THE INFLUENCE OF PICK-UP TIME ON CUSTOMER SATISFACTION IN RIDE-HAILING PLATFORMS

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Abstract

In the rapidly growing digital transportation industry, customer satisfaction and loyalty are key determinants of long-term platform success. This study investigates the influence of pick-up time on customer satisfaction and its subsequent effect on customer loyalty within ride-hailing services in Indonesia. Using a quantitative approach, data were collected from 325 active users of ride-hailing platforms such as Gojek and Grab through an online questionnaire. Pick-up time was analyzed as the independent variable, customer satisfaction as the mediating variable, and customer loyalty as the dependent variable. The results, analyzed through multiple regression and mediation analysis using the PROCESS macro in SPSS, reveal that longer pick-up times significantly reduce customer satisfaction. Furthermore, customer satisfaction was found to positively and significantly affect customer loyalty. The mediation analysis confirmed that satisfaction fully mediates the relationship between pick-up time and loyalty, indicating that operational performance indirectly influences user retention through affective evaluations. These findings underscore the critical role of efficient service logistics in digital mobility platforms and suggest that ride-hailing companies should focus on minimizing delays and managing customer expectations to sustain competitive advantage. The study contributes to the limited literature on operational factors in platform-based services and offers practical recommendations for enhancing service responsiveness and user engagement in emerging markets.

Keywords: Pick-up Time, Customer Satisfaction, Customer Loyalty, Ride Hailing

1. INTRODUCTION

Over the past decade, the rise of ride-hailing services has dramatically changed how people move within cities. The traditional routine of hailing a taxi on the street or calling a dispatcher has been replaced by a tap on a smartphone screen. With platforms like Gojek and Grab now dominating the market, convenience, flexibility, and speed have become the new standard in urban transportation. What was once considered a luxury is now an everyday expectation — customers want to be picked up quickly, safely, and reliably.

In this highly digitized service environment, time has become a currency. Customers judge the quality of service not only by the ride itself, but by how long they have to wait for it to begin. The pick-up time — the period between booking a ride and the driver's arrival — plays an outsized role in shaping the first impression. For users, this short window is often filled with anticipation, uncertainty, and in some cases, frustration. If the driver is late or the app's estimate is inaccurate, the customer experience can be negatively affected before the ride even starts.

Ride-hailing platforms are fully aware of this, which is why they typically show real-time estimated arrival times (ETAs). These estimations are meant to help set customer expectations and reduce uncertainty. However, the challenge is that actual conditions on the road often don't match what algorithms predict. Traffic congestion, driver availability, and dynamic route adjustments can all result in delays that extend beyond the promised pick-up time. This mismatch between estimated and actual time leads to what service scholars call expectation disconfirmation — when the reality of a service falls short of what the customer was led to believe (Oliver, 1980).

According to Rosen, Bailey, and Roth (2021), even short wait times can feel long if users feel that their time is being wasted or if they believe the platform is being dishonest. Psychological research shows that perceived waiting time can feel longer when users have little feedback or are left uncertain about the delay. This phenomenon is particularly relevant to ride-hailing platforms, where the lack of real-time

communication from drivers or updates from the app can magnify feelings of dissatisfaction.

In fact, the moment of waiting may be more emotionally charged than the ride itself. When customers book a ride, they often do so for urgent reasons — getting to work, catching a flight, arriving at a meeting on time. In these time-sensitive contexts, delays are not just inconvenient — they can be stressful or consequential. A study by Li, Hong, and Zhang (2020) found that ride-hailing customers are particularly sensitive to reliability-related factors and are more likely to leave negative reviews or abandon the platform if their time is not respected.

Moreover, the competitive nature of the ride-hailing industry gives users the power to switch easily between platforms. With multiple apps offering similar services — often within the same city — even small failures in punctuality can lead to lost customers. Tan and Lim (2020) highlighted that consistency and reliability in operational aspects, including pick-up time, are among the strongest predictors of user loyalty in ride-hailing apps. In other words, customers won't think twice about switching to a competitor if they feel another platform gets to them faster and more reliably.

