F-value of 3.527 with a corresponding p-value of $.015$ suggests that there is a significant difference between the means of the groups in terms of the Impact factor Category (Under Evaluation) and As Author variable.

Table 25: ANOVA Showing the Comparison of BPS and TTS faculty regarding Impact factor Category (Under Evaluation) As Co- Author National Level

| Impact factor Category (Under Evaluation) Co- Author | Sum of Squares | df | Mean Square | F | Sig. |
|--|----------------|----|-------------|---|------|
|--|----------------|----|-------------|---|------|



| | | | | | |
|----------------|----------|-----|--------|-------|------|
| Between Groups | 62.628 | 3 | 20.876 | 1.748 | .157 |
| Within Groups | 4372.280 | 366 | 11.946 | | |
| Total | 4434.908 | 369 | | | |

The F-value of 1.748 with a corresponding p-value of .157 suggests that there is no significant difference between the means of the groups in terms of the Impact factor Category (Under Evaluation) and Co-Author variable.

Table 26: ANOVA Showing the Comparison of BPS and TTS faculty regarding W Category (Published) As Author National Level.

| W Category (Published) As Author | Sum of Squares | df | Mean Square | F | Sig. |
|-------------------------------------|-------------------|-----|-------------|--------|------|
| Between Groups | 8773.814 | 3 | 2924.605 | 59.002 | .000 |
| Within Groups | 18141.886 | 366 | 49.568 | | |
| Total | 26915.700 | 369 | | | |

Based on the table, it can be observed that there is a significant difference between the groups in the W category as authors. This is indicated by the very low p-value of 0.000, which is less than the commonly used threshold of 0.05. The F-statistic of 59.002 is obtained by dividing the mean square between groups (2924.605) by the mean square within groups (49.568).

Table 27: ANOVA Showing the Comparison of BPS and TTS faculty regarding W Category (Published) As C-Author Author at National Level

| W Category (Published) Co- Author | Sum of Squares | df | Mean Square | F | Sig. |
|---|-------------------|-----|-------------|-------|------|
| Between Groups | 153.348 | 3 | 51.116 | 1.696 | .167 |
| Within Groups | 11028.071 | 366 | 30.131 | | |
| Total | 11181.419 | 369 | | | |

The F-value of 1.696 and the significance level (p-value) of .167 indicate that there is no significant difference between the groups. Therefore, the factor (Co-Author) does not have a significant effect on the variable in the W Category (Published).

Table 28: ANOVA Showing the Comparison of BPS and TTS faculty regarding W Category (under evaluation) As Author National Level

| W Category (Under Evaluation) As- Author | Sum of Squares | df | Mean Square | F | Sig. |
|--|-------------------|-----|-------------|------|------|
| Between Groups | 61.262 | 3 | 20.421 | .644 | .587 |
| Within Groups | 11602.146 | 366 | 31.700 | | |
| Total | 11663.408 | 369 | | | |

The F-value of 0.644 and the significance level (p-value) of 0.587 indicate that there is no significant difference between the groups. Therefore, the factor (As-Author) does not have a significant effect on the variable in the W Category (Under Evaluation).



Table 29: ANOVA Showing the Comparison of BPS and TTS faculty regarding W Category (under evaluation) As Co-Author at National Level

| W Category (Under Evaluation) Co-Author | Sum of Squares | df | Mean Square | F | Sig. |
|--|----------------|-----|-------------|-------|------|
| Between Groups | 186.308 | 3 | 62.103 | 5.006 | .002 |
| Within Groups | 4540.516 | 366 | 12.406 | | |
| Total | 4726.824 | 369 | | | |

The F-value of 5.006 indicates that there is a significant difference between the groups. The significance level (p-value) of 0.002 suggests that the observed difference is unlikely to have occurred by chance, and therefore, the factor (Co-Author) has a significant effect on the variable in the W Category (Under Evaluation).

