

ALGORITHMIC MANAGEMENT CONTROL ON FINANCIAL WELL-BEING: MODERATION OF FINANCIAL SELF-EFFICACY

Rian Fatra Wijaya^{1*}, Amrie Firmansyah²

¹Universitas Trisakti, Indonesia

²Universitas Pembangunan Nasional Veteran Jakarta, Indonesia

*Corresponding Author:

rianfatra98@gmail.com

Abstract

This study analyzes the influence of algorithmic management control on the financial well-being of gig workers in Indonesia and examines the moderating role of financial self-efficacy. With the increasing number of gig workers in Indonesia facing unstable incomes, job uncertainty, and algorithm-driven control pressures that can affect their financial well-being. This study uses an explanatory quantitative approach, with primary data collected through a questionnaire survey of 62 gig workers in Indonesia, comprising online motorcycle taxi drivers and marketplace sellers. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4. The study's results show that algorithmic management control negatively affects the financial well-being of gig workers. However, financial self-efficacy has not been shown to moderate such relationships. These findings confirm that the pressure of algorithmic control can worsen the financial well-being of gig workers. In contrast, financial self-confidence is not yet strong enough to mitigate its influence. Theoretically, this study expands the literature on management accounting and financial behavior in the context of the gig economy. In practice, the research results can serve as input for digital platforms, the Ministry of Manpower, and financial institutions to design work systems and financial interventions that are more favorable to gig workers.

Keywords: Algorithmic Management Control, Financial Well-Being, Financial Self-Efficacy, Gig Economy, Management Accounting

1. Introduction

The development of the gig economy has changed the global labor structure with very rapid growth in developing countries, including Indonesia. Data from the Central Statistics Agency (BPS) in August 2024 reported that 59% or around 84.2 million workers in Indonesia are classified as informal workers, and of this number, around 41.6 million people are gig workers, which covers 50% of the total informal workforce (Aditya & Abimanyu, 2024). The proportion of informal workers increased to 59.4% in February 2025, compared to 59.17% in February 2024, while the proportion of formal workers fell to 40.6% (bloombergtechnoz.com, 2025). According to data from Indonesia's Ministry of Manpower, the gig economy has become a new force in the Indonesian job market, with around 4.4 million workers in the transportation, logistics, creative services, and various digital platforms sectors (kemnaker.go.id, 2025).

One of the main characteristics of a gig worker is an unstable income and high economic uncertainty. Most gig workers remain in informal, low-wage, and minimal social protection (Zareka et al., 2025). In their research across 34 provinces from 2018 to 2023, Zareka et al. (2025) found that the average wage of gig workers remained below

the provincial minimum wage, failing to meet the standard of living set by national labor regulations. Stuart (2023) emphasized that gig workers in Indonesia often face low wages, long hours, and a lack of basic social protection, resulting in low welfare levels. In the face of low and uncertain incomes and a high cost of living, many gig workers are increasingly turning to online loans (BAZNAS, 2024). Literature studies conducted by Chatterjee et al. (2021) revealed that platform workers face challenges in covering costs and managing their household finances, and have to borrow more often than they set aside savings.

Shafira et al. (2024) explained that in a case study on the driver Ride-hailing in Indonesia, it shows that the increasing number of workers in the gig economy is not always in line with improved fairness and well-being, as drivers still face income pressures, long working hours, and a high reliance on platforms. Another study mentions that the net income of online motorcycle taxi drivers can be below the minimum wage when accounting for fuel costs, vehicle maintenance, asset depreciation, and social protection needs (Novianto et al., 2021). In Indonesia, the average income of online motorcycle taxi drivers (ojol) is often below the UMR after deducting operational costs such as gasoline, maintenance, and application discounts of 20% to 30% (databoks.katadata.co.id, 2026; news.batampos.co.id, 2025). Policy analysis of the settings of ride-hailing. It also points to a regulatory loophole that positions drivers as partners without full obligation for platform companies to provide social security and wage protection, which has an impact on low certainty and income (Wardhana & Rasji, 2026). In addition to online motorcycle taxi drivers, MSME actors who depend on e-commerce also face unstable welfare, digital workers and online sellers face income uncertainty, unclear employment status, and weak protection of labor rights (Pratomo et al., 2024). Pratomo et al. (2024) revealed that sellers in the marketplace often experience sales fluctuations, changes in platform policies, promotional costs, and shipping costs, and aggressive price competition make their cash flow unstable and make it difficult to plan medium- and long-term finances. In addition, in the e-commerce marketplace, sellers often face various challenges with very stiff competition, frequent changes in marketplace algorithms, limited resources, management of reviews and ratings, and late payments (creativemu.id, 2025; Gosling, 2025).

