THE INFLUENCE OF MANUAL CHECK-IN ON PASSENGER QUEUE EFFECTIVENESS AT THE DEPARTURE TERMINAL OF TJILIK RIWUT AIRPORT PALANGKA RAYA

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ABSTRACT

This study aims to analyze the influence of manual check-in on the effectiveness of passenger queues at the Departure Terminal of Tjilik Riwut Airport in Palangka Raya, as well as to identify efforts to adjust queue duration in accordance with service standards. A quantitative approach was used, with data collected through questionnaires, observations, and field data. The statistical test results show that manual check-in has a significant effect on queue effectiveness, as indicated by a t-value of 16.521, which is greater than the t-table value of 2.02, and a significance level of 0.000, which is far below the threshold of 0.05. This means the influence is statistically proven. According to the Ministry of Transportation Regulation No. PM 178 of 2015, the maximum queue duration is 30 minutes, and the maximum service time per passenger is 2 minutes 30 seconds. However, field observations show these limits are often exceeded. Recommended improvements include adding check-in counters, adjusting staff allocation, queue system management, and providing self check-in services.

Keywords: *Manual Check-in, Queue Effectiveness, Service Standards, PM 178 of 2015, Tjilik Riwut Airport Palangka Raya.*

1. INTRODUCTION

Tjilik Riwut Airport, formerly known as Panarung Airport, is the primary aviation gateway in Central Kalimantan, located on Jalan Adonis Ahmad, Panarung Village, Pahandut District, Palangka Raya City. The airport is actively managed by PT Angkasa Pura Indonesia with the mission of ensuring optimal facilities and services, particularly at the check-in counters. As the number of passengers increases, long queues frequently occur, especially during peak operational hours, creating a need to enhance service quality at the check-in stage, which marks the initial contact between passengers and airport services.

Currently, Tjilik Riwut Airport relies predominantly on the manual check-in system. In this process, passengers confirm their flights, verify tickets, hand over luggage, and receive boarding passes directly from the check-in staff. Although long-established, this manual method presents significant challenges during busy hours such as early mornings and weekends. Long queues often cause inconvenience and slow down the departure process. [1] affirmed that prolonged queuing during check-in reduces passenger comfort and disrupts timely departures.

Based on field observations during On-the-Job Training (OJT) in the Terminal Inspection Service Unit at Tjilik Riwut Airport, it was found that the check-in service time did not meet the standards stated in Regulation PM 178 of 2015 [2] concerning Airport User Service Standards. The regulation stipulates that passenger queue times should not exceed 30 minutes, and the maximum service time per passenger should be 2 minutes and 30 seconds. However, as noted by [3] inefficiencies in manual check-in can negatively affect passengers' perceptions of the airport's professionalism and preparedness in managing growing service demands. Actual waiting times often exceed the regulated limits, especially during flight delays or when passengers arrive simultaneously near boarding time.

Disorder in queue systems is a major factor contributing to inefficient check-in processes. This directly impacts service effectiveness and passenger satisfaction. Prolonged waiting can lead to stress and dissatisfaction, particularly among passengers close to

their departure times. As [4] highlighted, check-in services play a critical role in shaping passenger satisfaction. Long queues and slow service at check-in counters are among the main factors that reduce overall passenger experience at airports.

Furthermore, based on Regulation PM 30 of 2021 Article 6 Paragraph 1 [2] "minimum service standards for air transport passengers must include quick and efficient pre-flight services such as check-in and baggage drop." Therefore, inefficiencies in check-in services not only affect downstream processes such as security checks and boarding but also violate regulatory requirements.

According to [5], the need for alternative facilities such as self check-in is crucial in reducing queues and expediting services, particularly for passengers without checked baggage. Observations reveal that Tjilik Riwut Airport still lacks alternative check-in facilities such as self check-in kiosks or mobile check-in platforms, forcing all passengers, including those without baggage, to use the manual system. This dependency exacerbates service delays and limits overall service effectiveness.

