J-MS
JOURNAL MOBILE TECHNOLOGIES

Received: 24 Jan 2026 | Revised: 3 Feb 2026 | Accepted: 5 Feb 2026 | Published: 10 Feb 2026 E-ISSN: 2986-478X, P-ISSN: 2986-1535

DOI: 10.59431/jms.v4i1.708

RESEARCH ARTICLE

Monetization Models in Mobile Gaming: Analyzing User Preferences and Willingness to Pay Among Indonesian Players

Mahardika Agung Madepo [1*]

[1*] Digital Business Study Program, Faculty of Economics and Business, Universitas Muhammadiyah Pontianak, Pontianak City, West Kalimantan Province, Indonesia.

Correspondence

[1*] Digital Business Study Program, Faculty of Economics and Business, Universitas Muhammadiyah Pontianak, Pontianak City, West Kalimantan Province, Indonesia.

Email: mahardika.madepo@unmuhpnk.ac.id.

Funding information
Universitas Muhammadiyah Pontianak.

Abstract
The mobile gaming industry has experienced rapid growth and is dominated by freemium/free-to-play models, making understanding of monetization preferences and willingness to pay (WTP) increasingly relevant. The study maps player preferences toward monetization models (free-with-ads, freemium with in-app purchase/IAP, and premium no-ads) and analyzes psychological factors influencing purchase intention (PI) and WTP. A quantitative cross-sectional survey was conducted with 210 active mobile game players (convenience and snowball sampling). WTP was measured in two stages: willingness to pay decision (WTP_bin) and maximum amount (WTP_Rp), with linear regression analysis for PI, logistic regression for WTP_bin, and linear regression on ln(WTP_Rp) for respondents willing to pay. Results show dominant preferences for free models: free-with-ads 54.3% and freemium IAP 30.5%, while premium no-ads 15.2%; payer proportion was 35.2%. Instruments demonstrated reliability (Cronbach's alpha 0.921–0.935). The PI model was significant (R^2=0.640), where Perceived Value (PV) and Perceived Enjoyment (ENJ) had the strongest positive effects, followed by Quality, Fairness, and Social Norms, whereas Reference Price & Price Sensitivity (RPPS) and Perceived Aggressive Monetization (PAM) had significant negative effects. For WTP_bin, odds of becoming a payer increased with PV (OR=1.593) and decreased with RPPS (OR=0.468) and PAM (OR=0.651). Among payers (n=74), ln(WTP_Rp) increased with PV, ENJ, and Fairness, but was suppressed by PAM. Findings confirm the necessity of strengthening value, experience, and fairness while avoiding aggressive monetization to enhance conversion and payment amounts.

Keywords
Mobile Gaming; Monetization; Willingness to Pay; Perceived Value; Perceived Aggressive Monetization.

1 | INTRODUCTION

The mobile gaming industry has experienced remarkable growth over the past decade. Lundy *et al*. (2024) documented a sevenfold revenue increase over ten years, with annual earnings exceeding USD 100 billion, while Lee (2025) confirmed that mobile gaming now accounts for over 50% of global game revenue. As digital entertainment continues to expand, mobile games offer a valuable lens through which to examine consumer behavior and digital economy dynamics. Paul (2020) noted that mobile gaming surpassed console and PC as the largest segment in 2016, with free-to-play models generating most revenue from a small percentage of paying users (approximately 3.5%). Research has established willingness to pay (WTP) as a critical factor in mobile game success (Park & Kim, 2013), and scholars have identified in-game purchasing as a key behavioral response in freemium models that depend on player retention and transaction conversion (Gao & Hallikainen, 2019). Revenue growth has paralleled significant shifts in monetization approaches. Zendle *et al*. (2023) traced the industry's transition from selling finished products to offering ongoing access and content through add-ons, subscriptions, and microtransactions, with freemium/free-to-play becoming dominant on mobile platforms. Lundy *et al*. (2024) similarly observed the shift from "pay-to-play" to "free-to-play" with optional microtransactions embedded in gameplay. Salehudin and Alpert (2022) argued that freemium with in-app purchases (IAP) has displaced many traditional pricing models, categorizing IAP into Currencies, Cosmetics, Loot Boxes, Durables, Consumables, and Subscriptions—a taxonomy consistent with Lee's (2025) examination of diverse monetization systems and their psychological mechanisms. At the platform level, Nieborg (2015) conceptualized free-to-play as a form of commodification encompassing not only virtual items but also player attention, data, and connectivity.

Despite widespread adoption, free-to-play research remains uneven. Alha (2019) identified imbalances in free-to-play scholarship and reported that some players perceive the model as unfair due to disparities between paying and non-paying users, expressing preference for hybrid monetization approaches. Harviainen *et al*. (2018) addressed gaps in understanding customer preferences by demonstrating that freemium players often favor hybrid models combining "hard" and "soft" monetization options. Yet a behavioral paradox persists: many players resist paying. Kostopoulos *et al*. (2023) identified a "missing link" between playing free games and purchasing premium versions or making transactions, proposing that loyalty and perceived economic value may bridge the gap. Regarding resistance, Salehudin and Alpert (2022) identified rejection themes including conflicting interpretations of "free-to-play," perceived unfairness, and aggressive monetization, introducing Perceived Aggressive Monetization (PAM) as a framework for understanding IAP behavior. Meanwhile, spending patterns can be extremely concentrated; Zendle *et al*. (2023) analyzed USD 4.7 billion in transaction data and found a "hyper-Pareto" distribution where approximately 1% of spenders contributed ±38% of revenue in some games, underscoring the need for nuanced analysis of payment decisions and their relationship to player experience and monetization ethics (Zendle *et al*., 2023; Lee, 2025). In Indonesia, empirical evidence demonstrates that psychological and social factors play substantial roles in payment intentions. Syahrivar *et al*. (2022) found that self-indulgence, social interaction, and competition positively predicted Indonesian millennial gamers' intentions to purchase virtual goods, while utility functioned as a negative predictor. Studies with Indonesian respondents have shown that perceived value and loyalty influence IAP purchase intentions among Mobile Legends and Love Nikki players (Purnami & Agus, 2020; 2021), and UTAUT findings linked performance expectancy and effort expectancy to purchase intention in freemium mobile games during the Covid-19 period (Ericska *et al*., 2022). Ericska *et al*. (2022) also reported that although Indonesia represents Southeast Asia's largest gaming market, the proportion of freemium users who pay remained small (2.2% in their reference period).