The main problem in this study is the low level of financial well-being among gig workers in Indonesia, and there remains a lack of research identifying the factors that affect their financial well-being. Therefore, this research is important for understanding, in depth and with measurable rigor, the conditions and factors that determine the level of financial welfare of gig workers in Indonesia.

In its application, there are several challenges faced by gig workers, one of which is the control center, which is carried out entirely by Algorithmic Management, including assignment, scheduling, monitoring, and performance evaluation (Cox & Oosterwijk, 2024; Meijerink & Bondarouk, 2023). Zhang et al. (2022) explain that the various design dimensions of the Algorithmic Management, including unfair and manipulative information asymmetry and incentives, can be detrimental to workers' well-being. Recent research by Liu et al. (2024) reveals that Algorithmic Management has hindered worker innovation and caused a decline in workers' creative and adaptive performance. System usage Algorithmic Management often results in psycho-social risks such as increased workload, irregular and unpredictable working hours, and reduced decision-making authority (M Bowdler et al., 2025). The dominance of algorithmic management will indirectly affect the financial well-being of gig workers (Zhang et al., 2022). Research on

Algorithmic Management and financial literacy is mostly conducted in developed countries, whereas in developing countries, research on this topic remains very limited (Chetioui et al., 2024). Meanwhile, developing countries have higher levels of financial vulnerability, weaker social protection systems, and a greater proportion of gig workers.

According to the Consumer Financial Protection Bureau (2015), financial well-being is defined as a condition in which a person can fulfill current and future financial obligations sustainably, feel secure about their financial future, and make choices to enjoy life. Chetioui et al. (2024) found that in Morocco, financial literacy can significantly improve individuals' financial well-being. While algorithmic management always promises company efficiency, it often destroys workers' welfare instead of improving it (Lee et al., 2021). However, research linking algorithmic management control to the financial well-being of gig workers remains very limited, especially in developing countries such as Indonesia. Research conducted by Lee et al. (2021) does not empirically test how Algorithmic Management directly affects the financial well-being of workers.

In the context of financial well-being, the role of financial self-efficacy became very important. Lown (2011) defines financial self-efficacy as an individual's belief in their ability to manage their personal finances effectively. Widarwati et al. (2025) found that gig workers in Subang Regency have high financial literacy and resilience. Danes & Haberman (2007) also emphasized the importance of financial self-efficacy in financial behavior. Financial literacy has a significant positive impact on financial self-efficacy and financial well-being, with financial self-efficacy partially mediating the influence of financial literacy on financial well-being (Lone & Bhat, 2024). Several studies have treated financial self-efficacy as a mediating variable. However, for gig workers subject to algorithmic management control, it moderates the relationship between algorithmic management and financial well-being. This role has not been explored in depth.

This study aims to analyze the influence of algorithmic management control on the financial well-being of gig workers in Indonesia and to test the moderating role of financial self-efficacy in the relationship between Algorithmic Management Control and their financial well-being. This research was conducted in Indonesia, which has the largest gig worker population in Southeast Asia (4.4 million workers), a very high proportion of informal workers (59.4%), a growing social protection system, and a diversity of digital platforms (transportation, e-commerce, creative services). Meanwhile, there are still few studies that specifically make financial well-being gig workers as the main focus. Furthermore, this study was the first to test whether the platform's algorithms actually affected financial well-being. Gig workers in Indonesia have been highlighting issues of autonomy, justice, and work stress. In addition, this study is the first to explore the role of financial self-efficacy as a moderator in the relationship between algorithmic management control and financial well-being. In contrast, previous research treated this variable as a mediator. The use of this moderation variable is based on social cognitive theories (Bandura, 2005) and the theory of behavior change in the psychological literature (Bandura, 1977).

Theoretically, this research contributes to the management accounting literature by demonstrating that the management control system affects not only organizational performance but also the psychological and financial well-being of individual workers (Lee et al., 2021). In practical terms, the findings of this study are relevant to digital platforms, the Ministry of Manpower, financial institutions, and gig workers. For platform provider companies, the study's results can serve as the basis for designing an algorithmic management system more oriented towards workers' financial well-being

through increased transparency, incentive adjustments, and financial planning support features (Lee et al., 2021; Zhang et al., 2022). For the Ministry of Manpower, empirical evidence of the relationship between algorithmic control and financial well-being can inform the formulation of gig worker protection regulations and the design of more targeted social protection programs (Milanez et al., 2025). For financial institutions and non-profit organizations, an understanding of the role of financial self-efficacy can inform the design of financial literacy products and programs that better suit the needs of gig workers (Politely, 2023).