Previous studies have primarily examined the relationship between check-in services and passenger satisfaction, the need for self check-in, or queuing time analysis. However, no research has specifically focused on how manual check-in affects queuing effectiveness at the departure terminal of Tjilik Riwut Airport. According to PM 30 of 2021 [2], airports are required to meet minimum service standards, including speed and orderliness during the check-in process.

Thus, this study offers a novel contribution by analyzing the effectiveness of passenger queues in manual check-in systems, which has been underexplored, and aims to support service improvements in accordance with applicable regulations.

2. METHOD

2.1 Research Method

This study adopts a quantitative approach with descriptive analysis, which is rooted in the positivist paradigm. The research strategy is designed to examine a specific population or sample through data collection using predetermined instruments, and the results are then analyzed statistically to test the hypotheses designed [6].

2.2 Research Design

The research design employed in this study is descriptive quantitative, which aims to systematically describe the influence of manual check-in procedures on the effectiveness of passenger queuing without manipulating any variables. This design enables the researcher to observe naturally occurring service conditions at Tjilik Riwut Airport, particularly in the check-in process, and analyze their relationship with queue density, waiting time, and satisfaction. By relying on direct field observation and respondent feedback rather than experimental control, the study provides practical insights into how the current manual check-in system impacts the overall efficiency of passenger flow in the departure terminal.

To accomplish the research objectives and answer the problem formulation, the study follows a structured research flow. This begins with identifying the problems observed during On the Job Training (OJT), followed by reviewing relevant literature and regulations such as PM 30 of 2021 [2] and PM 41 of 2023 [2]. After formulating hypotheses and research variables, data were collected through observation, documentation, and the distribution of questionnaires to passengers at the check-in counters. The collected data were then analyzed using descriptive statistical techniques to evaluate the influence of manual check-in on queue effectiveness. This research flow ensures a systematic and reliable approach in assessing service performance within the airport environment.

2.3 Research Variables

This study involves two primary variables: (1) Manual Check-In as the independent variable (X), and (2) Queue Effectiveness as the dependent variable (Y). The research framework is designed to explore the relationship between manual check-in procedures and the efficiency of passenger queue management at the departure terminal of Tjilik Riwut Airport.

The independent variable (X), Manual Check-In, is represented by three key indicators: (1) the duration of the check-in process, (2) the number of active check-in counters during peak hours, and (3) the level of orderliness observed in the queue during check-in. These elements reflect operational characteristics that may influence the flow and comfort of passengers during the pre-departure process.

The dependent variable (Y), Queue Effectiveness, is assessed through the following aspects: (1) the density of the queue at the check-in counter, (2) the waiting time experienced by passengers, and (3) passenger satisfaction with the queue arrangements. These indicators collectively represent the overall effectiveness and perceived quality of the check-in experience.

To obtain accurate and reliable data, all variables were measured using a structured questionnaire based on a Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire was developed according to validated indicators from relevant aviation service standards, including PM 30 of 2021 [2] and PM 41 of 2023[2]. Prior to distribution, the instrument underwent validity and reliability testing to ensure that the collected responses accurately reflected the actual experiences and perceptions of the respondents. This methodological rigor ensures consistency and scientific credibility in measuring the relationship between manual check-in systems and queue performance.

2.4 Research Subject

currently undergoing or have completed the manual check-in process. A total of 70 questionnaires were distributed, and 50 passengers responded to the survey. All of these 50 respondents met the predetermined research criteria, making them eligible to be considered as the research population.

The sample was selected using a probability sampling method, specifically the simple random sampling technique, which ensures that each member of the population has an equal opportunity to be selected [6], To determine the appropriate sample size, the Slovin formula was applied with a margin of error of 5%, as follows:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{50}{1 + 50.(0{,}05)^2}$$

$$n = \frac{50}{1{,}125}$$

$$n = 44$$

Accordingly, the total sample used in this study comprises 44 respondents who meet the criteria established for this research.

2.5 Data Collection Techniques and Research Instruments

Data were collected through structured observation and documentation. The observation was conducted directly at the departure terminal of Tjilik Riwut Airport in Palangka Raya to examine the condition of passenger queues, waiting times, and the overall effectiveness of the manual check-in process. Documentation was used to gather supporting visual and factual data from the field, such as photographs relevant to the research.