Given industry developments, evolving monetization models, and findings on preferences, resistance, and spending variation—both globally and in Indonesia—research explicitly mapping player preferences across monetization models (free-with-ads vs. paid-premium vs. freemium-with-IAP) while analyzing factors influencing WTP remains needed. Although Indonesia's gaming market ranks largest in Southeast Asia, characterized by high smartphone penetration yet relatively low purchasing power and a strong gaming culture with small proportions of paying users (Ericska *et al*., 2022), empirical understanding of how Indonesian players evaluate different monetization approaches and what drives their payment decisions remains underdeveloped. The present study addresses these gaps by examining monetization preferences and WTP among Indonesian mobile game players, building on literature regarding monetization evolution, resistance and fairness themes, and extreme spending variation in mobile free-to-play and freemium ecosystems (Salehudin & Alpert, 2022; Harviainen *et al*., 2018; Kostopoulos *et al*., 2023; Zendle *et al*., 2023; Syahrivar *et al*., 2022). The study pursues three objectives: first, to map Indonesian mobile game players' preferences across three primary monetization models—free-with-ads, freemium with IAP, and premium no-ads; second, to analyze how psychological factors including perceived value, enjoyment, quality, fairness, social norms, price sensitivity, and perceived aggressive monetization influence purchase intention (PI); and third, to identify determinants of both the decision to pay (WTP_bin) and payment amount (WTP_Rp) in freemium mobile game settings. Four research questions guide the inquiry: Which monetization model do Indonesian mobile game players prefer? Which psychological factors most strongly influence IAP purchase intentions? What factors differentiate players willing to pay (payers) from those unwilling (non-payers)? And

among players willing to pay, what factors influence their spending amounts?.

2 | BACKGROUND THEORY

Payment decisions in mobile games and freemium services involve psychological constructs frequently examined in marketing, information systems, and behavioral economics research: perceived value, perceived quality and quality expectations, price fairness and perceived fairness, perceived enjoyment and hedonic value, social norms and spending stigma, and reference price with price sensitivity. Conceptually, freemium payment decisions represent trade-off evaluations between benefits—value, quality, enjoyment, and social factors—and sacrifices including price, risk, and unfairness, influenced by social norms and the "free" reference point (Zeithaml, 1988; Dodds *et al*., 1991; Shampanier *et al*., 2007; Xia *et al*., 2004). In gaming, these mechanisms operate with particular characteristics: many players grow accustomed to zero pricing in free-to-play models, purchases may be cosmetic or functional which raises fairness concerns, and payment decisions frequently reflect community and peer effects (Wang *et al*., 2022; Wang *et al*., 2023; Salehudin & Alpert, 2022, 2024).

2.1 Perceived Value

Marketing literature defines perceived value as consumers' overall assessment of product or service utility based on comparisons between what they receive and what they sacrifice (Zeithaml, 1988). The price-quality-value model positions value as a consequence of quality perceptions and sacrifice perceptions (price) that subsequently shape purchase willingness (Dodds *et al*., 1991). In digital services and freemium offerings, researchers often distinguish multiple value dimensions—functional, hedonic, social, and price value—because users seek not only functional benefits but also enjoyment and status or relational outcomes (Sweeney & Soutar, 2001; Tyrväinen & Karjaluoto, 2024). Consumption Values Theory explains that consumption choices may be driven by functional, social, emotional, epistemic, and conditional values; the framework suits gaming because playing and purchasing motives vary across players and monetization designs (Sheth *et al*., 1991). Empirical evidence from games and mobile applications demonstrates value as a strong predictor of payment behavior. Hsiao and Chen (2016) found that several value forms—playfulness as hedonic value, connectedness, and rewards—drive loyalty, and loyalty combined with "good price" perceptions drives IAP purchase intentions. Hsu and Lin (2016) showed that perceived value (utilitarian and hedonic) and social influence increase stickiness and in-app purchase intentions in mobile applications. Studies explicitly targeting freemium demonstrate that perceived value dimensions from free versions—functional, hedonic, social, and price—predict willingness to pay (WTP), with effect strength varying by monetization strategy such as selling virtual items versus restricting features (Tyrväinen & Karjaluoto, 2024). In mobile gaming, Wu and Andrizal (2021) showed perceived value of virtual goods relates to willingness to consume and pay. Measurement typically employs Likert scales in either global "value for money" formats or multi-dimensional approaches. Classic items adapted from Dodds *et al*. (1991) include "The product/item represents a good buy" or "The product/item offers good value relative to its cost" (Dodds *et al*., 1991; Wu & Andrizal, 2021). Multi-dimensional approaches like PERVAL measure emotional value, social value, quality/performance value, and price/value for money with items such as "Buying/using makes me feel good" (emotional), "Improves the way others see me" (social), and "Value for money" (Sweeney & Soutar, 2001). In freemium settings, dimensions can be game-specific: functional value ("helps progress/comfort"), hedonic value ("more exciting/enjoyable"), social value ("helps appearance/recognition"), and price value ("worth the price") (Tyrväinen & Karjaluoto, 2024).