2. Theoretical Background

2.1 Social Cognitive Theory

Social cognitive theory explains that individual behavior is shaped by the mutual interaction between personal, behavioral, and environmental factors (Bandura, 2005). Bandura (2005) explains that, in this theory, an individual's belief in his or her own abilities is an important factor in determining the choice of action, perseverance, and responses to environmental pressures. In the context of gig workers, the algorithm-controlled digital platform work environment can be understood as an external environment that influences workers' perceptions of control, stress, and financial decisions (Bandura, 2005). The triadic reciprocal causation model in social cognitive theory posits that personal factors (such as cognitive, affective, and biological events), behavioral patterns, and environmental influences operate as interacting determinants that influence one another bidirectionally. This framework is particularly relevant for understanding how gig workers navigate the complexities of platform-based work, where algorithmic management creates a unique environmental context that shapes workers' beliefs, behaviors, and ultimately their financial outcomes.

2.2 Behavioral Change Theory

Behavioral change theory posits that individuals with high self-efficacy are more confident in their ability to overcome obstacles and achieve expected outcomes (Bandura, 1977). Self-efficacy, as the core construct of this theory, refers to people's beliefs about their capabilities to produce designated levels of performance and to influence events that affect their lives. In the financial domain, the concept has evolved into financial self-efficacy, which describes an individual's confidence in effectively managing expenses, savings, debt, and long-term financial planning (Lown, 2011). Sabrin et al. (2021) explain that individuals with high financial self-efficacy tend to show healthier financial behaviors and achieve better financial well-being. Behavioral change theory provides a robust framework for understanding how individuals' beliefs about their financial capabilities influence their financial behaviors and outcomes, particularly in challenging and uncertain environments such as the gig economy.

2.3 Algorithmic Management Control

Algorithmic management control refers to the use of algorithms to allocate tasks, supervise work, evaluate performance, and determine incentives or sanctions in a platform-based work system (Meijerink & Bondarouk, 2023). In gig jobs, these controls often occur in real time and lack transparency, so workers do not always understand the platform's decision-making basis for order allocation, task prioritization, or changes to incentive schemes (Zhang et al., 2022). Algorithmic management represents a fundamental shift in how work is organized and controlled, replacing traditional

managerial oversight with technology-mediated coordination and control mechanisms. This condition can increase income uncertainty and reduce workers' financial security, which is a key component of financial well-being (Consumer Financial Protection Bureau, 2015). The lack of transparency in algorithmic decision-making creates information asymmetry between platform owners and workers, with workers subject to rules and performance evaluations they do not fully understand, leading to feelings of powerlessness and reduced autonomy.

2.4 Financial Self-Efficacy

Financial self-efficacy is defined as an individual's confidence in their ability to perform financial behaviors and manage financial tasks effectively successfully (Lown, 2011). This concept extends the general self-efficacy framework to the specific domain of personal finance, encompassing beliefs about one's capability to earn money, save, budget, invest, and manage debt. Individuals with high financial self-efficacy tend to demonstrate proactive financial behaviors, including regular saving, prudent spending, effective debt management, and long-term financial planning (Sabrin et al., 2021). Financial self-efficacy serves as a psychological resource that enables individuals to persist in the face of financial challenges and adapt to changing financial circumstances. In the context of gig workers, financial self-efficacy is particularly important because it influences how workers manage income volatility, plan for uncertain futures, and cope with the financial pressures inherent in platform-based work.

2.5 Financial Well-Being

Financial well-being is a state in which a person can fully meet current and ongoing financial obligations, feel secure about their financial future, and make choices that allow them to enjoy life (Consumer Financial Protection Bureau, 2015). Financial well-being encompasses both objective financial indicators (such as income, savings, and debt levels) and subjective perceptions of financial security and freedom. The Consumer Financial Protection Bureau identifies four key elements of financial well-being: control over day-to-day finances, capacity to absorb a financial shock, financial freedom to make choices, and progress toward financial goals. In the gig economy context, financial well-being is particularly vulnerable due to income instability, lack of employment benefits, and limited social protection, making it essential to understand the factors that influence gig workers' financial outcomes.

