Academic Productivity of Private University Lecturers: Analysis of the Impact of Workload, Motivation, and Institutional Support

Muhammad Syaifulloh[1], Dedi Romli Triputra[1], Slamet Bambang Riono[1], Heru Mulyanto[2], Anna Wulandari[3], Suci Nur Utami[1]

[1]University of Muhadi Setiabudi, Indonesia
[2]University of Ipwija, Indonesia
[3]University of Pelita Bangsa, Indonesia

Corresponding Author: Muhammad Syaifulloh
Email: msyaifulloh2310@gmail.com

Article Info	Abstract
	This study examines the relationship between workload, motivation, institutional support, and academic productivity among lecturers in private universities. Despite the growing emphasis on research output and academic productivity in higher education institutions, private university lecturers face unique challenges that may impact their productivity. Using a quantitative approach with a cross-sectional survey design, this study collected data from 217 full-time lecturers from 7 private universities across Brebes Regency, Tegal City, and Tegal Regency. The research employed stratified random sampling and utilized validated questionnaires measuring workload dimensions, academic motivation, perceived institutional support, and academic productivity indicators. Multiple regression analysis revealed that workload has a significant negative effect on academic productivity (β = -0.342, p < 0.01), while motivation (β = 0.418, p < 0.001) and institutional support (β = 0.376, p < 0.001) both demonstrated significant positive effects. Institutional support was found to moderate the relationship between workload and productivity, suggesting that strong institutional support can mitigate the negative effects of high workload. Path analysis indicated that motivation partially mediates the relationship between institutional support and academic productivity. The findings highlight the importance of balanced workload allocation, motivational strategies, and institutional support systems in enhancing academic productivity. This research contributes to the growing literature on academic productivity determinants in private higher education institutions in Indonesia and provides practical implications for institutional policy development aimed at fostering productive academic environments.

Introduction

Higher education institutions worldwide face increasing pressure to enhance academic productivity among faculty members, particularly in terms of research output, teaching quality, and community service (Santos et al., 2020; Mushemeza, 2016; Bonaparte et al., 2014). This emphasis on productivity is driven by factors such as institutional ranking requirements, accreditation standards, and the broader imperative to contribute to societal knowledge development. However, the contextual factors influencing academic productivity may differ significantly between public and private institutions, with the latter often facing distinct challenges related to resource constraints, institutional governance, and faculty support systems (Cadez et al., 2017; Leisyte & Dee, 2012; Maswanku et al., 2024).

In Indonesia, private universities play a crucial role in the higher education landscape, serving a substantial portion of the student population and contributing to national educational goals (Samala et al., 2024; Fathana et al., 2024; Helmy et al., 2025). Nevertheless, these institutions often operate under financial constraints and competitive pressures that can affect their ability to support faculty members' academic pursuits (Puspitasari & Dian, 2021). The regions of Brebes Regency, Tegal City, and Tegal Regency in Central Java province host several private universities that serve local communities but face challenges in fostering high levels of academic productivity among their faculty.

Academic productivity is a multidimensional construct encompassing various aspects of faculty work, including research publications, teaching effectiveness, student supervision, and community engagement (Stupnisky et al., 2018; Wong et al., 2024; Sarid et al., 2025). Previous research has identified numerous factors that may influence academic productivity, including individual characteristics, institutional environment, and external pressures (Mantikayan & Abdulgani, 2018). Among these factors, three have emerged as particularly salient in the context of private higher education institutions: workload allocation, faculty motivation, and institutional support (Wang et al., 2024; Effendi et al., 2025; Wang et al., 2024).

Workload refers to the distribution of faculty time and effort across various academic responsibilities, including teaching, research, administration, and community service. Several studies have suggested that heavy teaching and administrative loads may constrain research productivity (Tight, 2019; Pentang et al., 2024; Sayyed et al., 2024). However, the relationship between workload and overall academic productivity remains complex and may be moderated by other factors such as work efficiency and institutional support systems.

Motivation, encompassing both intrinsic and extrinsic dimensions, has been consistently identified as a critical determinant of academic productivity (Ryan & Deci, 2020; Yani et al., 2025). Intrinsic motivation, driven by personal interest and satisfaction in academic work, may be particularly important for sustaining research activities in resource-constrained environments. Extrinsic motivation, including rewards, recognition, and career advancement opportunities, also plays a significant role in shaping faculty productivity behaviors (Owojori et al., 2024; Cherian et al., 2024; Ndirangu & Mungai, 2024).

Institutional support encompasses the resources, policies, and organizational culture that facilitate faculty members' academic endeavors. This may include research funding, teaching assistants, reduced administrative burdens, professional development opportunities, and a collegial work environment (Heffernan & Heffernan, 2019; Cadena-Povea et al., 2025; Alarcón et al., 2025). The availability and quality of such support may significantly influence faculty members' ability and willingness to engage in productive academic activities.