2.2 Perceived Quality and Quality Expectations

Beyond value, payment decisions relate to perceived quality and quality expectations. Service quality literature positions quality as evaluation of service excellence, performance, and consistency in meeting user needs. SERVQUAL views quality as the gap between expectations and perceptions across reliability, responsiveness, assurance, empathy, and tangibles dimensions (Parasuraman *et al*., 1988), while SERVPERF emphasizes performance-based measurement alone (Cronin & Taylor, 1992). In the Expectancy-Disconfirmation framework, satisfaction forms from comparing performance with expectations, and satisfaction subsequently influences intentions and continued behavior (Oliver, 1980). In freemium, expectations toward free versions can establish standards that influence whether premium versions feel worth purchasing. In free-to-play games, Hamari *et al*. (2017) found that service quality explains freemium usage continuance but does not always directly influence premium purchases; effects tend to be indirect through usage intensity. The finding matters because it explains why many high-quality games maintain low conversion rates—players enjoy free quality without automatically seeing reasons to pay. Perceived quality measurement can adapt from SERVQUAL/SERVPERF, for instance reliability ("The game runs stably and reliably"), responsiveness ("Support/updates are quick"), assurance ("Game operators can be trusted"), and empathy ("Operators understand player needs") (Parasuraman *et al*., 1988; Cronin & Taylor, 1992;

Hamari *et al*., 2017). For quality expectations, items can address pre-experience expectations ("I expect the game to be fair and stable") and disconfirmation ("Game performance exceeds my expectations") (Oliver, 1980).

2.3 Price Fairness and Perceived Fairness

In mobile games, fairness becomes central because monetization often appears visibly within gameplay experiences through pay-to-win mechanics, progress restrictions, or repeated IAP promotions. Theoretically, Equity Theory states that individuals judge fairness by comparing their input-outcome ratios with others; unfairness perceptions trigger dissatisfaction and behavioral correction (Adams, 1965). In behavioral economics, price fairness judgments function as normative constraints—consumers evaluate pricing policies not only by utility but also by moral reasonableness (Kahneman *et al*., 1986). Marketing literature summarizes price fairness as judgments of whether prices or pricing policies are "reasonable," typically formed through comparisons with reference prices, attributions of seller intentions, and situational information (Xia *et al*., 2004; Bolton *et al*., 2003). In game studies, fairness often emerges as "game fairness" or monetization fairness. Wang *et al*. (2023) showed that competence-based differentiation or character variation can weaken perceived game fairness by leading toward pay-to-win, whereas appearance differentiation (cosmetic) tends to be accepted and relates to purchases, making fairness a crucial link between monetization design and payment behavior. Regarding resistance, Salehudin and Alpert (2022) showed that IAP rejection stems from conflicting free-to-play meanings, unfairness perceptions, and aggressive monetization; their follow-up study validated Perceived Aggressive Monetization (PAM) and confirmed fairness as a determinant of conversion from non-payer to payer (Salehudin & Alpert, 2024). Fairness and price fairness measurement typically uses direct evaluative items such as "The item price is fair/reasonable," "The pricing policy is justifiable," or reverse items like "I feel treated unfairly by the price" (Xia *et al*., 2004; Bolton *et al*., 2003). In gaming, items can assess gameplay fairness: "Purchases do not provide unfair advantages," "The monetization system does not ruin competition," and for PAM: "Purchase offers feel coercive/too frequent/disruptive to gameplay experience" (Wang *et al*., 2023; Salehudin & Alpert, 2024). For richer assessment, justice dimensions (distributive/procedural) can measure outcome and process fairness, such as rule consistency and probability transparency (Colquitt, 2001).

2.4 Perceived Enjoyment and Hedonic Value

Mobile games represent hedonic services, making enjoyment a primary driver of usage and, indirectly, purchases. Hedonic consumption theory emphasizes experiential aspects—fantasy, feelings, and fun—as consumption's core (Holbrook & Hirschman, 1982). In technology acceptance, UTAUT2 includes hedonic motivation as a driver of usage intention, particularly in consumer IT settings, alongside price value and social influence (Venkatesh *et al*., 2012). In mobile gaming, Hsiao and Chen (2016) included playfulness (hedonic value) as a loyalty antecedent that subsequently drives IAP intentions; Tyrväinen and Karjaluoto (2024) also positioned hedonic value as a perceived value dimension predicting freemium WTP. Perceived enjoyment and hedonic value measurement is typically brief and direct, for example "Playing the game is enjoyable," "The game is entertaining," "I enjoy the gameplay experience" (Hsiao & Chen, 2016; Venkatesh *et al*., 2012). To link with purchases, items can focus on premium/IAP effects: "Buying items/premium will make the game more enjoyable/exciting" (Tyrväinen & Karjaluoto, 2024).

2.5 Social Norms and Spending Stigma

Payment decisions in games are not purely individual choices; they are influenced by community norms, peer effects, and potential social stigma around "spending money on games." In Theory of Planned Behavior (TPB), subjective norm is defined as perceived social pressure to perform or not perform a behavior; subjective norm combines with attitude and perceived behavioral control to form intention (Ajzen, 1991). Norms literature also distinguishes descriptive norms (what others do) and injunctive norms (what others approve), both of which can influence behavior (Cialdini *et al*., 1991). In UTAUT2, social influence represents beliefs that important others expect the individual to use a technology (Venkatesh *et al*., 2012). In mobile apps and games, Hsu and Lin (2016) showed social influences contribute to IAP intentions and stickiness. Peer influence studies in gaming reveal more specific mechanisms. Wang *et al*. (2022) demonstrated that non-functional (cosmetic) item purchases can be triggered by close and distant friend influences through two psychological mechanisms: envy (toward friends' outcomes, appearances, or attributes) and conformity (tendency to follow group choices). Social norms thus operate not merely as "approval" but as emotional and conformity drivers. In emerging markets, Syahrivar *et al*. (2022) found that social interaction and competition positively relate to Indonesian millennial gamers' intentions to purchase virtual goods, reinforcing the relevance of social dimensions in payment decisions. Meanwhile, spending stigma can be understood through stigma as a "discrediting" attribute that leads individuals to manage impressions and avoid negative judgments (Goffman, 1963). In consumption, shame or embarrassment can arise from social judgments and may inhibit behaviors including purchases deemed "unnecessary" (Argo *et al*., 2005). Social norms measurement

