The Influence of Slot Time on PJP4U (Aircraft Landing, Placement, and Storage Services) Revenue at Radin Inten II Airport Lampung

Muhammad Zidane Tanjung[1], Laila Rochmawati[2], Ranatika Purwayudhaningsari[3]

Politeknik Penerbangan Surabaya, Jemur Andayani I/73 Wonocolo Surabaya, Jawa Timur 60236
Email: tanjungzidan1@gmail.com

ABSTRACT

Following the COVID-19 pandemic, aircraft movements at Radin Inten II Airport Lampung have shown a consistent upward trend from year to year. However, the actual revenue from Aircraft Landing, Placement, and Parking Services (PJP4U) has not yet met the annual targets that set in the Work Plan and Budget (RKA). This condition underlines the implementation of this study, which aims to analyze the influence of slot time on PJP4U revenue. The results indicate that the average daily slot usage in 2024 was 68,62% with an average daily PJP4U revenue Rp 4.085.415,30. The Spearman correlation test yielded a coefficient value of 0,734 with a significance level of 0,000 < 0,05, indicating a strong and significant relationship between n slot usage and PJP4U revenue. The simple linear regression test produced the equation Y = 1539528,665 + 37098,557X, meaning that every 1% increase in slot usage, the PJP4U revenue is estimated to increase by Rp 37.098,557. The coefficient of determination (R^2) was 0,472 indicating that 47,2% of the variation in PJP4U revenue can be explained by slot usage. These results, highlight the importance of improving slot time management as a strategic to enhanced the aeronautical revenue and operational efficiency at airports.

***Keywords*:** Slot usage, PJP4U revenue, Radin Inten II Airport Lampung

1. INTRODUCTION

Airports play a critical role in facilitating economic growth, regional activitiy, and industrial development. Radin Inten II Airport Lampung, has significant transformation, it is now managed by PT. Angkasa Pura Indonesia (Injourney Airports) under a KSP scheme [1]. This transition aims to improve airport performance, encourage financial independence, and support national strategic projects without relying on state budget allocations.

Since the COVID-19 pandemic, aircraft movements at Radin Inten II Airport have shown a positive trend. The number of flight movements increased from 4,595 in 2021 to 8,472 in 2024 [2]. However, this growth in operational activity has not been consistently followed by an increase in revenue from Aircraft Landing, Placement, and Parking Services (PJP4U). The recorded revenue in 2024 only reached IDR 3,170,419 falling short of the annual target of IDR 4,024,451. This gap indicates inefficiencies in translating aircraft movement into revenue performance.

One possible contributing factor is the utilization of slot time, which refers to the specific time allocated for an aircraft to land or take off at an airport. In Indonesia, slot time allocated is regulated under PM 57 Year 2016 concerning Slot Time Management [3], and further detailed through KP 112 Year 2018 issued by the Directorate General of Civil Aviation. These regulations require every aircraft movement to obtain slot approval. However, low utilization rates or slot misuse may result in lost opportunities to optimize airport capacity and generate aeronautical income.

Given the operational and financial implications, understanding the role of slot time utilization is crucial for effective airport management. By examining its relationship with PJP4U revenue, airport operators can identify whether improvements in slot usage contribute directly to enhanced financial performance. This study aims to analyze the relationship and influence between slot time utilization and PJP4U revenue at Radin Inten II Airport using daily secondary data from the year 2024. Through descriptive statistics, correlation analysis, and regression modeling, the research seeks to provide empirical evidence on the significance of slot utilization in optimizing aeronautical revenue, as well as to inform strategic decisions for improving operational efficiency and financial sustainability.

2. METHODOLODY

2.1. Research Design

This study applies a quantitative approach with an explanatory research design to examine the influence of slot time utilization on revenue from Aircraft Landing, Placement, and Parking Services (PJP4U) at Radin Inten II Airport. The research aims to identify the relationship and the magnitude of the effect between the percentage of slot usage and daily PJP4U revenue using secondary data collected for the period of January to December 2024. The research flow is systematically presented in Figure 1.

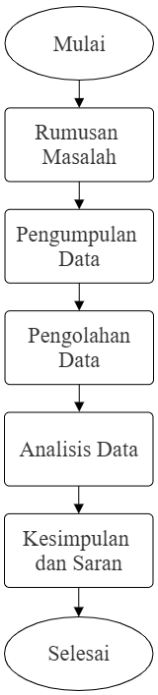

Figure 1. Research Flowchart Design

Based on Figure 1, the stages of the research are as follows:

1. **Problem Formulation:** At this stage, the research problem is clearly defined. The formulation includes identifying the gap between the current conditions and the expected conditions, as well as setting the research objectives.
2. **Data Collection :** The researcher gathers the required data to address the research objectives. In this study, secondary data was obtained from relevant divisions within the airport, including daily slot usage records and PJP4U revenue reports.
3. **Data Processing :** The collected data is processed to ensure accuracy and readiness for analysis. This includes data cleaning, tabulation, and organizing the data into formats suitable for statistical analysis.
4. **Data Analysis :** Statistical techniques are applied to examine the relationship and influence between variables. This involves descriptive analysis, correlation testing, and regression analysis to interpret the data and answer the research questions.
5. **Conclusion and Recommendations :** Based on the analysis results, conclusions are drawn to answer the research objectives. Recommendations are also provided to relevant stakeholders to improve operational and financial performance.