2.6 Review of Previous Research

The relationship between algorithmic management and worker well-being has been examined in several studies. Zhang et al. (2022) found that algorithmic management potentially harms worker well-being through information asymmetry, manipulative incentive design, rating pressure, and loss of work autonomy. Felix et al. (2023) explained that workers' preferences for autonomy and job security also interact with their perceptions of algorithmic management, thereby shaping their work experience on the platform. In the Indonesian context, Zareka et al. (2025) found that when gig workers are already facing unstable incomes and minimal social protection, additional pressure from algorithmic management control allegedly worsens financial well-being. Meijerink and Bondarouk (2023) emphasized that algorithmic management creates a work environment characterized by real-time surveillance, performance pressure, and limited transparency, which can increase worker stress and reduce job satisfaction.

The role of financial self-efficacy in influencing financial outcomes has also been extensively studied. Hesniati et al. (2025) found that financial self-efficacy is positively related to financial behavior and financial well-being because financially confident individuals are better able to plan expenses, build an emergency fund, and manage debt. Lone and Bhat (2024) also found that financial self-efficacy is an important psychological mechanism explaining why individuals with greater financial capacity are more likely to have higher financial well-being. Sabrin et al. (2021) explained that individuals with high financial self-efficacy tend to show healthier financial behaviors and achieve better financial well-being. Wiharno et al. (2026) found that gig workers with low financial self-efficacy are more susceptible to algorithmic pressure because they have weaker psychological and behavioral capacity to cope with income uncertainty.

Previous research has largely examined algorithmic management and financial well-being separately, with limited attention to the moderating role of financial self-efficacy in their relationship. While individual studies have explored the direct effects of algorithmic management on worker well-being and of financial self-efficacy on financial outcomes, the interaction between these factors remains underexplored. The research gap in this study lies in the limited understanding of whether financial self-efficacy can buffer the negative effects of algorithmic management on gig workers' financial well-being. Additionally, most previous studies have focused on developed markets or Western contexts, leaving a significant gap in knowledge regarding the dynamics of algorithmic management and financial well-being in the Indonesian gig economy context.

2.7 Hypothesis Development

2.7.1 The Influence of Algorithmic Management Control on Financial Well-Being

According to Social Cognitive Theory, a work environment characterized by stress and uncertainty will affect an individual's perceptions and financial behavior (Bandura, 2005). Algorithmic management control refers to the use of algorithms to allocate tasks, supervise work, evaluate performance, and determine incentives or sanctions in a platform-based work system (Meijerink & Bondarouk, 2023). In gig jobs, these controls often occur in real time and lack transparency, so workers do not always understand the platform's decision-making basis for order allocation, task prioritization, or changes to incentive schemes (Zhang et al., 2022). This condition can increase income uncertainty and reduce workers' financial security, which is a key component of financial well-being (Consumer Financial Protection Bureau, 2015). Previous research has shown that Algorithmic Management potentially harms worker well-being through information asymmetry, manipulative incentive design, rating pressure, and loss of work autonomy (Zhang et al., 2022). Another study explains that workers' preferences for autonomy and job security also interact with their perceptions of Algorithmic Management and impact their work experience on the platform (Felix et al., 2023). In the Indonesian context, when gig workers already face unstable incomes and minimal social protection, additional pressure from algorithmic management control is alleged to worsen financial well-being (Zareka et al., 2025). Based on the previous description, the following hypothesis is proposed:

H₁: Algorithmic Management Control has a negative effect on the Financial Well-Being of gig workers in Indonesia

2.7.2 The Moderating Role of Financial Self-Efficacy on the Relationship between Algorithmic Management Control and Financial Well-Being

According to Behavioral Change Theory, self-efficacy determines how individuals respond to and cope with stressful environmental conditions (Bandura, 1977), including work pressure and income uncertainty. Bandura (1977) notes that individuals with high self-efficacy are more confident in their ability to overcome obstacles and achieve expected outcomes. Hesniati et al. (2025) found that financial self-efficacy is positively related to Financial Behavior and financial well-being because financially confident individuals are better able to plan expenses, build an emergency fund, and manage debt. Lone and Bhat (2024) also found that financial self-efficacy is an important psychological mechanism explaining why individuals with greater financial capacity are more likely to have higher financial well-being. Gig workers with higher financial self-efficacy tend to be more adaptive in managing cash flow, setting aside income during periods of high demand, and anticipating the risks of uncertainty posed by platform policy changes (Sabrin et al., 2021). In contrast, gig workers with low financial self-efficacy tend to be more susceptible to algorithmic pressure because they have a weaker psychological and behavioral capacity to cope with income uncertainty (Wiharno et al., 2026). Based on the previous description, the following hypothesis is proposed:

H₂: Financial Self-Efficacy moderates the relationship between algorithmic management control and Financial Well-Being of gig workers in Indonesia

3. Methods

3.1 Research Design

This study employs a quantitative, explanatory design to test the causal relationship between variables. The research focuses on testing hypotheses built from theories and findings from previous research. The explanatory research design enables examination of causal relationships among the independent variable (algorithmic management control), the moderating variable (financial self-efficacy), and the dependent variable (financial well-being). The research uses primary data obtained through surveys administered with structured questionnaires. The measurement uses a Likert scale from 1 to 6, ranging from strongly agree to disagree strongly. This research method is cross-sectional, in which data are collected during a single observation period to describe respondents' conditions at a given time.