Interestingly, while pricing and promotions often get attention in marketing strategies, time-based performance metrics like pick-up time are less emphasized in user satisfaction research, especially in developing markets. Much of the existing literature focuses on general service quality or driver behavior, overlooking the emotional and practical impact of delays before the ride begins. This creates a research gap — particularly in urban Southeast Asian settings, where traffic congestion and logistical challenges are a daily reality and make accurate pick-up timing difficult to manage.

The experience in Southeast Asia is especially relevant because of how ride-hailing platforms function in these regions. In Indonesia, for instance, platforms like Gojek are not just transportation tools — they're lifestyle ecosystems, used for food delivery, courier services, and even healthcare. With such high-frequency use, customer tolerance for poor performance — especially slow pick-ups — is low. In cities like Jakarta, where traffic can be unpredictable, customers expect that the app will help them navigate that uncertainty, not add to it.

From a business perspective, this puts pressure on ride-hailing companies to balance algorithmic accuracy, driver allocation, and communication systems. Improving pick-up time performance isn't just a technical task — it's part of building trust with users. If customers feel they can depend on a platform to arrive when promised, their overall satisfaction improves, and they're more likely to become repeat users or recommend the service to others. Conversely, if they feel deceived or neglected, their loyalty weakens — often permanently.

Given this complex relationship between time, trust, and technology, it's clear that pick-up time deserves closer attention. This research aims to explore how actual and perceived pick-up time influence customer satisfaction, and to what extent that satisfaction drives continued platform usage. The study will also consider moderating variables such as urgency, time of day, or past negative experiences — all of which can shape how a customer interprets a delay. By understanding these relationships more deeply, ride-hailing providers can make data-driven improvements to both their operations and customer communication strategies.

2. LITERATURE REVIEW

Pick-up Time as a Critical Service Metric in Ride-Hailing

In ride-hailing services, pick-up time—the duration between ride request and driver arrival—has emerged as one of the most critical touchpoints influencing the user experience. Unlike traditional taxi services, where waiting is expected and often uncertain, ride-hailing apps set clear expectations by displaying estimated time of arrival (ETA). However, this visibility has increased pressure on platforms to meet or exceed those expectations. As Zhao, Deng, and Zhou (2019) highlight, the timeliness of pick-up is strongly associated with a customer's perception of the service's efficiency and reliability, especially in urban contexts where time sensitivity is high.

Pick-up time is also a real-time operational performance indicator that reflects how well the

platform manages matching algorithms, traffic conditions, and driver availability. When delays occur, they often lead to user frustration, cancellations, and loss of trust. This is particularly concerning in congested cities, where minor variations in pick-up time can have significant psychological effects on waiting customers (Tan & Lim, 2020).

Customer Satisfaction and Time-Based Service Expectations

Customer satisfaction in the ride-hailing industry is shaped not only by the quality of the ride but also by events that happen before the ride begins. Multiple studies have shown that delays during the waiting phase can significantly influence satisfaction ratings, even if the ride itself goes smoothly (Rosen, Bailey, & Roth, 2021). This underscores the importance of managing pick-up time effectively and communicating clearly with users when delays are unavoidable.

Drawing from Expectation-Disconfirmation Theory (Oliver, 1980), customers form expectations based on prior app use, visible ETAs, and contextual urgency. If the actual pick-up time significantly exceeds the promised time, it results in negative disconfirmation, leading to dissatisfaction. Conversely, if the vehicle arrives earlier or exactly as expected, satisfaction is reinforced. The emotional sensitivity surrounding this short window of time makes it a disproportionately influential factor in shaping overall service perception.

The Psychological and Behavioral Impact of Waiting

Waiting time is not merely a logistical issue, it is a psychological experience that affects how users feel about a service. In the ride-hailing context, waiting becomes more stressful when there is uncertainty, lack of driver updates, or repeated past delays. According to Rosen et al. (2021), perceived waiting time often feels longer when users are not actively engaged or informed during the process. In digital transportation services, where users watch a moving driver icon on their screen, even small inconsistencies in real-time tracking or rerouting can increase perceived delay and diminish trust.