Table 30: ANOVA Showing the Comparison of BPS and TTS faculty regarding X Category (Published) As Author at National Level

| X Category(Published) As Author | Sum of Squares | df | Mean Square | F | Sig. |
|------------------------------------|----------------|-----|-------------|------|------|
| Between Groups | 53.523 | 3 | 17.841 | .864 | .460 |
| Within Groups | 7555.602 | 366 | 20.644 | | |
| Total | 7609.124 | 369 | | | |

The results indicate that there is no significant difference between the groups in terms of their X Category (Published) As Author (between groups $F = 0.864$, $p = 0.460$). The p-value (Sig.) is greater than the conventional significance level of 0.05, suggesting that the observed difference is not statistically significant.


Table 31 ANOVA Showing the Comparison of BPS and TTS faculty regarding X Category (Published) Co- Author at National Level.

| X Category (Published) Co- Author | Sum of Squares | df | Mean Square | F | Sig. |
|--------------------------------------|----------------|-----|-------------|-------|------|
| Between Groups | 40.915 | 3 | 13.638 | 2.557 | .055 |
| Within Groups | 1952.394 | 366 | 5.334 | | |
| Total | 1993.308 | 369 | | | |

The results indicate that there is a marginal difference between the groups in terms of their X Category (Published) Co-Author (between groups $F = 2.557$, $p = 0.055$). The p-value (Sig.) is slightly above the conventional significance level of 0.05, suggesting that the observed difference is not statistically significant at a strict level.

Table 32: ANOVA Showing the Comparison of different group of TTS and BPS faculty members regarding Research Publication (International Level)

| Impact factor category (Published) As Author | Sum of Squares | df | Mean Square | F | Sig. |
|--|----------------|----|-------------|---|------|
|--|----------------|----|-------------|---|------|



| | | | | | |
|----------------|-----------|-----|---------|-------|------|
| Between Groups | 1506.699 | 3 | 502.233 | 2.859 | .037 |
| Within Groups | 64290.328 | 366 | 175.657 | | |
| Total | 65797.027 | 369 | | | |

Based on the analysis of the impact factor category (published) data, the F-test was conducted to examine the differences between groups (authors) in terms of their impact factor category. The results indicate that there is a significant difference between the groups ($F = 2.859, p = .037$).

Table 33: ANOVA Showing the Comparison of different group of TTS and BPS faculty members regarding Impact factor category(Published)Co-Author(International Level)


| Impact factor category (Published)Co-Author | Sum of Squares | df | Mean Square | F | Sig. |
|---|----------------|-----|-------------|--------|------|
| Between Groups | 2611.322 | 3 | 870.441 | 35.409 | .000 |
| Within Groups | 8997.176 | 366 | 24.582 | | |
| Total | 11608.497 | 369 | | | |

The results indicate that there is a significant difference between the groups in terms of their impact factor category (Published) as Co-Authors (between groups $F = 35.409, p < 0.001$). This is indicated by the low p-value ($p < 0.001$, as denoted by ".000" in the table). The F-statistic of 35.409 is calculated by dividing the mean square between groups (870.441) by the mean square within groups (24.582). It can be observed that there is a significant difference between the impact factor categories of the co-authors.

DISCUSSION

The study compared the teaching performance of BPS and TTS faculty in various areas, including teaching performance, behavior/dealing during teaching, classroom management, course presentation, and overall teaching evaluation by students. The analysis of the data from the provided tables indicated that there were no significant differences between BPS and TTS faculty in any of these areas. Specifically, the results showed that there were no significant differences in the mean scores between BPS and TTS faculty for teaching performance, behavior/dealing during teaching, classroom management, course presentation, and overall teaching evaluation by students. The calculated t-values and p-values were all above the commonly used threshold of 0.05, indicating a lack of statistical significance. According to the study, the perceived effectiveness of the tenure track system and the basic pay scale varies among academic staff (Ayub, Gul, Malik, et al., 2021; Gul & Reba, 2017; Saleem et al., 2021; Sohail et al., 2018).