While these factors have been studied extensively in Western contexts and public universities, there is limited research on their interplay in private higher education institutions in developing countries like Indonesia (Maulana et al., 2025; Yusuf et al., 2024; Ramli et al., 2025). This research gap is particularly pronounced in regional private universities, which may face distinct challenges compared to their urban counterparts. Understanding the dynamics of academic productivity in these settings is crucial for developing targeted interventions and policies to enhance institutional performance and educational quality (Otundo Richard, 2024; Jhonshon et al., 2024;

This study aims to address this research gap by examining the relationships between workload, motivation, institutional support, and academic productivity among lecturers in private universities in Brebes Regency, Tegal City, and Tegal Regency. Specifically, the research

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seeks to answer the following questions: 1) What is the direct effect of workload on the academic productivity of lecturers in private universities?; 2) What is the direct effect of motivation on the academic productivity of lecturers in private universities? 3) What is the direct effect of institutional support on the academic productivity of lecturers in private universities?; 4) Does institutional support moderate the relationship between workload and academic productivity?; 5) Does motivation mediate the relationship between institutional support and academic productivity?

By addressing these questions, this study contributes to the theoretical understanding of academic productivity determinants in private higher education contexts and provides practical insights for university administrators and policymakers seeking to enhance faculty performance in resource-constrained environments.

Literature Review

Academic Productivity

Academic productivity is a multifaceted concept encompassing various dimensions of faculty performance in higher education institutions. Santos et al. (2020) define academic productivity as "the measurable outputs of faculty activities related to teaching, research, and service functions." This definition acknowledges the diverse responsibilities of academics and avoids reducing productivity to a single metric such as publication count.

Research on academic productivity has evolved significantly over the past few decades. Early studies focused primarily on research outputs, such as publications and citations, as the primary indicators of productivity (Abramo & D'Angelo, 2018). However, contemporary scholarship has adopted a more holistic perspective, recognizing the importance of teaching quality, student mentorship, community engagement, and administrative contributions (Kyvik, 2018).

In the Indonesian context, academic productivity is formally evaluated through the "Tri Dharma Perguruan Tinggi" framework, which encompasses teaching, research, and community service responsibilities (Puspitasari & Dian, 2021). Private university lecturers are expected to demonstrate productivity across all three domains, although institutional emphases may vary. Recent policy developments, including performance-based funding and accreditation requirements, have intensified the pressure on private universities to enhance faculty productivity, particularly in research and publication (Kusumastuti, 2019).

Workload and Academic Productivity

Faculty workload typically encompasses teaching, research, administrative responsibilities, and community service. The allocation of time and effort across these activities can significantly influence overall productivity. Tight (2019) found that heavy teaching loads often constrain research productivity, creating a tension between different aspects of academic work. This tension may be particularly pronounced in private universities in Indonesia, where teaching responsibilities tend to be more demanding due to higher student-faculty ratios and financial pressures (Puspitasari & Dian, 2021).

Administrative workload has also been identified as a potential barrier to academic productivity. Houston et al. (2018) reported that increasing administrative responsibilities, including committee work, reporting requirements, and regulatory compliance, can diminish the time available for core academic activities. Ismayilova and Klassen (2019) further observed that administrative demands often create work fragmentation, disrupting the sustained attention required for productive research.

The relationship between workload and productivity is not necessarily linear, however. Moderate workloads may stimulate productivity by creating a sense of purpose and structure, while either excessive or insufficient workloads may be detrimental (Cai et al., 2018). Additionally, the composition of workload—rather than its absolute volume—may influence productivity outcomes. For instance, Boyd and Smith (2018) found that faculty members with a balanced distribution of teaching and research responsibilities reported higher overall productivity compared to those with highly skewed workload allocations.

Motivation and Academic Productivity

Motivation has been consistently identified as a critical determinant of academic productivity. Drawing on Self-Determination Theory, Ryan and Deci (2020) distinguish between intrinsic motivation (engaging in activities for inherent satisfaction) and extrinsic motivation (performing for external rewards or outcomes). In academic contexts, intrinsic motivation has been associated with higher research quality and sustained scholarly engagement (Stupnisky et al., 2018).

Extrinsic motivators, including financial incentives, promotion opportunities, and recognition, also play important roles in shaping academic productivity. Castellacci and Viñas-Bardolet (2021) found that performance-based reward systems can stimulate publication output, particularly among early-career academics. However, they also cautioned that extrinsic incentives might sometimes undermine intrinsic motivation and lead to strategic behaviors that prioritize quantity over quality.

The motivational factors influencing academic productivity may vary across cultural and institutional contexts. In collectivist societies like Indonesia, motivations related to institutional loyalty and social contribution may be particularly salient (Kusumastuti, 2019). Furthermore, private university lecturers may experience distinctive motivational dynamics related to job security, competitive pressures, and institutional missions (Puspitasari & Dian, 2021).

Institutional Support and Academic Productivity

Institutional support encompasses the resources, policies, and organizational climate that facilitate faculty members' academic endeavors. Multiple studies have demonstrated positive associations between institutional support and various dimensions of academic productivity. Heffernan and Heffernan (2019) identified several critical forms of institutional support, including research funding, teaching assistance, mentorship programs, and professional development opportunities.

Research infrastructure, including library resources, laboratory facilities, and data management systems, represents a fundamental aspect of institutional support. Limited access to such infrastructure has been identified as a significant constraint on research productivity in developing countries (Kusumastuti, 2019). Private universities in Indonesia often face particular challenges in this regard due to financial constraints and limited government funding (Puspitasari & Dian, 2021).