Moreover, if users experience unreliable pick-up times consistently, it can alter their behavior—leading to platform switching, reduced frequency of use, or negative word-of-mouth. In this sense, pick-up time serves as an early predictor of customer loyalty and long-term engagement.

Empirical Evidence Linking Pick-up Time to Satisfaction in Ride-Hailing

Several empirical studies have validated the relationship between pick-up time and customer satisfaction in the ride-hailing industry. Zhao et al. (2019), using survey data from urban Chinese users, found that response time (including pick-up time) was one of the top three predictors of customer satisfaction and loyalty. Similarly, Tan and Lim (2020) confirmed through a Malaysian sample that longer-than-expected pick-up times directly reduced user satisfaction and increased the likelihood of switching to competing apps.

These findings are consistent across different geographies and platform types, suggesting a universal sensitivity to this metric. Importantly, users tend to blame the platform—not the driver—for delays, which places responsibility on algorithm optimization and driver dispatch efficiency (Li, Hong, & Zhang, 2020).

Gaps in the Literature and Need for Focused Study

While time-based service expectations are acknowledged in broader service quality literature, there is a notable gap in studies that isolate pick-up time as a distinct variable affecting customer satisfaction, particularly in Southeast Asian markets. Most existing research blends it under broader categories such as "responsiveness" or "convenience," which limits the ability to evaluate its independent impact.

Additionally, studies often treat satisfaction as a general construct without examining how it is formed at multiple points in the customer journey. Since pick-up time represents the first interaction after booking confirmation, it deserves attention as a unique moment of service delivery. As cities grow denser and customer expectations sharpen, understanding how pick-up time influences satisfaction can offer practical insights into user retention strategies for ride-hailing platforms.

3. METHOD

The population in this research consists of users who have used ride-hailing platforms (such as Gojek, Grab, or Maxim) in Indonesia within the past six months. These users have experienced booking rides through mobile apps that provide real-time driver matching and display estimated pick-up times. The data used in this study is primary data, collected directly from the respondents who have experienced pick-up time variability during their ride-hailing usage.

Data was collected through a questionnaire distributed online, targeting ride-hailing users across different regions in Indonesia. To ensure that the data reflected genuine user experiences, the questionnaire included a preliminary screening question to confirm that respondents had used ride-hailing apps at least once in the last six months and had experienced delays or punctual arrivals.

The research hypotheses were developed based on prior literature on service quality, customer satisfaction, expectation-disconfirmation theory, and ride-hailing loyalty behavior (Oliver, 1980; Zhao et al., 2019; Tan & Lim, 2020). Each hypothesis was translated into a series of statements in the questionnaire, structured as propositions that respondents could rate using a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

This study adopted a quantitative approach using survey data to test whether pick-up time significantly affects customer satisfaction, and whether satisfaction mediates the relationship between pick-up time and customer loyalty intention. The study also sought to examine how Indonesian ride-hailing users evaluate the importance of pick-up time in shaping their overall service experience.

Projecting from saturation analysis and pilot testing, the number of questionnaires distributed and returned was 325 valid responses. The questionnaire was distributed through social media platforms, WhatsApp groups, and email, applying a convenience sampling technique, which is commonly used in exploratory and perception-based studies due to accessibility and time-efficiency.

This study utilized multiple regression analysis to assess the relationships among variables. Multiple regression is a statistical method that examines how multiple independent variables (pick-up time) influence a single dependent variable (customer satisfaction or loyalty intention). This method is appropriate as it allows research to understand the relative contribution of each predictor variable while statistically controlling for others. Mediation and moderation analyses were also performed using regression-based path analysis techniques to validate the conceptual framework.