3.2 Population and Sample

The population in this study comprises gig workers in Indonesia who work on online transportation platforms such as Grab, Gojek, InDrive, and Maxim, as well as on marketplaces such as Shopee, Tokopedia, Lazada, and Blibli. In the context of this study, online motorcycle taxi drivers (ojol) and sellers constitute a population characterized by high platform use. The sampling technique uses purposive sampling, with the criterion that respondents have worked on the platform for at least 1 year and have earned income from their work. This criterion is used to ensure that respondents have sufficient experience with the algorithmic system on platforms at a certain income level.

3.3 Data Collection Techniques

Data were collected through structured surveys distributed to gig workers in Indonesia who work on online transportation platforms and marketplaces. The questionnaire was designed to capture respondents' perceptions regarding algorithmic management control, financial self-efficacy, and financial well-being. The measurement uses a Likert scale from 1 to 6, ranging from strongly agree to disagree strongly. The questionnaire was distributed through various online channels, including social media and messaging platforms, to reach a wide range of respondents across different demographic groups in Indonesia. Data collection was conducted over time to obtain a sufficient number of respondents who met the purposive sampling criteria.

3.4 Operational Definition and Variable Measurement

Table 1. Operational Definition and Measurement of Variables

Variable	Type	Definition	Indicators	Scale
Algorithmic Management Control (X)	Independent	Algorithm-based work control mechanism that platforms use to allocate work, monitor activities, evaluate performance, and determine incentives and sanctions for workers (Kadolkar et al., 2025; Zhang et al., 2022)	Application monitoring, transparency of order distribution, target and rating pressure, fairness of incentives, frequency of algorithmic policy changes	Likert 1–6
Financial Well-Being (Y)	Dependent	A condition is when an individual can meet current and future financial obligations, feel secure about the financial future, and have the freedom to make life choices (Consumer Financial Protection Bureau, 2015; Puspitadewi & Darma, 2025)	Ability to meet routine needs, ability to cope with unexpected expenses, sense of security about financial future, financial stress levels, ability to enjoy life without excessive financial stress	Likert 1–6

Variable	Type	Definition	Indicators	Scale
Financial Self-Efficacy (Z)	Moderating	Individual's belief in their ability to manage personal finances effectively, including in planning expenses, dealing with financial problems, and achieving financial goals (Lown, 2011; Sabrin et al., 2021)	Confidence in budgeting, controlling spending, dealing with unexpected financial events, managing debt, and achieving long-term financial goals	Likert 1–6

Source: Developed for this research (2026)

3.5 Data Analysis Techniques

Data analysis in this study is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. PLS-SEM is a multivariate statistical method suitable for analyzing relationships between variables, particularly when multiple independent and dependent variables are involved with complex models and moderation effects. PLS-SEM was selected because it is robust to complex models with multiple constructs, does not require assumptions of multivariate normality, and is appropriate for both predictive and exploratory research.

The analysis stages include:

- 1) Descriptive Statistical Analysis: Conducted to describe the characteristics of respondents and the distribution of answers to each indicator of the research variable, including mean, standard deviation, minimum, and maximum values.
- 2) Measurement Model (Outer Model) Testing: Includes convergent validity through the value of Loading Factor and Average Variance Extracted (AVE), discriminant validity, as well as the reliability of constructs through Composite Reliability and Cronbach's Alpha. Convergent validity is assessed through loading factor values (> 0.70 ideal, 0.50 – 0.60 acceptable) and AVE (> 0.50). Discriminant validity is evaluated by comparing cross-loadings and ensuring the square root of AVE exceeds correlations between constructs. Reliability is confirmed if Composite Reliability and Cronbach's Alpha values exceed 0.70 .