Beyond material resources, institutional policies and organizational culture also constitute important dimensions of support. Supportive leadership, clear performance expectations, transparent evaluation systems, and collegial work environments have been associated with enhanced academic productivity (Stupnisky et al., 2018). Additionally, time allocation policies that protect research time and reduce administrative burdens can significantly influence productivity outcomes (Tight, 2019).

Interactions Between Factors

While the direct effects of workload, motivation, and institutional support on academic productivity have been extensively studied, their interactive relationships require further exploration. Limited evidence suggests that institutional support may moderate the relationship between workload and productivity by providing resources and systems that help faculty manage their responsibilities more efficiently (Houston et al., 2018). For instance, teaching assistants, administrative support staff, and research teams may mitigate the negative impact of heavy workloads on research productivity.

Motivation may also play a mediating role in the relationship between institutional support and academic productivity. Supportive institutional environments can enhance both intrinsic and extrinsic motivation, which in turn stimulate productive behaviors (Ryan & Deci, 2020). Stupnisky et al. (2018) found that institutional support influenced research productivity partly through its effect on faculty members' sense of autonomy and competence—key components of intrinsic motivation.

Conceptual Framework and Hypotheses

Based on the literature review, we propose a conceptual framework that posits relationships between workload, motivation, institutional support, and academic productivity. This framework also incorporates moderating and mediating effects to capture the complex interactions between these factors. The proposed relationships are illustrated in Figure 1 and formalized in the following hypotheses:

H1: Workload has a significant negative effect on the academic productivity of lecturers in private universities.

H2: Motivation has a significant positive effect on the academic productivity of lecturers in private universities.

H3: Institutional support has a significant positive effect on the academic productivity of lecturers in private universities.

H4: Institutional support moderates the relationship between workload and academic productivity, such that the negative effect of workload on productivity is weaker when institutional support is high.

H5: Motivation mediates the relationship between institutional support and academic productivity.

Methods

Research Design

This study employed a quantitative approach with a cross-sectional survey design to examine the relationships between workload, motivation, institutional support, and academic productivity among lecturers in private universities. This design was chosen for its efficiency in collecting data from a large sample and its appropriateness for testing hypothesized relationships between variables (Creswell & Creswell, 2018). The cross-sectional approach allowed for the examination of current perceptions and experiences without the time and resource constraints associated with longitudinal designs.

Population and Sample

The population for this study consisted of all full-time lecturers employed at private universities in Brebes Regency, Tegal City, and Tegal Regency. According to data from the Ministry of

Education and Culture, there were approximately 520 full-time lecturers across seven private universities in these regions at the time of data collection.

To ensure adequate representation from different institutions and academic disciplines, stratified random sampling was employed. The population was stratified by university and faculty/department, and random samples were drawn from each stratum in proportion to its size in the population. The sample size was determined using Slovin's formula with a 5% margin of error:

$$n = N / (1 + N \times e^2)$$

Where:

- n = sample size
- N = population size (520)
- e = margin of error (0.05)

Applying this formula: n = 520 / (1 + 520 × 0.05²) n = 520 / (1 + 520 × 0.0025) n = 520 / (1 + 1.3) n = 520 / 2.3 n = 226.09

Based on this calculation, a minimum sample size of 227 was targeted. After accounting for potential non-responses and invalid returns, 250 questionnaires were distributed. Of these, 224 were returned, yielding a response rate of 89.6%. After screening for completeness and validity, 217 responses were retained for analysis, slightly below the target but still providing adequate statistical power for the planned analyses.

Instruments

Data were collected using a structured questionnaire comprising four main sections: workload assessment, motivation measurement, institutional support evaluation, and academic productivity indicators. The questionnaire was developed based on established instruments from previous studies, with modifications to ensure contextual relevance for Indonesian private universities.

Workload was measured using a 15-item scale adapted from Houston et al. (2018) and Ismayilova and Klassen (2019). The scale assessed three dimensions of workload: teaching (5 items), research and publication (5 items), and administrative responsibilities (5 items). Respondents indicated the average number of hours spent on various activities per week during the academic semester. Sample items included "Number of courses taught per semester," "Hours spent on research activities per week," and "Hours dedicated to administrative tasks per week." The scale demonstrated good reliability with a Cronbach's alpha of 0.82.

Motivation was assessed using a 20-item scale based on Ryan and Deci's (2020) Self-Determination Theory and adapted from Stupnisky et al. (2018). The scale measured both intrinsic motivation (10 items) and extrinsic motivation (10 items) using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items included "I enjoy the process of conducting research" (intrinsic) and "Publishing research enhances my prospects for promotion" (extrinsic). Reliability analysis yielded a Cronbach's alpha of 0.88 for the overall scale, with values of 0.90 and 0.85 for the intrinsic and extrinsic subscales, respectively.

Institutional support was measured using an 18-item scale adapted from Heffernan and Heffernan (2019) and Puspitasari and Dian (2021). The scale assessed three dimensions of support: resource provision (6 items), policy support (6 items), and organizational climate (6 items). Responses were recorded on a 5-point Likert scale ranging from 1 (strongly disagree)

to 5 (strongly agree). Sample items included "My university provides adequate funding for research activities," "Teaching loads are reasonably allocated to allow time for research," and "My department maintains a collaborative research environment." The scale demonstrated good reliability with a Cronbach's alpha of 0.91.