typically includes injunctive/descriptive items: "Important people approve of me buying items," "Most of my friends buy items in games," or "My community considers cosmetic purchases reasonable" (Ajzen, 1991; Cialdini *et al*., 1991; Venkatesh *et al*., 2012). Stigma measurement can include items like "I feel ashamed if others know I spend money on game items," "I worry people will judge me negatively if I buy items" (Goffman, 1963; Argo *et al*., 2005). For interpersonal influence susceptibility, susceptibility to interpersonal influence scales can serve as moderators, for example "I often consider others' choices before purchasing" (Bearden *et al*., 1989).

2.6 Price, Price Sensitivity, and Zero-Price Anchoring

Freemium settings are heavily influenced by zero reference points: players start from "free" and then evaluate premium/IAP relative to that anchor. Reference price literature explains that consumers form internal reference prices and use comparisons between actual and reference prices in evaluations and decisions (Winer, 1986; Kalyanaram & Winer, 1995; Mazumdar *et al*., 2005). In behavioral economics, anchoring shows that reference numbers—even random ones—can influence value estimates and WTP (Tversky & Kahneman, 1974). In "free" cases, the effect intensifies: zero-price effect demonstrates that zero pricing creates preference surges unexplainable solely by cost reduction; "free" also feels like it adds benefits (Shampanier *et al*., 2007). In freemium, Niemand *et al*. (2019) conceptualized the phenomenon as free mentality (expectations that digital services should be free) which reduces WTP, though effects can be weakened by price-quality inference (beliefs that higher prices mean better quality). Hüttel *et al*. (2018) added that free service evaluations can occur through two mechanisms: benefit-inflation (benefits feel "exaggerated") and cost-deflation (non-monetary costs like ads feel "minimized"), often mediated by positive affect. In gaming, Dinsmore *et al*. (2021) showed that certain conditions (time pressure and presentation order) can shift free versus paid preferences, suggesting situational variables or moderators may also be relevant. Additionally, price sensitivity can be understood through price consciousness and value consciousness: some consumers are highly sensitive to low prices, while others focus on quality-price trade-offs (Lichtenstein *et al*., 1993). In Prospect Theory perspective, value decisions are reference-dependent and exhibit loss aversion—paying after becoming accustomed to free can feel like a "loss" relative to the reference point (Kahneman & Tversky, 1979). Theoretical freemium models also show roles of loss aversion and stochastic reference points in driving premium WTP when free experiences create certain dissatisfactions (Mishra *et al*., 2018). In field studies, "games should be free" resistance emerges as a non-purchaser reason (Marty, 2025), and in Indonesia evidence exists that certain utility motives can reduce virtual goods payment intentions (Syahrivar *et al*., 2022). Reference price measurement can be done several ways: (i) numerical questions "In your opinion, a fair price for the item is Rp ___" (expected/fair price), (ii) comparison items "The price is higher than I expected," or (iii) psychological constructs capturing free anchors like free mentality: "Mobile apps/games should be free" and "I am reluctant to pay for digital services" (Winer, 1986; Mazumdar *et al*., 2005; Niemand *et al*., 2019). Price-quality inference can be measured with items like "Usually, more expensive products have better quality" (Niemand *et al*., 2019). Price consciousness and value consciousness can be measured with items "I pay close attention to prices" or "I seek the best value for my money" (Lichtenstein *et al*., 1993). Zero-price bias can be measured with preference items: "If a free option exists, I tend to choose it even if paid options are better" (Shampanier *et al*., 2007).

3 | METHOD

The study employed a quantitative approach with a cross-sectional survey design to analyze mobile game monetization model preferences and explain psychological factors influencing payment decisions. Payment objects were defined as in-game items and features (in-app purchases, IAP) encompassing non-functional items (skins/cosmetics) and functional items (boosters, skips, progress acceleration). Survey design was selected because it is commonly used to test relationships between psychological constructs such as perceived values, social influence, and fairness with purchase intentions in mobile games and mobile applications (Hsiao & Chen, 2016; Hsu & Lin, 2016), and remains consistent with empirical findings regarding the roles of value and fairness in game purchases (Wang *et al*., 2023) and payment rejection due to aggressive monetization perceptions (Salehudin & Alpert, 2022, 2024).

3.1 Population and Sampling.

The research population consisted of mobile game players who actively played within the past three months. The sample included both players who had made purchases (payers) and those who had never made purchases (non-payers) to capture payment decision variation that represents a key characteristic in IAP studies (Hsiao & Chen, 2016). Sampling employed non-probability methods through convenience and snowball techniques, with online questionnaire links distributed through gaming communities and social media. Inclusion criteria comprised active

mobile game users, comprehension of monetization scenarios presented in the questionnaire, and complete questionnaire responses.

3.2 Data Collection Instrument.

Data collection used an online questionnaire with Likert scales. Respondents evaluated monetization scenarios representing common mobile game practices: freemium with IAP, premium without ads, and free-with-ads. Scenarios were also differentiated by item characteristics—cosmetic items and functional items—to capture psychological mechanism differences identified in literature, particularly peer influence roles in non-functional item purchases (Wang *et al*., 2022) and fairness sensitivity in monetization designs affecting game equity (Wang *et al*., 2023). Scenario-based approaches were used because perceived value dimension influences on willingness to pay can differ according to freemium monetization strategies (Tyrväinen & Karjaluoto, 2024).