The main research instrument was a structured questionnaire designed to assess passenger responses and perceptions regarding the manual check-in process. The questionnaire consisted of closed-ended items presented in written form, allowing respondents to independently select answers based on the Likert scale. The scale ranged from 1 (Strongly Disagree) to 4 (Strongly Agree), measuring the level of agreement with each statement. The use of this scale was based on the Likert model [6] and aligned with the method applied by [7].

The questionnaire covered two variables. For the independent variable Manual Check-In (X) indicators included: the duration of check-in time, the number of active manual counters during peak hours, and the orderliness of queues during check-in at Tjilik Riwut Airport. These indicators were sourced from PM 30 of 2021 and PM 41 of 2023 concerning aviation service standards. For the dependent variable Queue Effectiveness (Y) indicators measured included: the density of queues at manual check-in counters, passenger waiting time, and satisfaction with queue management.

The instrument was validated using expert judgment to ensure it could accurately measure the intended variables. Furthermore, the Likert scale was applied as the measurement tool for each indicator, allowing the researcher to analyze opinions and perceptions in a structured and quantifiable format. The reliability and validity tests of the questionnaire were conducted using statistical analysis tools to guarantee consistent and credible results.

2.6 Data Analysis Techniques

This study applies descriptive quantitative data analysis techniques to assess the influence of manual check-in on queue effectiveness. After collecting responses from 44 passengers, each answer was coded according to the Likert scale values ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). The collected data were tabulated and processed using IBM SPSS Statistics to ensure consistent and reliable results. Descriptive statistics were first used to identify patterns and tendencies in passenger perceptions, particularly regarding the duration of check-in, queue density, and satisfaction levels.

To ensure the quality of the instrument, both validity and reliability tests were conducted. The validity test used the Pearson Product-Moment correlation to examine the relationship between each questionnaire item and the total score. A correlation coefficient above 0.30 or a significance value below 0.05 indicated that the item was valid. The reliability test employed Cronbach's Alpha, with a result above 0.60 considered sufficient to confirm that the instrument consistently measured the intended variables.

Furthermore, a normality test was performed using the Shapiro-Wilk method, which is appropriate for small to medium-sized samples. This test assessed whether the data distribution met the assumptions required for parametric statistical analysis. Finally, hypothesis testing was conducted using the t-test (partial test) to determine whether the independent variable, manual check-in, had a significant effect on the dependent variable, queue effectiveness. The results were evaluated using a significance threshold of 0.05 to decide whether to accept or reject the null hypothesis. This combination of techniques ensures a scientifically sound interpretation of the research findings.

2.7 Data Analysis Techniques

This research was conducted at Tjilik Riwut Airport in Palangka Raya, under the management of PT Angkasa Pura II. The data collection began during the researcher's On the Job Training (OJT) Phase 1, which took place from January to February 2025. The research activities continued through the final stages of the undergraduate thesis preparation, including the distribution of questionnaires and data analysis, and concluded with the final project defense in July 2025.

3. RESULT AND DISCUSSION

3.1 Respondent Profile

This research involved 44 respondents who had undergone the manual check-in process at Tjilik Riwut Airport. Although 70 questionnaires were distributed, only 50 were returned, and 44 were selected based on completeness and relevance. Respondents were grouped by age, as shown in Table 3.1:

Tabel 3 1 Respondent Profile

Age Group	Number of Respondents	Percentage (%)
18–25 age	35	79,5%
26–35 age	6	13,6%
36–45 age	1	2,3%
46–55 age	2	4,6%
>55 age	0	0%
Total	**44**	**100%**

Based on Table 3.1, the majority of respondents (79.5%) were aged 18–25, indicating that most passengers in the sample were young and actively traveling for purposes such as education or work. Other age groups accounted for less than 20%. This information provides an initial overview of respondent characteristics for analyzing the effectiveness of the manual check-in queue.