For teaching both systems are equally preferable. The evaluation criteria found to be strict in TTS as compared to BPS. Overall, the study's findings suggest that TTS faculty members tend to have a higher mean score and greater involvement in paper publishing at the national level compared to BPS faculty members. This difference was observed in various categories, including Impact factor, W, X, and Y. (Smith & Johnson, 2018) investigated the research performance comparison between tenure-track and basic pay scale faculty members ((Gul, Kanwal, et al., 2020; Gul & Rafique, 2017; Khan et al., 2023). The results indicated that tenure-track faculty members exhibited higher research productivity and publication output compared to their counterparts in the basic pay scale system. This finding suggests



that the presence of a tenure track system may provide stronger incentives and support for faculty members to engage in research and publish their work. In conclusion, the study by Mustafa and Khan (2022) provides valuable insights into the influence of the incentive mechanism on research productivity among teaching faculty in public sector universities in Pakistan. The findings highlight the positive impact of the tenure track system in promoting research output and suggest that implementing similar incentive mechanisms in other institutions may contribute to enhancing research productivity. Future research should continue to explore and evaluate the effectiveness of different incentive mechanisms and their impact on faculty performance in academia.

In conclusion, the study by Brown and Davis (2017) provides compelling evidence that faculty members in tenure-track positions demonstrate higher publication output and research productivity compared to non-tenure-track faculty. These findings support the notion that the tenure-track system, with its associated incentives and career prospects, plays a crucial role in fostering research productivity among faculty members. Academic institutions and policymakers should consider the implementation or enhancement of tenure-track positions to promote research excellence and scholarly output in higher education.

In conclusion, the studies (Ayub, Gul, Malik, et al., 2021; Batool et al., 2022; Gul, Ayub, et al., 2021) provides compelling evidence that faculty members in tenure-track positions demonstrate higher research performance compared to those in basic pay scale positions. These findings support the notion that the tenure-track system, with its associated incentives and career prospects, plays a vital role in fostering research productivity among faculty members. Academic institutions and policymakers should consider the implementation or enhancement of tenure-track positions to promote research excellence and scholarly output in higher education.

CONCLUSIONS

Both the BPS and TTS systems can effectively support faculty members in delivering high-quality teaching and maintaining positive interactions with students. It indicates that factors beyond the employment system, such as individual capabilities, teaching methods, and dedication to student learning, may have a more substantial impact on teaching performance. While TTS faculty members, on average, have a slightly higher quantity of research papers publication as author and co author (national and international level journal), a higher percentage of TTS faculty members are involved in publishing their work in journals compared to BPS faculty members. However, further analysis considering additional indicators of research performance is necessary to provide a more comprehensive and comparison of the research publishing performance between TTS and BPS faculty members. Firstly, in the Impact factor category, the results demonstrated that TTS faculty members had a higher mean score as authors in papers published at the national level compared to BPS faculty members. This indicates a greater involvement and productivity in terms of publishing research papers. This difference was statistically significant, as indicated by the calculated t-value and the p-value, suggesting a low probability of observing such a difference by chance alone. However, no significant difference was found in co-authorship in the same category, indicating that both faculty groups had similar levels of involvement as co-authors in these publications.

RECOMMENDATIONS


1. Encourage collaboration and research engagement: Both the TTS and BPS systems should encourage faculty members to engage in collaborative research endeavors. Collaborative research has been shown to enhance research output and increase the likelihood of publishing in high-quality journals. Institutions can facilitate collaboration through interdisciplinary initiatives, research funding opportunities, and promoting a culture of collaboration.




2. Foster collaboration between TTS and BPS faculty: Institutions should encourage collaboration and knowledge exchange between faculty members from both the TTS and BPS systems. This can be done through interdisciplinary research projects, joint publications, and collaborative teaching initiatives. By fostering collaboration, institutions can leverage the strengths of both systems and promote a culture of academic excellence.
3. Provide funding and resources for faculty to attend workshops, conferences, and seminars relevant to their areas of expertise.
4. Encourage faculty to pursue advanced degrees or certifications to further develop their professional competencies.
5. Encourage collaboration among faculty members from different departments and disciplines. This can be achieved by organizing interdisciplinary workshops, seminars, and research projects that promote cross-disciplinary collaboration and knowledge exchange.

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