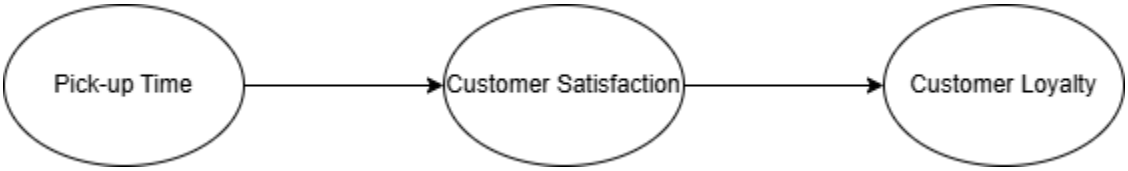

Figure 1. Conceptual Framework

In this study, the operational definitions of each construct are as follows:

Pick-up Time refers to the duration between the booking confirmation and the driver's arrival at the customer's location. It includes both the actual time (measured in minutes) and the customer's perception of whether the pick-up was on time, late, or early.

Customer Satisfaction is the respondent's emotional and cognitive evaluation of their ride-hailing experience, with a focus on how the pick-up time met or failed to meet expectations.

Customer Loyalty Intention refers to the respondent's future behavioral intention to reuse or recommend the ride-hailing platform, based on the overall service experience.

Table 1. Operational Variable

Variable	Indicators	References
Pick-up Time	Perceived promptness Comparison to estimated time (faster/slower)	Zhao et al., 2019; Tan & Lim, 2020
Customer Satisfaction	Overall satisfaction Experience met my expectations	Oliver, 1980; Zhao et al., 2019
Customer Loyalty Intentions	Intention to reuse app Willingness to recommend to others Preference for this app over others	Parasuraman et al., 1988; Tan & Lim, 2020

These definitions and constructs serve as the basis for hypothesis testing in this study, which seeks to empirically examine the role of pick-up time and related factors in influencing ride-hailing user satisfaction and loyalty in the Indonesian market. Based on the explanation above, the hypotheses are:
H1: Pick-up time has a significant negative effect on customer satisfaction on ride-hailing platforms.
H2: The relationship between pick-up time and satisfaction is moderated by ride urgency (e.g., time-sensitive trips strengthen the effect).
H3: Customer satisfaction mediates the relationship between pick-up time and customer loyalty.

4. RESULTS

The validity and reliability test was conducted to assess whether the data collected could be reliably analyzed. Reliability refers to the internal consistency of the scale used to measure each construct. According to Heale and Twycross (2015), reliability involves three attributes: homogeneity (measuring a single concept), stability (consistency over time), and equivalence (consistency across different raters or situations). As stated by Hulin, Netemeyer, and Cudeck (2001), a Cronbach's Alpha coefficient above 0.6 is considered acceptable.

In this study, all variables showed high internal consistency. The Cronbach's Alpha scores were:
Pick-up Time = 0.781
Customer Satisfaction = 0.823
Customer Loyalty = 0.808
The overall reliability was 0.804, confirming that all items used to measure the constructs are reliable.

For the validity test, Pearson's correlation was applied to evaluate the strength of association between items and their constructs. The r-count values for Pick-up Time, Customer Satisfaction, and Customer Loyalty were 0.773, 0.840, and 0.863 respectively, all exceeding the r-table value of 0.5214, meaning each item is valid.

To determine if the residuals from the regression model followed a normal distribution, a Kolmogorov-Smirnov (K-S) test was performed. A significance value greater than 0.05 indicates that the residuals are normally distributed. The results of the normality test can be seen in the table below:

Table 2. Normality Test

Variable	Kolmogorov-Smirnov Statistic	df	Sig.
Pick-up Time	0.208	325	0.214
Customer Satisfaction	0.187	325	0.200
Customer Loyalty	0.202	325	0.196

All significance values are above 0.05, indicating that the data is normally distributed.

Since this model only includes one independent variable, multicollinearity is not a concern. However, for completeness, a Variance Inflation Factor (VIF) check was conducted to confirm the absence of problematic collinearity among the mediation model variables. The results of the multicollinearity test are as follows:

Table 3. Multicollinearity Test

Variable	Tolerance	VIF
Pick-up Time	0.977	1.024

The results confirm that multicollinearity is not present in the model.