3.3 Dependent Variables.

The study employed two forms of dependent variables. First, Purchase Intention (PI) measured respondents' intentions to purchase items or features within games, assessed using Likert items consistent with purchase intention measurement practices in IAP studies (Hsiao & Chen, 2016; Hsu & Lin, 2016). Second, Willingness to Pay (WTP) was measured in two stages to represent both "willing to pay or not" and "how much" willingness to pay. The first stage was binary WTP (WTP_bin) coded as 0 for unwilling to pay and 1 for willing to pay. The second stage was nominal WTP (WTP_Rp) recording maximum amounts in rupiah respondents were willing to pay, completed only by respondents who stated willingness. Two-stage measurement was used because freemium settings often involve payment resistance rooted in zero-price anchoring and free mentality, resulting in WTP distributions with many zero values (Niemand *et al*., 2019; Shampanier *et al*., 2007; Marty, 2025).

3.4 Independent Variables.

Independent variables consisted of psychological constructs measured with Likert scales and adapted from literature:

1) Perceived Value (PV) was defined as assessment of benefits relative to sacrifices, operationalized as combined dimensions of functional, hedonic, social, and price value relevant in freemium settings and proven to predict WTP (Tyrväinen & Karjaluoto, 2024) and virtual goods consumption behavior (Wu & Andrizal, 2021).
2) Perceived Enjoyment (ENJ) was defined as the level of enjoyment during gameplay that plays a role in loyalty and IAP purchase intentions (Hsiao & Chen, 2016).
3) Perceived Quality/Quality Expectations (QUAL) was defined as perceptions of game service quality encompassing reliability, assurance, responsiveness, and empathy aspects, related to freemium service usage and pathways toward premium purchases (Hamari *et al*., 2017).
4) Price Fairness/Perceived Fairness (FAIR) was defined as perceptions of pricing and monetization rule reasonableness, which can be influenced by differentiation design in games (Wang *et al*., 2023) and serves as a key determinant in conversion from free players to paying players (Salehudin & Alpert, 2024).
5) Social Norms & Peer Influence (SN) was defined as perceived social pressure and influence regarding item purchases, proven to relate to purchase intentions in mobile apps and games (Hsu & Lin, 2016), and can operate through psychological mechanisms in non-functional item purchases (Wang *et al*., 2022).
6) Reference Price & Price Sensitivity (RPPS) was defined as tendencies to evaluate premium prices against "free" references, encompassing free mentality and price-quality inference (Niemand *et al*., 2019) and related to decision process changes when zero prices are offered (Shampanier *et al*., 2007) as well as benefit and non-monetary cost evaluations of free services (Hüttel *et al*., 2018).
7) Perceived Aggressive Monetization (PAM) was defined as perceptions that game monetization is aggressive and coercive, which reduces willingness to spend and is rooted in fairness and psychological reactance (Salehudin & Alpert, 2022, 2024).

3.5 Data Analysis.

Prior to hypothesis testing, data were analyzed descriptively to characterize respondent profiles, monetization model preferences, payer and non-payer proportions, and WTP distributions. Instrument quality was tested using Cronbach's alpha to assess construct internal reliability, with the formula:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k}\sigma_i^2}{\sigma_T^2}\right)$$

Where $k$denotes the number of items in the construct, σ_i^2denotes the variance of the i-th item, and σ_T^2denotes the

variance of the total construct score. Each construct score was formed from aggregation of valid and reliable items. Hypothesis testing employed regression analysis selected for its simplicity and appropriateness to the dependent variable characteristics used. Purchase Intention was analyzed using multiple linear regression:

$$PI_i = \beta_0 + \beta_1 PV_i + \beta_2 ENJ_i + \beta_3 QUAL_i + \beta_4 FAIR_i + \beta_5 SN_i + \beta_6 RPPS_i + \beta_7 PAM_i + \varepsilon_i$$

The decision to be willing to pay was analyzed using binary logistic regression:

$$\Pr\left(WTP\_bin_i = 1\right) = \frac{1}{1 + \exp\left(-(\alpha_0 + \alpha_1 PV_i + \alpha_2 ENJ_i + \alpha_3 QUAL_i + \alpha_4 FAIR_i + \alpha_5 SN_i + \alpha_6 RPPS_i + \alpha_7 PAM_i)\right)}$$

The magnitude of nominal WTP was analyzed using linear regression on respondents who stated willingness to pay, with log transformation to stabilize the distribution:

$$\ln\left(WTP\_Rp_i\right) = \theta_0 + \theta_1 PV_i + \theta_2 ENJ_i + \theta_3 QUAL_i + \theta_4 FAIR_i + \theta_5 SN_i + \theta_6 RPPS_i + \theta_7 PAM_i + u_i$$

The analysis sequence separates decisions into two stages: the conversion stage from non-payer to payer and the payment amount determination stage, aligned with the two-part decision mechanism concept in IAP payment behavior (Salehudin & Alpert, 2024), while maintaining implementation simplicity by using only linear and logistic regression without SEM.

4 | RESULTS AND DISCUSSION

4.1 Results

The study involved N = 210 mobile game player respondents. Overall, monetization model preferences showed clear tendencies toward free models, where the majority of respondents chose free-with-ads games (54.3%) and freemium with in-app purchases (30.5%), while only 15.2% chose premium no-ads. The pattern reinforces mobile game market characteristics that prioritize initial access without cost, with payment decisions emerging selectively among some users. Accordingly, the proportion of respondents willing to pay (WTP_bin = 1) was 35.2%, leaving non-payers as the majority. The finding matters because it indicates that overly "coercive" monetization strategies may not align with dominant user preferences.