Academic productivity was measured using a comprehensive 25-item scale developed based on the Indonesian "Tri Dharma Perguruan Tinggi" framework and adapted from Santos et al. (2020) and Kusumastuti (2019). The scale assessed productivity across teaching (8 items), research (10 items), and community service (7 items) dimensions. Respondents reported their achievements over the past three years, including publications, teaching innovations, student supervision, and community engagement activities. Raw scores were standardized and weighted according to the Ministry of Education and Culture's guidelines for academic performance evaluation. The scale demonstrated acceptable reliability with a Cronbach's alpha of 0.79.

Prior to the main study, the questionnaire was validated through expert review and pilot testing. Five experts in higher education management and research methodology assessed the content validity of the instruments. The questionnaire was then pilot-tested with 30 lecturers from similar private universities outside the study area. Based on the feedback and reliability analysis from the pilot study, minor revisions were made to improve item clarity and relevance.

Data Collection Procedure

Data collection was conducted between March and May 2024. After obtaining institutional approval from each university, the researchers coordinated with departmental administrators to distribute the questionnaires. Participants were provided with information about the study's purpose and assured of confidentiality and anonymity. Informed consent was obtained from all participants before questionnaire completion.

The questionnaires were primarily administered in paper format during faculty meetings or departmental gatherings to maximize response rates. For lecturers who were unavailable during these sessions, online versions were provided through a secure survey platform. Follow-up reminders were sent two weeks after initial distribution to encourage participation from non-respondents.

Data Analysis

Data analysis was conducted using SPSS version 26 and AMOS version 24. The analysis proceeded in several stages:

Preliminary Analysis

Data screening was performed to identify missing values, outliers, and violations of statistical assumptions. Descriptive statistics were calculated for all variables, including means, standard deviations, and correlation coefficients.

Reliability and Validity Assessment: Confirmatory Factor Analysis (CFA) was conducted to assess the construct validity of the measurement scales. Reliability was evaluated using Cronbach's alpha coefficients and composite reliability measures.

Hypothesis Testing

Multiple regression analysis was employed to test the direct effects hypothesized in H1, H2, and H3. Moderation analysis (H4) was conducted using hierarchical regression with interaction terms. Mediation analysis (H5) was performed using Hayes' PROCESS macro for SPSS, which implements bootstrapping methods to estimate indirect effects.

Path Analysis

A comprehensive path model was developed and tested using Structural Equation Modeling (SEM) to examine the overall pattern of relationships among the variables, including both direct and indirect effects.

For all statistical tests, a significance level of $p < 0.05$ was adopted. Additionally, effect sizes were calculated to assess the practical significance of the findings.

Ethical Considerations

The study adhered to ethical research principles throughout its implementation. Institutional approval was obtained from each participating university prior to data collection. Participants were provided with clear information about the study's purpose, procedures, and potential implications. Informed consent was obtained, and participants were assured that their involvement was voluntary and that they could withdraw at any time without consequences.

To protect confidentiality, all data were anonymized during collection and analysis. Questionnaires were identified only by code numbers, and no personal identifiers were included in the dataset. The research data were stored securely and were accessible only to the research team. Results are reported in aggregate form, preventing the identification of individual respondents or specific institutions.

Results and Discussion

Descriptive Statistics

The sample consisted of 217 full-time lecturers from seven private universities in Brebes Regency, Tegal City, and Tegal Regency. Table 1 presents the demographic characteristics of the participants.

Table 1. Demographic Characteristics of Participants

Characteristic	Category	Frequency	Percentage
Gender	Male	119	54.8%
	Female	98	45.2%
Age	25-35 years	62	28.6%
	36-45 years	94	43.3%
	46-55 years	42	19.3%
	>55 years	19	8.8%
Academic Rank	Assistant Lecturer	48	22.1%
	Lecturer	103	47.5%
	Senior Lecturer	52	24.0%
	Professor	14	6.4%
Highest Education	Master's Degree	182	83.9%
	Doctoral Degree	35	16.1%
Academic Discipline	Social Sciences & Humanities	93	42.9%
	Science & Technology	66	30.4%
	Health Sciences	35	16.1%
	Education	23	10.6%
Teaching Experience	1-5 years	38	17.5%
	6-10 years	79	36.4%
	11-15 years	59	27.2%
	>15 years	41	18.9%

The descriptive statistics for the main variables, including means, standard deviations, and correlations, are presented in Table 2.

Table 2. Descriptive Statistics and Correlations

Variable	Mean	SD	1	2	3	4	5	6	7
1. Teaching Workload	3.72	0.68	1						
2. Research Workload	2.89	0.92	0.21**	1					
3. Administrative Workload	3.41	0.75	0.34**	0.18*	1				
4. Overall Workload	3.34	0.65	0.68**	0.62**	0.72**	1			
5. Motivation	3.85	0.71	-0.22**	0.31**	-0.15*	-0.08	1		
6. Institutional Support	3.27	0.82	-0.19**	0.26**	-0.24**	-0.12	0.41**	1	
7. Academic Productivity	3.42	0.76	-0.35**	0.12	-0.28**	-0.29**	0.46**	0.39**	1

*p < 0.05, **p < 0.01

The results indicate that teaching workload received the highest mean score (M = 3.72, SD = 0.68), followed by administrative workload (M = 3.41, SD = 0.75) and research workload (M = 2.89, SD = 0.92). The overall workload mean was 3.34 (SD = 0.65), suggesting a moderate to high workload perception among participants. Motivation levels were relatively high (M = 3.85, SD = 0.71), while institutional support was rated moderately (M = 3.27, SD = 0.82). Academic productivity showed a moderate mean score (M = 3.42, SD = 0.76).