Table 2. Rule of Thumb for Measurement Model Evaluation

Validity and Reliability	Parameter	Rule of Thumb
Convergent Validity	Loading Factor	> 0.70
	Average Variance Extracted (AVE)	> 0.50
	Cross Loading	> 0.70 for each variable
Discriminant Validity	Square Root of AVE and Latent Variable Correlations	Square Root of AVE $>$ Correlation between latent variables
Reliability	Cronbach's Alpha	> 0.70
	Composite Reliability	> 0.70

Source: Hair et al. (2022)

- 1) Structural Model (Inner Model) Testing: Includes the evaluation of R-square (R^2), effect size (f^2), and predictive relevance (Q^2) to assess the explanatory power and predictive ability of the model. The R-Square value measures how well the model explains the variation in the dependent variables (0.67 = strong, 0.33 = moderate, 0.19 = weak).
- 2) Hypothesis Testing: Conducted through bootstrapping procedures to obtain path coefficients, t-statistics, and p-values on the relationship of algorithmic management control to financial well-being and the effect of the interaction between algorithmic management control and financial self-efficacy on financial well-being. The effect of moderation is considered significant if the interaction path coefficient is significant ($p < 0.05$) and the t-statistic is > 1.96 . The research model can be analyzed using the following multiple linear regression equation:

$$FWB = \beta_0 + \beta_1 AMC + \beta_2 FSE + \beta_3 (AMC \times FSE) + \varepsilon$$

Where:

FWB = Financial Well-Being of Gig Workers Indonesia
 AMC = Algorithmic Management Control
 FSE = Financial Self-Efficacy
 β_0 = Constant
 $\beta_1, \beta_2, \beta_3$ = Regression coefficients
 ε = Error

4. Results and Discussion

4.1 Data Screening

Table 3. Respondent Demographics

Demographic	Count	Percentage
Age		
18 - 24	6	9.7%
25 - 34	31	50.0%
35 - 40	19	30.6%
> 40	6	9.7%
Gender		
Male	49	79.0%
Female	13	21.0%
Domicile		
Jabodetabek	30	48.4%
Non-Jabodetabek	32	51.6%
Main Platform		
Go-Jek	14	22.6%
Grab	23	37.1%
Maxim	19	30.6%
InDrive	4	6.5%
Shopee	17	27.4%
Tokopedia	6	9.7%
Others	5	8.1%

Demographic	Count	Percentage
Average Net Income per Month		
< IDR 1,000,000	9	14.5%
IDR 1,000,001 - IDR 2,500,000	31	50.0%
IDR 2,500,001 - IDR 5,000,000	16	25.8%
IDR 5,000,001 - IDR 7,500,000	5	8.1%
> IDR 10,000,000	1	1.6%
Gig Job Status		
Online Motorcycle Taxi Driver	46	74.2%
Sellers on Marketplace	16	25.8%
Working Duration on Platform		
< 1 year	14	22.6%
1 year	8	12.9%
> 1 year	40	64.5%
Income Status on Platform		
As a Primary Source of Income	39	62.9%
As Additional Income	23	37.1%
Frequency of Platform Use		
1 - 2 days	12	19.4%
3 - 4 days	11	17.7%
≥ 5 days	45	72.6%

Source: Processed data (2026)

Based on the demographic data of the questionnaire results, the average respondent was male (79%) of productive age between 25-34 years old (50%), working as online motorcycle taxi drivers (74.2%) with a fairly balanced distribution between Jabodetabek (48.4%) and non-Jabodetabek (51.6%). Most respondents use digital platforms as their main source of income (62.9%), with an average net income of IDR 1,000,001 to IDR 2,500,000 per month (50%). The most widely used digital platforms are Grab (37.1%) and Maxim (30.6%), with a very high frequency of use (more than 5 days a week) of 72.6%.

4.2 Descriptive Statistics

Table 4. Descriptive Statistics and Normality Test

Construct	Item Code	Mean	Median	Min	Max	Std. Dev.	Kurtosis	Skewness
AMC	AMC3	4.355	5.000	1	6	1.637	-0.963	-0.571
	AMC5	4.742	5.000	1	6	1.636	0.403	-1.294
	AMC7	4.048	4.000	1	6	1.791	-1.241	-0.403
	AMC9	4.516	5.000	1	6	1.701	-0.345	-0.975
	AMC11	4.855	5.000	1	6	1.457	1.016	-1.343
	AMC12	4.871	5.000	1	6	1.397	0.436	-1.147
FSE	FSE1	4.887	5.000	1	6	1.296	1.774	-1.378
	FSE2	4.516	5.000	1	6	1.400	-0.028	-0.811