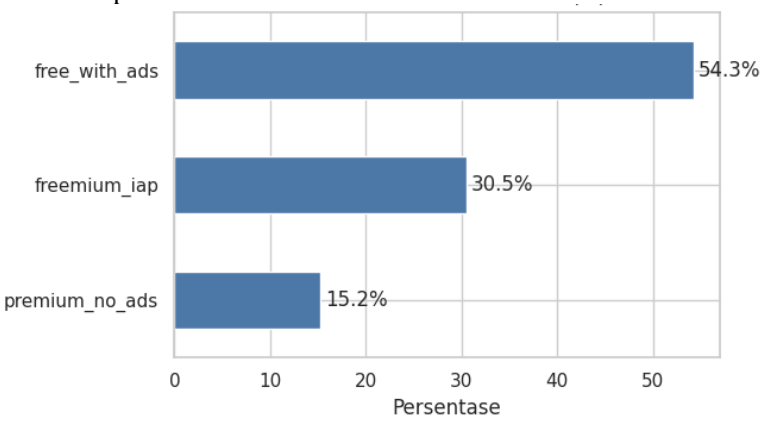

Figure 1. Monetization Model Preferences

Regarding respondent perceptions of research constructs, mean values were at moderate levels with averages ranging approximately 3.93–4.14. The highest mean appeared in SN (Mean = 4.139; SD = 1.128), indicating social influence at a fairly noticeable level, while other constructs were relatively balanced: PV = 4.086, FAIR = 4.085, PAM = 4.067, QUAL = 4.014, RPPS = 4.008, and ENJ = 3.928. Average Purchase Intention (PI) = 3.877 (SD = 1.025) showed purchase intentions at a moderate level; meaning that although users tend to choose free access, room remains to drive purchase intentions if value perceptions and gameplay experiences are judged strong. Among respondents willing to pay (n = 74), WTP_Rp showed asymmetric distribution: median Rp 19,395 and mean Rp 22,954 (SD = Rp 13,043), with a range from Rp 6,863 to Rp 66,526. The higher mean compared to median indicates a small proportion of respondents with relatively high WTP. Therefore, using natural log (ln) transformation for WTP magnitude analysis was deemed relevant to stabilize distribution and reduce outlier influence.

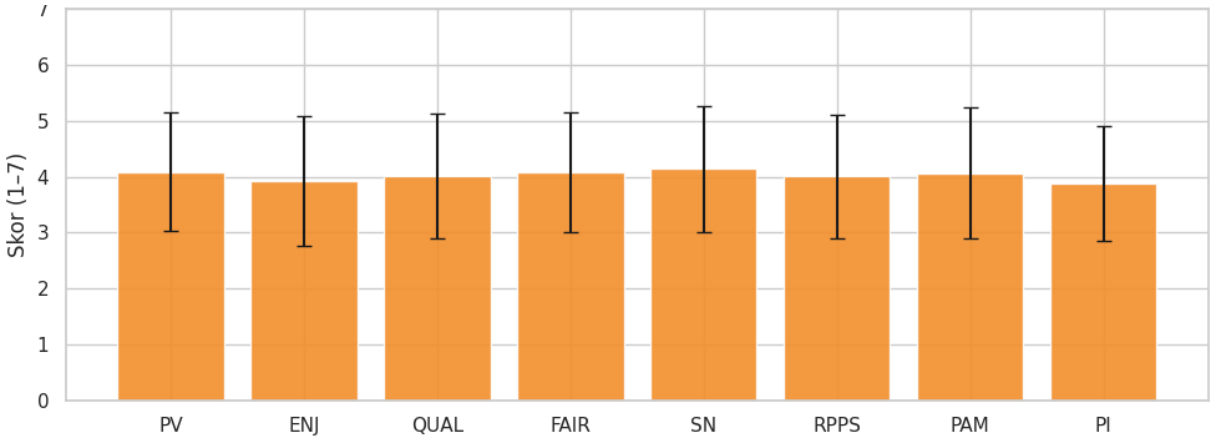

Figure 2. Construct Means

Reliability testing showed that all constructs had very good internal consistency. Cronbach's alpha values were in the high range for all constructs (PV = 0.925; ENJ = 0.935; QUAL = 0.926; FAIR = 0.927; SN = 0.934; RPPS = 0.921; PAM = 0.931), each with 4 items. The results indicate that items within each construct measure the same concept stably, making them suitable for use as a basis for regression model testing. Multiple linear regression testing for PI was significant and had strong explanatory power (R^2 = 0.640; F = 51.39; p < 0.001). Partially, PV emerged as the strongest positive predictor (B = 0.495; p < 0.001), followed by ENJ (B = 0.255; p < 0.001). Additionally, QUAL (B = 0.106; p = 0.0076), FAIR (B = 0.144; p = 0.0005), and SN (B = 0.125; p = 0.0016) also had significant positive effects on PI. Conversely, RPPS had a significant negative effect (B = -0.294; p < 0.001) and PAM had a significant negative effect (B = -0.316; p < 0.001). Interpretively, purchase intentions increase when players perceive high value and enjoyment, judge quality and fairness as adequate, and receive social encouragement. However, purchase intentions weaken when players hold strong price anchors or "should be free" expectations (RPPS) and when monetization is perceived as aggressive (PAM). The pattern aligns with dominant preferences for free models, as price sensitivity and resistance to aggressive monetization become inhibiting factors for purchase intentions.