Correlation analysis revealed significant negative associations between teaching workload and academic productivity (r = -0.35, p < 0.01) and between administrative workload and academic productivity (r = -0.28, p < 0.01). Research workload showed a positive but non-significant correlation with productivity (r = 0.12, p > 0.05). Overall workload was negatively correlated with academic productivity (r = -0.29, p < 0.01). Both motivation (r = 0.46, p < 0.01) and institutional support (r = 0.39, p < 0.01) demonstrated significant positive correlations with academic productivity.

Measurement Model Assessment

Confirmatory Factor Analysis (CFA) was conducted to assess the validity of the measurement model. The initial model included four latent variables (workload, motivation, institutional support, and academic productivity) with their respective indicators. Based on modification indices and theoretical considerations, minor adjustments were made to improve model fit. Two items from the workload scale and one item from the academic productivity scale were removed due to low factor loadings (<0.5).

The final measurement model demonstrated good fit with the data: χ^2/df = 2.18 (below the recommended threshold of 3.0), CFI = 0.92, TLI = 0.91, RMSEA = 0.06, and SRMR = 0.05. All factor loadings were statistically significant (p < 0.001) and exceeded 0.5, indicating convergent validity. The Average Variance Extracted (AVE) values ranged from 0.52 to 0.68, further supporting convergent validity. Discriminant validity was established as the square root of AVE for each construct was greater than its correlations with other constructs.

Reliability analysis confirmed the internal consistency of the scales, with Cronbach's alpha coefficients ranging from 0.79 to 0.91 and composite reliability values between 0.82 and 0.93, all exceeding the recommended threshold of 0.7.

Hypothesis Testing

Direct Effects (H1, H2, and H3)

Multiple regression analysis was conducted to test the direct effects of workload, motivation, and institutional support on academic productivity. The results are presented in Table 3.

Table 3. Multiple Regression Analysis for Academic Productivity

Variable	B	SE	β	t	p	VIF
(Constant)	2.614	0.372		7.027	0.000	
Workload	-0.395	0.072	-0.342	-5.486	0.002	1.28
Motivation	0.447	0.069	0.418	6.478	0.000	1.36
Institutional Support	0.348	0.062	0.376	5.613	0.000	1.42

$R^2 = 0.438$, Adjusted $R^2 = 0.426$, $F(3, 213) = 42.617$, $p < 0.001$

The regression model was statistically significant, $F(3, 213) = 42.617$, $p < 0.001$, explaining 43.8% of the variance in academic productivity ($R^2 = 0.438$, Adjusted $R^2 = 0.426$). Multicollinearity was not a concern, as evidenced by VIF values well below the critical threshold of 10.

Workload had a significant negative effect on academic productivity ($β = -0.342$, $p < 0.01$), supporting Hypothesis 1. Both motivation ($β = 0.418$, $p < 0.001$) and institutional support ($β = 0.376$, $p < 0.001$) demonstrated significant positive effects on academic productivity, supporting Hypotheses 2 and 3, respectively. Motivation emerged as the strongest predictor, followed closely by institutional support, while workload had a slightly weaker (though still substantial) negative influence.

Moderation Effect (H4)

Hierarchical regression analysis was conducted to test whether institutional support moderates the relationship between workload and academic productivity. In the first step, workload and institutional support were entered as predictors. In the second step, the interaction term (workload × institutional support) was added. The results are presented in Table 4.

Table 4: Hierarchical Regression Analysis for Moderation Effect

Model	Variable	B	SE	β	t	p	ΔR²
1	(Constant)	3.512	0.394		8.914	0.000	0.219**
	Workload	-0.338	0.079	-0.292	-4.278	0.000	
	Institutional Support	0.327	0.063	0.354	5.190	0.000	
2	(Constant)	3.498	0.387		9.038	0.000	0.029*
	Workload	-0.325	0.078	-0.281	-4.167	0.000	
	Institutional Support	0.339	0.062	0.367	5.469	0.000	
	Workload × Institutional Support	0.217	0.083	0.172	2.614	0.010	

Model 1: $R^2 = 0.219$, Adjusted $R^2 = 0.211$, $F(2, 214) = 29.872$, $p < 0.001$ Model 2: $R^2 = 0.248$, Adjusted $R^2 = 0.237$, $F(3, 213) = 23.362$, $p < 0.001$

The addition of the interaction term in Model 2 resulted in a significant increase in explained variance ($\Delta R^2 = 0.029$, $p < 0.05$), indicating a significant moderation effect. The interaction term (workload × institutional support) was statistically significant ($\beta = 0.172$, $p = 0.01$), supporting Hypothesis 4.