2.2 Data Sources

To ensure the accuracy and reliability of the analysis, this research relies on secondary data obtained from official institutional records. The secondary data obtained from two official airport divisions:

1. **Apron Movement Control (AMC)**, providing daily slot allocation and utilization records, including the number of slots approved and used by airlines.
2. **Commercial Division**, providing daily financial records of PJP4U revenue, including landing, placement, and parking charges.

2.3 Variables

In order to achieve the research objectives and examine the relationship between slot time utilization and PJP4U revenue at Radin Inten II Airport, it is essential to clearly define the variables involved in this study. This study focuses on two primary variables, consisting of one independent variable and one dependent variable, described as follows:

- **Independent Variable (X)** – Slot usage percentage, calculated as the ratio between the number of used slots and the total allocated slots for each day.
- **Dependent Variable (Y)** – PJP4U daily revenue, representing the total income generated from landing, placement, and parking services per day.

2.4 Population and Sample

The population in this study comprises all daily data covering slot usage and PJP4U revenue at Radin Inten II Airport Lampung for the year 2024, totaling 366 days, thus the total population consists of 366 daily records. The determination of the sample size was carried out using the Slovin formula with a margin of error 5% (0.05). The formula and calculation are as follows:

$$n = \frac{N}{(1 - N_{e^2})} \quad (1)$$

$$n = \frac{366}{1 + 366\ (0.05)^2}$$

$$n = \frac{366}{1.915}$$

$$n = 191$$

Based on the calculation, the number of samples used in this study was 191 daily records, selected from the total 366 population data. The sample was taken to be representative of the overall population and was analyzed to address the research problem formulation and objectives [4].

2.5 Data Analysis

The data in this study were analyzed using IBM SPSS Statistics software to determine the relationship and influence between slot usage percentage and PJP4U revenue. The analysis process consisted of several stages.

2.5.1 Descriptive Statistical Analysis

This stage aimed to summarize the characteristics of each variable, including the mean, minimum, maximum, and standard deviation values. It provided an overview of daily slot usage percentages and daily PJP4U revenue distributions.

2.5.2 Normality Test

The Kolmogorov–Smirnov test was applied to examine whether the data followed a normal distribution. The decision criteria were based on the significance value (p - value) compared to the significance level ($\alpha = 0.05$).

2.5.3 Correlation Analysis

The Spearman rank correlation test was used because the data did not meet the assumption of normality. This analysis measured the strength and direction of the relationship between slot usage percentage and PJP4U revenue.

2.5.4 Simple Linear Regression Analysis

Simple linear regression was performed to determine the effect of slot usage percentage (independent variable) on PJP4U revenue (dependent variable). The regression model also provided the coefficient of determination (R^2) to indicate the proportion of variance in PJP4U revenue explained by slot usage percentage.

2.6 Location and Duration

The research was conducted at Radin Inten II Airport, Lampung Regency, during the On the Job Training period from January 6 to July 2025.

3. RESULT

3.1 Descriptive Statistics

The descriptive statistical analysis provides an overview of the distribution of slot usage percentages and PJP4U revenue during the observation period from January 1 to December 31, 2024. The average daily slot usage was 68,62% with a minimum of 38,4% and maximum of 100%. Meanwhile, the average daily PJP4U revenue was IDR 4,085,415. with the lowest daily revenue of IDR 1,360,000 and the highest daily revenue of IDR 7,091,500.

Tabel 1. Result of Descriptive Statistics

	Mean	Minimum	Maximum
Slot Usage	68,62	38,46	100
PJP4U Revenue	4,085,415	1,360,000	7,091,500

This indicates that, on average, most allocated slots were utilized, although there were variations in usage and revenue, reflecting the influence of airline schedules, seasonal demand, and operational factors.

3.2 Normality Test Result

Normality testing was conducted prior to the correlation and regression analysis to assess whether the data distribution met the assumption of normality. The Kolmogrov-Smirnov test was applied to assess the distribution of the variables. The results indicated that both slot usage percentage and PJP4U revenue data did not follow a normal distribution (p - value < 0.05). Therefore, subsequent correlation testing was conducted using the Spearman rank correlation method, which does not require normally distributed data.

3.3 Spearman Correlation Test Results

Given the non-normal data distribution, the Spearman rank correlation test was used to determine the strength and direction of the relationship between slot usage and PJP4U revenue.

Tabel 2. Result of Spearman Correlation Test

	Slot Usage	PJP4U Revenue
Correlation Coefficient	.734	.734
Sig. (2-tailed)	.000	.000

The results showed a correlation coefficient (ρ\rhoρ) of 0.734 with a significance value of 0.000 < 0.05, indicating a strong and positive relationship. This implies that higher slot usage is associated with higher PJP4U revenue.