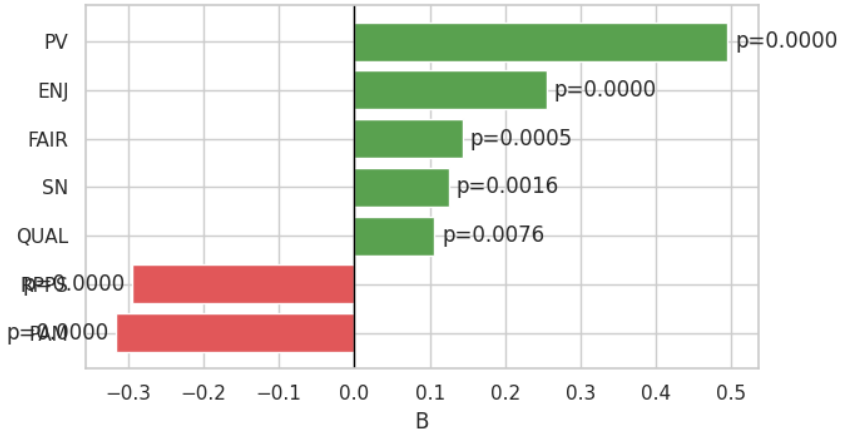

Figure 3. Regression Coefficients (DV: PI)

For the "willing to pay or not" decision (WTP_bin), logistic regression results showed model performance with McFadden R^2 = 0.157 and -2LL = 229.67. Partially, PV increased the odds of willingness to pay (B = 0.466; p = 0.0043; OR = 1.593), meaning a one-unit increase in PV relates to approximately 59.3% increased odds of willingness to pay (ceteris paribus). Conversely, RPPS strongly decreased the odds of willingness to pay (B = -0.759; p < 0.001; OR = 0.468), and PAM also decreased the odds of willingness to pay (B = -0.429; p = 0.0026; OR = 0.651). FAIR had a positive direction but was not yet significant at α = 0.05 (p = 0.0887), while ENJ, QUAL, and SN were not significant in the conversion decision. The findings confirm that the decision to become a payer is primarily influenced by value/benefit considerations (PV) as well as barriers of price sensitivity (RPPS) and aggressive monetization perceptions (PAM), not merely by gameplay enjoyment or social pressure.

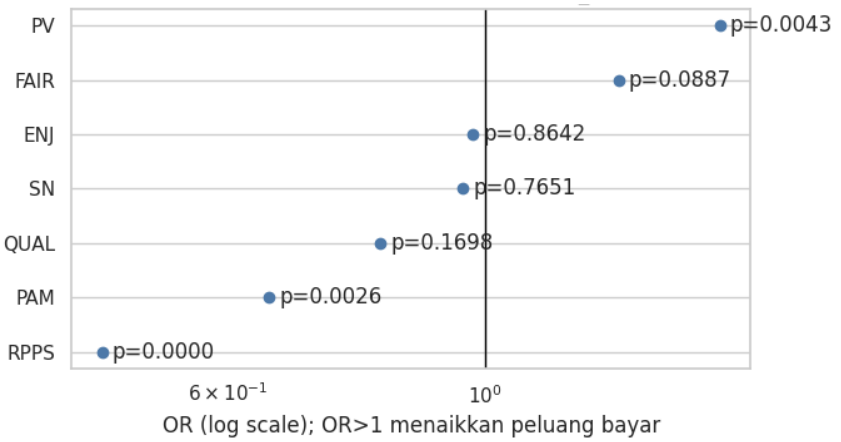

Figure 4. Logistic Regression Odds Ratios (DV: WTP_bin)

For payment amounts among the group already willing to pay (WTP_bin=1), linear regression on ln(WTP_Rp) was significant (R^2 = 0.571; F = 12.55; p < 0.001). Factors with significant positive effects were PV (B = 0.232; p < 0.001), ENJ (B = 0.167; p < 0.001), and FAIR (B = 0.151; p = 0.0013), while PAM had a significant negative effect (B = -0.162; p < 0.001). QUAL, SN, and RPPS were not significant in the model. Substantively, after users enter the "already willing to pay" stage, the amount of money they are willing to spend is more determined by combinations of perceived value, experience/enjoyment, and fairness perceptions, while aggressive monetization perceptions remain a factor suppressing payment amounts. This supports separating the process into two stages: the payer conversion stage (strongly influenced by PV, RPPS, PAM) and the WTP amount determination stage (influenced by PV, ENJ, FAIR, and PAM).

4.2 Discussion

Research findings reveal patterns consistent with current mobile game market dynamics: respondent preferences were dominated by free models (free-with-ads 54.3% and freemium IAP 30.5%), while premium no-ads was chosen by only 15.2%. The dominance of "free" choices aligns with the larger proportion of non-payers (WTP_bin=1 only 35.2%). Conceptually, the condition can be understood as manifestation of zero-price appeal and "free mentality" in freemium service settings—when free alternatives are available, many users will choose to trade monetary costs for non-monetary costs (such as watching ads or accepting certain limitations) rather than paying upfront. Dinsmore, Swani, and Dugan (2017) showed that certain tendencies such as frugality and bargain proneness relate to free version choices when free alternatives are available, aligning with respondent preferences for free-with-ads and freemium. At psychological and player experience levels, results also fit literature emphasizing the importance of engagement and retention in monetization success. Korajoki (2024) confirmed that monetization strategies affect engagement and retention; meaning models perceived as "too disruptive" or "too coercive to pay" potentially reduce experience quality and ultimately harm business outcomes. In the present study, average constructs were at moderate levels (approximately 3.93–4.14), and PI was at a moderate level (Mean 3.877), indicating that although users are comfortable with free access, purchase intentions are not automatically high—such intentions appear highly dependent on value judgments, fairness, and how monetization is implemented.