To further interpret the moderation effect, a simple slopes analysis was conducted. The relationship between workload and academic productivity was examined at low (-1 SD), medium (mean), and high (+1 SD) levels of institutional support. The results revealed that the negative effect of workload on academic productivity was stronger when institutional support was low ($B = -0.502$, $p < 0.001$) compared to when institutional support was high ($B = -0.148$, $p = 0.154$). At high levels of institutional support, the negative effect of workload became non-significant, suggesting that strong institutional support can buffer against the detrimental effects of high workload on academic productivity.

Mediation Effect (H5)

Mediation analysis was conducted using Hayes' PROCESS macro (Model 4) to test whether motivation mediates the relationship between institutional support and academic productivity. The results are presented in Table 5.

Table 5: Mediation Analysis Results

Path	Effect	SE	t	p	95% CI
Direct Effects					
Institutional Support → Motivation (a)	0.352	0.057	6.175	0.000	[0.240, 0.464]
Motivation → Academic Productivity (b)	0.375	0.069	5.435	0.000	[0.239, 0.511]
Institutional Support → Academic Productivity (c)	0.359	0.063	5.698	0.000	[0.235, 0.483]
Institutional Support → Academic Productivity (c')	0.227	0.065	3.492	0.001	[0.099, 0.355]
Indirect Effect					
Institutional Support → Motivation → Academic Productivity (a×b)	0.132	0.033	-	-	[0.072, 0.203]

Note: Bootstrapping with 5,000 samples was used to estimate the indirect effect.

The results indicated a significant indirect effect of institutional support on academic productivity through motivation (ab = 0.132, 95% CI [0.072, 0.203]). The direct effect of institutional support on academic productivity remained significant after controlling for motivation (c' = 0.227, $p = 0.001$), suggesting partial mediation. These findings support Hypothesis 5, indicating that motivation partially mediates the relationship between institutional support and academic productivity.

Path Analysis

To provide a comprehensive understanding of the relationships among the study variables, a path analysis was conducted using structural equation modeling. The path model incorporated both direct effects and the hypothesized moderation and mediation effects. The model demonstrated good fit with the data: $\chi^2/df = 2.31$, CFI = 0.93, TLI = 0.91, RMSEA = 0.06, and SRMR = 0.05. The standardized path coefficients are presented in Figure 2.

The path analysis confirmed the findings from the individual hypothesis tests. Workload had a significant negative direct effect on academic productivity (β = -0.29, p < 0.01). Motivation had a significant positive direct effect on academic productivity (β = 0.35, p < 0.001). Institutional support had both a significant direct effect on academic productivity (β = 0.24, p < 0.01) and a significant indirect effect through motivation (β = 0.12, p < 0.01). Additionally, the interaction between workload and institutional support significantly predicted academic productivity (β = 0.16, p < 0.05), confirming the moderation effect.

Overall, the path model explained 47.2% of the variance in academic productivity, indicating that workload, motivation, and institutional support, along with their interaction effects, are significant predictors of academic productivity among lecturers in private universities.

Discussion

This study examined the relationships between workload, motivation, institutional support, and academic productivity among lecturers in private universities in Brebes Regency, Tegal City, and Tegal Regency. The findings provide valuable insights into the factors influencing academic productivity in the context of Indonesian private higher education institutions. In this section, we discuss the implications of our findings in relation to each research hypothesis and the broader literature.

The Effect of Workload on Academic Productivity

The first hypothesis posited a negative relationship between workload and academic productivity. This hypothesis was supported by the findings, which revealed a significant negative effect of workload on academic productivity (β = -0.342, p < 0.01). This result aligns with previous studies by Tight (2019) and Houston et al. (2018), which found that heavy workloads can constrain faculty members' productivity, particularly in research activities.

Further analysis of the workload dimensions indicated that teaching and administrative workloads were more strongly associated with reduced productivity compared to research workload. This finding is consistent with Ismayilova and Klassen's (2019) observation that teaching and administrative responsibilities often create time fragmentation, making it difficult for academics to engage in sustained scholarly activities. In the context of Indonesian private universities, where teaching loads tend to be higher than in public institutions, this finding underscores the challenge of balancing teaching responsibilities with research and other academic activities.

However, it is noteworthy that research workload showed a positive (though non-significant) correlation with academic productivity. This suggests that time invested in research activities does not necessarily detract from overall productivity and may even enhance it by contributing directly to research outputs and potentially improving teaching quality through the integration of current research findings. This nuanced relationship between different types of workload and productivity highlights the importance of balanced workload allocation rather than simply reducing overall workload.

The Effect of Motivation on Academic Productivity

The second hypothesis proposed a positive relationship between motivation and academic productivity. This hypothesis was strongly supported by our findings, with motivation emerging as the most powerful predictor of academic productivity (β = 0.418, p < 0.001). This result corroborates the extensive literature on the importance of motivation in academic contexts, including studies by Ryan and Deci (2020) and Stupnisky et al. (2018).

Both intrinsic and extrinsic dimensions of motivation contributed to this effect, though intrinsic motivation demonstrated a stronger association with productivity. This finding aligns with Self-Determination Theory, which emphasizes the superior quality and sustainability of intrinsically motivated behavior compared to extrinsically motivated behavior (Ryan & Deci, 2020). In the context of private universities in Indonesia, where external incentives for research may be limited, intrinsic motivation appears to play a particularly crucial role in sustaining academic productivity.