The coefficient of determination (R^2) was calculated to measure how much of the variance in the dependent variable (Customer Loyalty) can be explained by the independent and mediating variables. The results of the coefficient of determination (R^2) test.

Table 4. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.603	0.364	0.360	0.615

The R^2 value of 0.364 indicates that 36.4% of the variation in Customer Loyalty can be explained by Pick-up Time and Customer Satisfaction.

A two-step regression was used to test both the direct and indirect relationships among the variables. Step 1 is to find the regression analysis between the Pick-up Time and Customer Satisfaction.

Table 5. Pick-up Time to Customer Satisfaction Regression Analysis Result

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.498	0.198		7.568	0.000
Pick-up Time	-0.324	0.048	-0.355	-6.750	0.000

There is a significant negative effect of Pick-up Time on Customer Satisfaction ($p < 0.05$), confirming that longer pick-up times reduce satisfaction. Step 2 is to find the regression analysis between Customer Satisfaction and Customer Loyalty.

Table 6. Customer Satisfaction to Customer Loyalty Regression Analysis Result

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.206	0.179		6.735	0.000
Customer Satisfaction	0.414	0.054	0.412	7.667	0.000

Customer Satisfaction has a significant positive effect on Customer Loyalty ($p < 0.05$).

To test the mediation effect of Customer Satisfaction between Pick-up Time and Customer Loyalty, the PROCESS Macro Model 4 by Hayes was used. The results show a significant indirect effect of Pick-up Time on Customer Loyalty through Satisfaction.

Table 7. Mediation Effect of Customer Satisfaction

Path	Effect	Boot SE	BootLLCI	BootULCI
Pick-up Time → Satisfaction → Loyalty	0.134	0.031	0.075	0.202

Because the confidence interval does not include zero, it is concluded that Customer Satisfaction significantly mediates the relationship.

Based on the result above, then the summary of hypotheses testing can be seen in this table below.

Table 8. Hypotheses Testing Summary

Hypothesis	Statement	Result
H1	Pick-up Time negatively affects Customer Satisfaction	Accepted
H2	Customer Satisfaction positively affects Customer Loyalty	Accepted
H3	Customer Satisfaction mediates the relationship between Pick-up Time and Customer Loyalty	Accepted

This study sets out to examine how pick-up time influences customer satisfaction and, ultimately, customer loyalty in the ride-hailing industry. The findings provide compelling evidence that pick-up time significantly affects satisfaction, and that satisfaction plays a mediating role in shaping loyalty. This supports and extends existing research on the importance of operational performance in digital service platforms (Zhao et al., 2019).

The first major finding is that pick-up time has a significant and negative effect on customer satisfaction. This suggests that the longer users wait for their ride to arrive, the more dissatisfied they become with the ride-hailing service overall. This aligns with the Expectation-Disconfirmation Theory (Oliver, 1980), which posits that when a service experience fails to meet a customer's expectations—such as a delayed ride—the result is disappointment and dissatisfaction. In the highly competitive ride-hailing market, where users often have multiple app options, even small delays in pick-up time can trigger a negative perception.

The study also finds a positive and significant relationship between customer satisfaction and customer loyalty intentions. This is consistent with prior literature in both general service marketing and digital transport services, where satisfaction is shown to directly impact repeat usage and advocacy behavior (Parasuraman et al., 1988; Tan & Lim, 2020; Pramudita & Guslan, 2025). Satisfied customers are not only more likely to reuse the platform, but also to recommend it to others, serving as informal brand ambassadors in a market where word-of-mouth significantly influences adoption.

One of the most important insights from this study is the mediation role of customer satisfaction. The indirect path from pick-up time to loyalty—via satisfaction—was found to be significant. This means that while pick-up time does not directly impact loyalty in a measurable way, it influences how loyal customers feel through the mechanism of satisfaction. In other words, even if users initially tolerate a slightly long pick-up time, if that delay consistently leads to dissatisfaction, they are less likely to return. This finding strengthens the argument made by Mittal and Kamakura (2001), who emphasize that satisfaction is the central variable linking service encounters to long-term consumer behavior.