Construct	Item Code	Mean	Median	Min	Max	Std. Dev.	Kurtosis	Skewness
	FSE3	4.823	5.000	1	6	1.289	0.527	-1.140
	FSE4	5.129	5.500	2	6	1.100	0.723	-1.233
	FSE5	4.919	5.000	2	6	1.274	-0.515	-0.901
	FSE6	4.823	5.000	2	6	1.129	-0.776	-0.604
FWB	FWB1	4.016	4.000	1	6	1.581	-1.022	-0.379
	FWB2	4.387	5.000	1	6	1.669	-0.668	-0.790
	FWB11	2.548	2.000	1	6	1.775	-0.758	0.805
	FWB12	3.468	3.000	1	6	1.881	-1.533	-0.023
	FWB14	4.839	5.000	1	6	1.472	1.012	-1.392
	FWB15	4.581	5.000	1	6	1.476	-0.346	-0.871
	FWB16	3.806	4.000	1	6	1.899	-1.447	-0.221

Source: Processed data (2026)

Note : AMC (Algorithmic Management Control), FSE (Financial Self-Efficacy), FWB (Financial Well-Being)

The data from the questionnaire results in Table 4 shows that, on average, each item answered by the respondent has a value range from 2.548 to 5.129. This shows that most respondents agreed with the proposed items, especially for the AMC and FSE constructs. The statistical data show that the mean is smaller than the median. This indicates that the data obtained has a left-skewed distribution (Negative Skewness). This distribution pattern is also evident in the skewness and kurtosis values, most of which are negative. Furthermore, from Table 4, it can be seen that the skewness value of the entire item is in the range of -1.392 to 0.805 ($-2 < \text{skewness} < 2$) and the kurtosis value of the entire item is in the range of -1.533 to 1.774 ($-7 < \text{kurtosis} < 7$). Based on this analysis, the data obtained in this study are normally distributed.

4.3 Structural Equation Modeling (SEM)

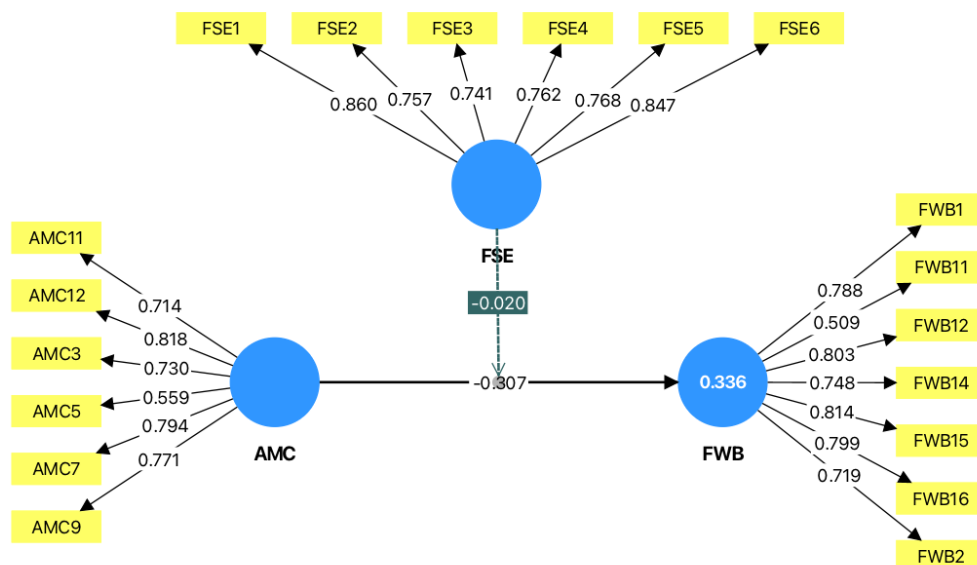


Figure 2. PLS-SEM Path Model using SmartPLS 4.1.1.8

Source: Processed data (2026)

4.4 Measurement Model Assessment: Construct Validity and Reliability

In this study, 2 types of validity and reliability test models were used, namely convergent validity (outer loading, composite reliability, average variance extracted, and Cronbach's Alpha) and discriminant validity (HTMT and Fornell-Larcker Criterion).

4.4.1 Convergent Validity

In this study, the model will be accepted if the validity test results for outer loading and Average Variance Extracted (AVE) are greater than 0.5. Furthermore, the reliability test values for Composite Reliability (CR) and Cronbach's Alpha were greater than 0.7, respectively. The results of convergent validity, processed using SmartPLS 4.1.1.8, are obtained for each validity and reliability test to meet the set standards. It can be concluded that the model built is valid and reliable.