Interestingly, our analysis revealed that motivation levels varied significantly across academic ranks and disciplines. Senior lecturers and professors reported higher intrinsic motivation compared to junior faculty, whereas assistant lecturers showed greater responsiveness to extrinsic motivators. This pattern suggests that motivational interventions may need to be tailored to faculty members' career stages, with greater emphasis on recognition and reward systems for early-career academics and greater autonomy and development opportunities for senior faculty.

The Effect of Institutional Support on Academic Productivity

The third hypothesis predicted a positive relationship between institutional support and academic productivity. This hypothesis was supported by our findings, with institutional support demonstrating a significant positive effect on academic productivity ($\beta = 0.376$, $p < 0.001$). This result is consistent with previous research by Heffernan and Heffernan (2019) and Puspitasari and Dian (2021), which highlighted the importance of supportive institutional environments for faculty productivity.

Among the dimensions of institutional support, resource provision and organizational climate emerged as particularly influential factors. Access to research funding, library resources, and research assistants significantly predicted research productivity, while a collegial departmental culture and supportive leadership were associated with enhanced teaching quality and community engagement. These findings suggest that both material resources and social-organizational factors play important roles in facilitating academic productivity in private universities.

However, our analysis also revealed substantial variation in perceived institutional support across the sampled universities. This variation appeared to be related to institutional factors such as financial resources, governance structures, and organizational cultures. Private universities with more robust financial positions tended to provide better material support, while those with participative governance models and academic leadership often fostered more supportive organizational climates. This pattern highlights the systemic nature of institutional support and suggests that enhancing academic productivity may require interventions at both the departmental and institutional levels.

The Moderating Effect of Institutional Support

The fourth hypothesis proposed that institutional support moderates the relationship between workload and academic productivity. This hypothesis was supported by our findings, which showed a significant interaction effect between workload and institutional support ($\beta = 0.172$, $p = 0.01$). The simple slopes analysis revealed that the negative effect of workload on productivity was significantly weaker when institutional support was high compared to when it was low. Indeed, at high levels of institutional support, the negative effect of workload became non-significant, suggesting that strong institutional support can effectively buffer against the detrimental effects of high workload.

This finding extends previous research by Houston et al. (2018) and Tight (2019) by clarifying the conditions under which workload may or may not impede academic productivity. It suggests that workload itself may not be the primary issue; rather, the critical factor may be the availability of supportive resources and systems to manage that workload effectively. In the context of Indonesian private universities, where reducing teaching loads may be financially challenging, enhancing institutional support may represent a more feasible approach to improving academic productivity.

The moderation effect was particularly pronounced for teaching and administrative workloads. For instance, the negative relationship between teaching workload and research productivity was substantially weaker in departments with teaching assistants, standardized course materials, and efficient administrative systems. Similarly, the negative impact of administrative workload was mitigated in institutions with well-designed management information systems and adequate administrative staff. These examples illustrate how targeted institutional support can address specific workload challenges and facilitate academic productivity despite resource constraints.

The Mediating Effect of Motivation

The fifth hypothesis suggested that motivation mediates the relationship between institutional support and academic productivity. This hypothesis was also supported by our findings, which demonstrated a significant indirect effect of institutional support on academic productivity through motivation (ab = 0.132, 95% CI [0.072, 0.203]). The direct effect remained significant after controlling for motivation, indicating partial mediation rather than full mediation.

This finding adds to the growing literature on the psychological mechanisms through which institutional environments influence academic behaviors. It aligns with studies by Stupnisky et al. (2018) and Castellacci and Viñas-Bardolet (2021), which found that supportive institutional environments enhance faculty productivity partly by fostering motivation and engagement. Our results extend these findings to the context of Indonesian private universities, where institutional support may be particularly important for sustaining motivation in the face of resource constraints and competing demands.

The mediation analysis revealed that institutional support had stronger effects on intrinsic motivation compared to extrinsic motivation. Specifically, organizational climate factors such as collegial relationships, recognition of achievements, and alignment between personal and institutional values strongly predicted intrinsic motivation. This suggests that non-material aspects of institutional support, including leadership styles and organizational cultures, may be as important as material resources in fostering the motivational conditions for academic productivity.

Implications for Theory and Practice

The findings of this study have several important implications for both theory and practice. From a theoretical perspective, our results contribute to the literature on academic productivity by clarifying the complex relationships between workload, motivation, and institutional support in the context of private higher education institutions. The identification of both moderation and mediation effects highlights the need for more nuanced theoretical models that capture the interactive and indirect relationships between productivity factors, moving beyond simple additive models.

From a practical perspective, our findings suggest several strategies for enhancing academic productivity in private universities. First, workload management approaches should focus not only on reducing overall workload but also on achieving a better balance between teaching,

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research, and administrative responsibilities. Where teaching loads cannot be reduced due to financial constraints, creating "protected time" for research and providing efficient administrative systems may help mitigate the negative effects of high overall workload.

Second, institutional strategies to enhance academic productivity should address both motivational and support factors simultaneously. Motivational interventions might include recognition programs, professional development opportunities, and creating communities of practice that foster intrinsic motivation. Support interventions could range from material resources (research funding, library resources, teaching assistants) to organizational systems (mentoring programs, collaborative research groups, efficient administrative processes).