3.2 Questionnaire Results

Tabel 3 2 Variable X

No	Question	Total Score	4	3	2	1	%
			SS	S	TS	STS	
1.	X1	158	28	14	2	0	89,77
2.	X2	144	15	26	3	0	81,82
3.	X3	151	20	23	1	0	85,80
4.	X4	152	22	20	2	0	86,36
5.	X5	138	16	18	10	0	78,41
6.	X6	129	10	21	13	0	73,30
7.	X7	133	14	17	13	0	75,57
8.	X8	134	12	22	10	0	76,14
9.	X9	152	22	20	2	0	86,36
10.	X10	138	16	18	10	0	78,41

Based on Table 3.2, responses from 44 passengers show that most gave positive assessments of the manual check-in process. The highest scores were in X1 (89.77%) and X9 (86.36%), indicating common issues with delays and queue disorder. The lowest score, X6 (73.30%), suggests some concerns about staff effectiveness during peak times. Overall, the data reflect that while generally well-perceived, manual check-in still lacks efficiency and proper queue management during busy hours.

Tabel 3 3 Variable Y

No	Question	Total Score	4	3	2	1	%
			SS	S	TS	STS	
1.	Y1	150	22	18	4	0	85,23
2.	Y2	145	20	17	7	0	82,39
3.	Y3	133	14	17	13	0	75,57
4.	Y4	134	12	22	10	0	76,14
5.	Y5	158	28	14	2	0	89,77
6.	Y6	151	22	19	3	0	85,80
7.	Y7	145	18	21	5	0	82,39
8.	Y8	152	22	20	2	0	86,36
9.	Y9	134	12	22	10	0	76,14
10.	Y10	158	28	14	2	0	89,77

Based on Table 3.3, responses from 44 passengers indicate that most agreed on the effectiveness of manual queueing. The highest scores (89.77%) on Y5 and Y10 suggest passengers felt queues moved smoothly. Meanwhile, lower scores on Y3 and Y9 (around 75%) reflect concerns about the number of counters and queue arrangement. Overall, the queueing process is considered effective but improvements are needed, especially during peak hours.

3.3 Data Analysis and Hypothesis Testing

This section presents the results of statistical tests conducted to analyze the relationship between manual check-in procedures and the effectiveness of passenger queuing at Tjilik Riwut Airport. The analysis includes validity and reliability testing of the research instrument, normality testing of the data, and hypothesis testing using a t-test.

Tabel 3 4 Validity

Variable	Item	Calculated r	Table r	Conclusion
The impact of manual check-in	X1	0,632	0.2455	Valid
	X2	0,636	0.2455	Valid
	X3	0,533	0.2455	Valid
	X4	0,761	0.2455	Valid
	X5	0,817	0.2455	Valid
	X6	0,789	0.2455	Valid
	X7	0,821	0.2455	Valid
	X8	0,770	0.2455	Valid
	X9	0,761	0.2455	Valid
	X10	0,817	0.2455	Valid
Passenger queue effectiveness	Y1	0,747	0.2455	Valid
	Y2	0,656	0.2455	Valid
	Y3	0,752	0.2455	Valid
	Y4	0,826	0.2455	Valid
	Y5	0,577	0.2455	Valid
	Y6	0,620	0.2455	Valid
	Y7	0,773	0.2455	Valid
	Y8	0,665	0.2455	Valid
	Y9	0,826	0.2455	Valid
	Y10	0,577	0.2455	Valid

The analysis in Table 3.4 shows that all 20 questionnaire items (X1–X10 and Y1–Y10) are valid, as their correlation values (r-count) exceed 0.2455. This indicates that all items are suitable for use in further testing to analyze the relationship between manual check-in and queue effectiveness.

Tabel 3 5 Results of the reliability test of variable X and Y

Variable	*Cronbach's alpha*	Conlusion
X	0,907	Reliability
Y	0,887	Reliability

Based on Table 3.5, both variables have Cronbach's Alpha values above 0.6, indicating high reliability. Thus, the questionnaire is consistent and dependable for measuring the impact of manual check-in on queue effectiveness

Tabel 3 6 Results of the Normality

Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
The impact of manual check-in	0.949	44	0.524
Passenger queue effectiveness	0.926	44	0.755
a. Lilliefors Significance Correction			

Based on Table 3.6, both significance values exceed 0.05 0.524 for variable X and 0.755 for variable Y indicating that the data are normally distributed. Thus, the dataset meets the normality assumption, allowing further analysis using parametric methods.