3.4 Simple Linear Regression Analysis

Regression analysis was applied to examine the effect of slot usage on PJP4U revenue. Based on Table 3, The regression equation obtained was Y = 1,539,528.665 + 37,098.557 X. Where Y represents daily PJP4U revenue (IDR) and X is the slot usage percentage (%). The positive coefficient indicates that a 1% increase in slot usage corresponds to an average increase of IDR 37,098.56 in daily revenue.

Table 3. Result of Simple Linear Regression

	Unstandarized	t	Sig.
Constant	1539528.665	10.753	.000
Slot Usage	37098.557	18.054	.000

3.5 Partial t-Test Results

The partial t-test based on Table 3, yielded a t-count of 18.054 compared to the t-table value of 1.9965, with a significance value of 0.000 < 0.05. This confirms that slot usage has a significant influence on PJP4U revenue.

3.6 Coefficient of Determination Results

The coefficient of determination is to quantifies how much of the fluctuation in PJP4U revenue can be attributed to changes in slot time utilization.

Table 4. Result of Coefficient Determination

Model Summary	
Model	R Square
1	.472

The determination coefficient (R^2) was 0.472, meaning that 47.2% of the variation in PJP4U revenue can be explained by slot usage, while the remaining 52.8% is influenced by other factors outside the study.

4. DISCUSSION

Based on the results of the statistical analyses, the average daily slot usage at Radin Inten II Airport in 2024 was 68,62%, generating an average daily PJP4U revenue of IDR 4,085,415.30. This level of slot utilization is considered relatively low, indicating the need for more adaptive slot management strategies to maximize revenue, such as adjusting airline slot allocations and optimizing flight schedules during off-peak periods.

The Spearman correlation test revealed a strong and positive relationship (ρ = 0.734) between slot usage and PJP4U revenue, implying that an increase in slot utilization is associated with higher revenue. Furthermore, the partial t-test confirmed a significant effect of slot usage on PJP4U revenue, with t-count exceeding the t-table value and a significance level of 0.000 < 0.05.

The coefficient of determination (R^2) value of 0.472 indicates that 47.2% of the variation in PJP4U revenue can be explained by slot usage, while the remaining 52.8% is influenced by other factors beyond the scope of this study. These findings highlight the importance of optimizing slot utilization as a strategic measure to enhance airport revenue performance.

5. CONCLUSION

This study concludes that slot time utilization has a significant positive effect on PJP4U (Aircraft Landing, Placement, and Parking Services) revenue at Radin Inten II Airport, Lampung. The simple linear regression results show a t-count of 18.054, exceeding the t-table value of 1.966, with a significance level of 0.000 < 0.05, indicating that higher slot utilization leads to increased PJP4U revenue.

Furthermore, the Spearman correlation analysis reveals a strong positive relationship (ρ = 0.734) between slot usage and PJP4U revenue. This finding underscores the strategic importance of slot management as a key factor in enhancing aeronautical revenue at airports.

RECOMMENDATIONS

Based on the research findings, the following recommendations are proposed:

1. **For Airport Management** – It is recommended to implement adaptive slot management strategies, including adjusting airline slot allocations and optimizing flight schedules during off-peak periods, to maximize slot utilization and consequently increase PJP4U revenue.
2. **For the Commercial Division** – Efforts should be made to integrate slot utilization data with revenue performance monitoring, enabling more accurate forecasting and better decision-making for aeronautical revenue optimization.
3. **For Future Researchers** – Further studies may include additional variables such as aircraft type, flight frequency, and seasonal passenger demand to obtain a more comprehensive understanding of the factors affecting PJP4U revenue.

ACKNOWLEDGMENTS

The author sincerely expresses gratitude to Radin Inten II Airport, Lampung, under the management of PT Angkasa Pura Indonesia (Injourney Airports), particularly the Airside Management Center (AMC) and the Commercial Division, for providing the essential secondary data that served as the foundation of this research.

The author also extends appreciation to the academic supervisors for their invaluable guidance, constructive insights, and encouragement throughout the research process. Special thanks are also conveyed to colleagues and peers whose support contributed to the successful completion of this study.

REFERENCES

[1] D. N. Fithri, K. Usman, and I. Kustiani, “Kajian Penerapan Kerja Sama Pemanfaatan Bandara Radin Inten II Lampung Dengan Pendekatan Manajemen Aset,” *J. Sustain. Constr.*, vol. 3, no. 2, pp. 16–30, 2024.

[2] Kantor Cabang Bandar Udara Lampung, “Laporan Manajemen Bandar Udara Radin Inten II Lampung Tahun 2024,” 2024.

[3] Menteri Perhubungan, *Peraturan Menteri Perhubungan Republik Indonesia Nomor PM 57 Tahun 2016 Tentang Penyelenggaraan Alokasi Ketersediaan Waktu Terbang (Slot Time) Bandar Udara*. 2016, pp. 1–14.

[4] Sugiyono, *Metode Penelitian Kuantitatif Kualitatif dan R&D*, vol. 11, no. 1. 2019.