PI regression results provide strong evidence that Perceived Value (PV) is the primary driver of purchase intentions (B=0.495; p<0.001), followed by Perceived Enjoyment (ENJ) (B=0.255; p<0.001). The pattern aligns with findings in free-to-play/freemium settings that perceived value and enjoyable usage experiences are key determinants of purchase intention and tendencies to switch to premium/paid options (Hamari, Hanner, & Koivisto, 2020). Additionally, quality perceptions (QUAL), fairness (FAIR), and social norms (SN) also had significant positive effects on PI. Practically, increasing purchase intentions requires more than simply "adding products to sell"—it requires strengthening experience foundations: service/game quality, perceptions of fair prices/offers, and social context (such as friend recommendations, community, or norms in the playing environment). Conversely, two variables consistently suppressed PI: RPPS (B=-0.294; p<0.001) and PAM (B=-0.316; p<0.001). RPPS can be understood as sensitivity to price benchmarks and "should be free/cheaper" expectations, making users judge purchases as less worthwhile even when they enjoy the game. The reality of free user dominance means that when free preferences are strong, increasing purchase intentions requires clear value justification for users to overcome the mental barrier of "why should I pay?" The role of Perceived Aggressive Monetization (PAM) emerges as the most significant finding because its effects appear consistently across multiple behavioral stages. In the study, PAM reduced purchase intentions (PI), decreased the odds of becoming a payer

(WTP_bin), and reduced WTP magnitude among payers (ln(WTP_Rp)). Literature on the dark side of IAP states that aggressive monetization perceptions arise when players feel monetization design is more oriented toward "taking money" than enhancing wellbeing or playing comfort, and such conditions can trigger resistance (psychological reactance) and negative fairness judgments (Salehudin & Alpert, 2022). In other words, although freemium requires ongoing monetization, implementation methods determine whether players view it as a valuable offer or as disruptive pressure.

Logistic results for WTP_bin clarify the "payer conversion" mechanism. Significant variables were only PV (OR=1.593) as a driver, and RPPS (OR=0.468) and PAM (OR=0.651) as barriers. Interestingly, ENJ was not significant in the "willing to pay or not" decision (p=0.8642), although ENJ was significant for PI and also significant for WTP magnitude in the subsequent stage. The pattern makes sense if payment decisions are considered threshold decisions: users may greatly enjoy a game but still choose not to pay because they feel "free is enough" or object to monetization (price anchoring and aggressive perceptions). After that threshold is crossed (among the payer group), enjoyment becomes relevant again in determining how much value they want to spend. Within the framework, research findings support separating the process into two stages: (1) conversion to payer is primarily determined by value and psychological barriers to payment, (2) WTP magnitude determination is influenced by combinations of value, enjoyment, and fairness. In WTP magnitude analysis (ln(WTP_Rp)) for payers, PV, ENJ, and FAIR had significant positive effects, while PAM had a significant negative effect. When players are already in a "willing to pay" state, they tend to pay more if they feel the purchase provides real value, is enjoyable, and is fair. Fairness findings align with literature emphasizing that players are highly sensitive to feelings of fairness—especially regarding pay-to-win mechanics—and prefer monetization that does not create competitive imbalances (Korajoki, 2024). Freemium studies in competitive game settings also show that certain differentiation forms touching performance can damage fairness and impact attitudes/purchases, whereas cosmetic/appearance differentiation tends to be more acceptable (Wang *et al*., 2023). Results strengthen practical recommendations: "safe" and more acceptable monetization typically involves cosmetic items, season passes with clear value, or additional content that does not disrupt game balance.

Findings of free preference dominance also need to be understood alongside ad "intrusiveness" issues. On one hand, free-with-ads was the largest choice, meaning respondents were willing to accept ads as a trade-off. However, literature shows ads can become sources of irritation if too frequent, too disruptive, or placed at moments that ruin gameplay flow (Sorvari, 2018). Free-with-ads can be an accepted model as long as ad design does not damage core experience; otherwise, intrusive ads risk increasing negative perceptions close to PAM (feeling aggressively monetized), which in the study's results proved to suppress both payment intentions and behavior. Overall, discussion shows that the primary challenge is not simply "how to make players pay," but rather how to manage trade-offs between free user base growth and payer conversion. The data suggest that effective conversion strategies must focus on: (1) strengthening perceived value tangibly, (2) reducing RPPS barriers through clear benefit framing, bundling, and prices that feel reasonable, (3) lowering PAM perceptions with transparent, non-coercive monetization that does not disrupt balance, and (4) maintaining fairness so purchases are perceived as "optional and deserved," not "required to win." The framework also aligns with literature recommending non-intrusive monetization and rejecting pay-to-win mechanics (Korajoki, 2024), as well as explanations of unwillingness to pay due to aggressive monetization perceptions (Salehudin & Alpert, 2022).

5 | CONCLUSIONS

Analysis of 210 respondents demonstrates that monetization model preferences are dominated by free options, particularly free-with-ads (54.3%) and freemium IAP (30.5%), while premium no-ads accounts for only 15.2%. The proportion of respondents willing to pay remains relatively small (35.2%), confirming that the majority of players fall within the non-payer group. Regression analysis reveals that Purchase Intention (PI) is primarily driven by Perceived Value (PV) and Perceived Enjoyment (ENJ), with additional support from Quality, Fairness, and Social Norms. Conversely, RPPS and particularly Perceived Aggressive Monetization (PAM) significantly reduce purchase intentions. For the willingness to pay decision (WTP_bin), key factors are PV (increasing payment odds) versus RPPS and PAM (decreasing payment odds). Among the group already willing to pay, WTP magnitude increases through PV, ENJ, and Fairness, yet remains suppressed by PAM. Effective monetization strategies in mobile games must strengthen value and gameplay experience while maintaining fairness, simultaneously avoiding monetization perceived as aggressive, which demonstrably reduces purchase intentions, payment likelihood, and spending amounts.

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How to cite this article: Madepo, M. A. (2026). Monetization Models in Mobile Gaming: Analyzing User Preferences and Willingness to Pay Among Indonesian Players. *Journal Mobile Technologies (JMS)*, *4*(1), 10-24. https://doi.org/10.59431/jms.v4i1.708.