Tabel 3 7 Results of Individual Parameters

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,392	1,762		2,493	0,017
	The impact of manual check-in	0,886	0,054	0,931	16,521	0,000
a. Dependent Variable: Passenger queue effectiveness						

Based on the results in Table 4.7, the regression coefficient value is 0.886, the t-value is 16.521, and the significance value (Sig.) is 0.000. Since the calculated t-value is greater than the critical t-value (16.521 > 2.02) and the significance level (Sig.) is less than 0.05 (0.000 < 0.05). Based on these findings, H0 is rejected and H1 is accepted, meaning there is a significant effect of manual check-in on passenger queue effectiveness at Tjilik Riwut Airport in Palangka Raya.

4. CONCLUSION

Based on the analysis results, it can be concluded that the manual check-in process has a significant influence on the effectiveness of passenger queues at Tjilik Riwut Airport. This is supported by the t-test value (t = 16.521 > 2.02; Sig. = 0.000), which confirms a statistically significant relationship between the two variables. Observations and respondent feedback also revealed that queue durations often exceed the service time standards regulated in PM 178 of 2015, particularly during peak hours. Common issues identified include limited check-in counters and insufficient staff. To address this, it is recommended to increase the number of counters during busy periods, adjust staffing based on passenger volume, implement a queue management system, and provide self check-in facilities for non-baggage passengers. Continuous staff training and periodic evaluations are

also essential to improve service efficiency. These findings demonstrate that improvements to the manual check-in system are necessary to meet service time standards and enhance passenger flow.

AUTHORS' CONTRIBUTIONS

The author independently designed the research framework, conducted field observations at Tjilik Riwut Airport, distributed and processed questionnaires, performed data analysis using IBM SPSS Statistics, and compiled the findings into this manuscript. All research stages were carried out solely by the author without external collaboration.

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REFERENCES

[1] Yohana Arifa dan Amelia Puspa Tamara, "Pengaruh Waktu Antrian Check-In Counter terhadap Kepuasan Penumpang Maskapai Citilink di Bandar Udara Jenderal Ahmad Yani Semarang," *Maeswara J. Ris. Ilmu Manaj. dan Kewirausahaan*, vol. 3, no. 1, hal. 220–235, 2025, doi: 10.61132/maeswara.v3i1.1638.

[2] PM 30 Tahun 2021 Pasal 1 Butir 6, "menteri perhubungan republik indonesia," 2008.

[3] C. M. Siti Ratna W, "Analisis Pelayanan Check-In Counter Maskapai Wings Air Kepada Penumpang Di Bandar Udara Muhammad Salahuddin Bima," vol. 1, no. 1, hal. 124–133, 2024.

[4] Muhammad Dhiyaul Aufa dan M. S. Yuniar Istiyani, S.IP., "Analisis Pelayanan Check-In Counter Terhadap KepuasanPenumpang Pada Maskapai Lion Air Di Bandar Udara Internasional Ahmad Yani Semarang," *J. Publ. Ekon. dan Akunt.*, vol. 3, no. 2, hal. 175–179, 2023, doi: 10.51903/jupea.v3i2.670.

[5] U. Mengurangi dan A. Penumpang, "Analisis kebutuhan self check-in untuk mengurangi antrian penumpang di bandar udara radin inten ii lampung," 2024.

[6] Sugiono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, no. January. 2013.

[7] T. Saamena, Lady Silk Moonlight, dan A. Irfansyah, "Design of E-Module Practicum En-Route Flight Information (EFI) Course with the Rapid Application Development (RAD) Model at Aviation Polytechnic of Surabaya," *Proceeding Int. Conf. Adv. Transp. Eng. Appl. Soc. Sci.*, vol. 2, no. 1, hal. 962–968, 2023, doi: 10.46491/icateas.v2i1.1767.

[8] Bandar Udara Adi Soemarmo, *PM-SOC-V.AO-P.OR-18 Tentang Penanganan Tumpahan BBM dan Bahan Pelumas*. 2024.