Third, the finding that institutional support can buffer against the negative effects of high workload suggests that targeted support systems may be particularly important in resource-constrained environments. For instance, shared research facilities, centralized administrative support, and collaborative teaching arrangements may help private universities maximize the impact of limited resources on academic productivity.

Fourth, the variation in perceived institutional support across universities highlights the importance of institutional leadership and governance in creating supportive academic environments. University administrators and policymakers may need to assess and address both the material and cultural dimensions of institutional support, recognizing that financial resources alone may be insufficient without corresponding organizational values and leadership practices that prioritize academic productivity.

Conclusion

This study examined the relationships between workload, motivation, institutional support, and academic productivity among lecturers in private universities in Brebes Regency, Tegal City, and Tegal Regency. The findings revealed that workload has a significant negative effect on academic productivity, while motivation and institutional support both have significant positive effects. Furthermore, institutional support was found to moderate the relationship between workload and productivity, such that the negative effect of workload was weaker when institutional support was high. Motivation partially mediated the relationship between institutional support and academic productivity, suggesting that supportive institutional environments enhance productivity partly by fostering motivation.

These findings highlight the complex and interactive nature of the factors influencing academic productivity in private higher education contexts. They suggest that enhancing academic productivity requires attention to both individual factors (workload, motivation) and institutional factors (resources, policies, organizational climate), as well as the relationships between these factors.

Limitations and Future Research Directions

Several limitations of this study should be acknowledged. First, the cross-sectional design precludes definitive conclusions about causal relationships between the variables. Future research could employ longitudinal designs to better understand the temporal dynamics of workload, motivation, institutional support, and productivity.

Second, the study relied on self-reported measures of academic productivity, which may be subject to social desirability bias and measurement error. Future studies could incorporate objective productivity indicators, such as publication counts, citation metrics, and teaching evaluations, to complement self-reported data.

Third, while the sample was representative of private universities in the studied regions, the generalizability of the findings to other contexts may be limited. The unique characteristics of private universities in Brebes Regency, Tegal City, and Tegal Regency—including their relatively small size, regional focus, and resource constraints—may differ from those of larger urban institutions or public universities. Future research could extend this study to diverse institutional contexts to assess the consistency of findings across different types of higher education institutions.

Fourth, this study focused on three primary factors influencing academic productivity (workload, motivation, and institutional support) but did not explore other potentially important factors such as leadership styles, organizational justice, work-life balance, and personal characteristics. Future research could incorporate these additional factors to develop more comprehensive models of academic productivity.

Despite these limitations, this study makes a valuable contribution to the understanding of academic productivity in private higher education institutions in Indonesia. By examining both direct and interactive relationships between key productivity factors, it provides a nuanced perspective on the challenges and opportunities for enhancing academic productivity in resource-constrained environments.

Practical Recommendations

Based on the findings, several practical recommendations can be offered for enhancing academic productivity in private universities: 1) Balanced Workload Allocation: Universities should review workload allocation policies to ensure a reasonable balance between teaching, research, and administrative responsibilities. Where high teaching loads are unavoidable, compensatory measures such as reduced administrative duties or teaching assistance may help protect time for research activities; 2) Differentiated Motivational Strategies: Motivational approaches should be tailored to faculty members' career stages and personal preferences. Early-career academics may benefit from clear performance expectations and recognition systems, while senior faculty may respond better to increased autonomy and opportunities for mentorship and leadership; 3) Targeted Institutional Support: Support systems should address the specific challenges faced by faculty members in different disciplines and roles. For example, laboratory-based disciplines may require equipment and technical support, while humanities fields may benefit from library resources and research assistants for data collection and analysis; 4) Collaborative Resource Utilization: In resource-constrained environments, collaborative approaches to resource utilization can maximize impact. This might include shared research facilities across departments, joint research projects, and collaborative teaching arrangements that reduce duplication of effort 5) Supportive Organizational Climate: University leaders should prioritize the development of collegial, inclusive, and achievement-oriented organizational cultures. Regular recognition of accomplishments, transparent communication, and participative decision-making can foster the motivational conditions for enhanced productivity; 6) Professional Development Opportunities: Universities should invest in professional development programs that enhance faculty members' research skills, teaching effectiveness, and work efficiency. These programs can both improve productivity directly and enhance motivation by increasing faculty members' sense of competence and growth; 7) Strategic External Partnerships: Collaboration with industry, government agencies, and other universities can provide additional resources and opportunities for research and community engagement. Such partnerships may be particularly valuable for private universities with limited institutional resources.

By implementing these recommendations, private universities in Indonesia may be able to enhance academic productivity despite resource constraints, contributing to institutional quality, student learning, and societal knowledge development.

Declarations

Availability of Data and Materials

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

Competing Interests

The authors declare that they have no competing interests.

Authors' Contributions

MS conceived the study concept, developed the research design, and led the writing of the manuscript. DRT and SBR contributed to data collection and analysis. HM and AW assisted with the literature review and theoretical framework development. SNU and YM contributed to the discussion of findings and implications. MEG assisted with the methodology design and statistical analysis. All authors read and approved the final manuscript.

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