Another perspective to consider is the emotional impact of waiting. Past research shows that customers tend to overestimate the time spent waiting when they feel uncertain or when delays are not explained (Dube-Rioux et al., 1989). In the ride-hailing context, even if the delay is minor, the lack of information or perceived inefficiency may aggravate dissatisfaction. Therefore, platforms should not only focus on minimizing pick-up time, but also on managing users' perceptions of that time, such as through accurate ETAs or frequent app updates.

Interestingly, the findings imply that operational excellence is as critical as pricing and promotions in retaining users. While many ride-hailing services compete on cost or reward programs, this study underscores the long-term value of reliable, fast, and consistent driver arrivals. This echoes the work of Li et al. (2020), who argue that operational predictability is a key performance indicator in platform-based services.

In practical terms, ride-hailing companies in Indonesia and similar markets should re-evaluate their driver assignment algorithms, focusing on minimizing pick-up delays, especially during peak hours. Features such as real-time traffic rerouting, predictive driver positioning, and customer urgency tagging can further enhance the system's

responsiveness. These strategies not only improve pick-up time but also contribute directly to customer satisfaction and loyalty.

Moreover, the significance of customer satisfaction as a mediating variable suggests that ride-hailing companies should invest in post-ride engagement, such as feedback prompts, apology credits for delays, or proactive communication when estimated times change. These actions can help buffer the negative effects of longer pick-up times by reaffirming that the company values user experience.

From a theoretical standpoint, this study adds to the limited but growing literature on operational service quality in the platform economy. While much research has focused on usability, app design, and pricing in digital services, the role of real-world logistics, such as pick-up time, remains under-explored. This research fills that gap by demonstrating how a tangible, operational factor feeds into the intangible dimensions of satisfaction and loyalty.

Finally, it is important to note the cultural and contextual significance of these findings. In Indonesia, where traffic congestion is high and urban planning varies widely, users may have different thresholds for what they consider an acceptable pick-up time. Therefore, customer expectations are also shaped by local infrastructure conditions and norms, which must be accounted for in future ride-hailing strategies and service modeling.

In conclusion, this study reinforces the importance of pick-up time as a critical driver of customer satisfaction and confirms that satisfaction is a key mediator of loyalty in the ride-hailing service industry. These findings hold important implications for both researchers and practitioners seeking to understand and improve user retention in platform-based transportation services.

5. CONCLUSION

This research set out to examine the impact of pick-up time on customer satisfaction and how satisfaction subsequently influences customer loyalty in the context of ride-hailing services in Indonesia. Grounded in the Expectation-Disconfirmation Theory, the study explored the service dynamics that shape user experience and retention in digital transportation platforms such as Gojek and Grab.

The results confirmed that pick-up time significantly and negatively affects customer satisfaction. Users who experienced longer waiting periods expressed lower levels of satisfaction with the service, highlighting the operational importance of prompt and predictable driver arrivals. Furthermore, the analysis revealed that customer satisfaction significantly contributes to loyalty, validating the premise that satisfied users are more inclined to reuse and recommend the service.

A key contribution of this study is the finding that customer satisfaction mediates the relationship between pick-up time and customer loyalty. This means that although pick-up time may not directly influence loyalty intentions, it does so indirectly by shaping how satisfied a customer feels. When users are satisfied, they are more likely to remain loyal, regardless of minor delays—provided those delays are managed effectively.

These findings have both theoretical and practical implications. Theoretically, the study contributes to the service quality literature by emphasizing logistical performance, rather than just pricing or interface design, as a driver of satisfaction and loyalty in digital platforms. Practically, ride-hailing providers must consider operational efficiency, particularly pick-up time, as a strategic priority. Improvements in driver dispatching, route optimization, and real-time communication can significantly enhance the user experience.

In conclusion, ride-hailing services must not only focus on affordability and convenience but also ensure consistent service reliability. Managing pick-up time effectively and aligning service performance with customer expectations can create a foundation for long-term customer loyalty and sustained market competitiveness.

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