Table 5. Convergent Validity Results

Item	Outer Loading	Cronbach's Alpha	CR	AVE
Algorithmic Management Control		0.833	0.859	0.541
I do not always understand the basics of the system of dividing orders	0.730			
I feel the need to keep chasing targets so as not to be disadvantaged by the system	0.559			
I feel pressured always to be online so as not to miss orders from the system	0.794			
I feel like incentive changes or commission cuts often happen without a clear explanation	0.771			
The order distribution scheme or incentives often change and is difficult to predict	0.714			
The change in the rules in the app made it difficult for me to plan my monthly income	0.818			
Financial Self-Efficacy		0.880	0.884	0.625
I am confident that I can manage my money well	0.860			
I can plan the future with the money I save	0.757			
I am confident I can find solutions when facing financial problems	0.741			
I believe I can choose the financial decisions that are most beneficial for me	0.762			

Item	Outer Loading	Cronbach's Alpha	CR	AVE
I am confident that I can adjust my expenses if my income suddenly decreases	0.768			
I am sure that I can be disciplined in following the financial plan that I have made	0.847			
Financial Well-Being		0.865	0.881	0.557
If I lose my job today, I can still cover my needs until I get another job	0.788			
I can routinely set aside some of my income to save	0.719			
Right now, I feel like my financial stress levels are high	0.509			
I am satisfied with my current financial condition	0.803			
I have a plan to secure my finances in the future	0.748			
The financial goals I set will be achieved	0.814			
I'm not worried about my current financial condition	0.799			

Source : Processed data (2026)

Note. : CR (Composite Reliability), AVE (Average Variance Extracted)

4.4.2 Discriminant Validity

In this study, the model will be accepted if the discriminant validity value between variables for the Heterotrait-Monotrait Ratio of Correlations (HTMT) is less than 0.9 and the square root value of the AVE for each construct (diagonal table) is greater than the correlation value of the constructs with each other on the Fornell-Larcker Criterion. Indicate HTMT values and Fornell-Larcker Criterion values obtained from SmartPLS 4.1.1.8.

Table 6. Heterotrait-Monotrait Ratio of Correlations (HTMT)

Construct	AMC	FSE	FWB	FSE*AMC
AMC				
FSE	0.205			
FWB	0.373	0.527		
FSE*AMC	0.181	0.145	0.137	

Source : Processed data (2026)

Note. : AMC (Algorithmic Management Control), FSE (Financial Self-Efficacy), FWB (Financial Well-Being)

Based on Table 6, it can be seen that the HTMT value obtained is less than 0.9, with the largest value being 0.527 and the smallest value 0.181. This shows that each construct in this study is distinct from the others.

Table 7. Fornell-Larcker Criterion

Construct	AMC	FSE	FWB
AMC	0.736		
FSE	-0.050	0.791	
FWB	-0.328	0.493	0.747

Source: Processed data (2026)

Note. : AMC (Algorithmic Management Control), FSE (Financial Self-Efficacy), FWB (Financial Well-Being)

The same is also shown in Table 7, which reinforces that each construct in this study is unique and distinct from other constructs; the values on the diagonal of the table are greater than the correlation values below them.

4.5 Structural Model Assessment: Hypothesis Testing

The next step in the analysis is hypothesis testing using the bootstrapping method with a one-tailed (1-tailed) approach at a significance level of $p < 0.1$. The hypothesis will be accepted if the t-statistic value is greater than 1.28 and the p-value is less than 0.1. Table 8 shows the results of 2 hypotheses that have been developed previously.

Table 8. Hypothesis Testing Results

Path	Std. Beta	Std. Error	t-Value	Bias	P-Value	Confidence Interval		Decision
						10%	90%	
H₁: AMC → FWB)	-0.307	0.112	2.745	-0.015	0.003	-0.410	-0.138	Accepted
H₂: FSE*AMC → FWB	-0.020	0.088	0.227	0.009	0.410	-0.134	0.090	Rejected

Source: Processed data (2026)

Note. : $p < 0.1$ (1-tailed test), AMC (Algorithmic Management Control), FSE (Financial Self-Efficacy), FWB (Financial Well-Being)

Table 9 shows the values of the Coefficient of Determination (R^2) and Effect Size (f^2). Based on the R^2 value, 33.6% of the variance in the FWB construct is explained by the AMC variable. Furthermore, judging from f^2 , the interaction effect of AMC has a direct impact on the medium category (0.139).

Table 7. Coefficient of Determination (R^2) and Effect Size (f^2)

Construct	f^2	Summary	R^2
FWB			0.336
AMC	0.139	Medium	
FSE*AMC	0.343	Large	
FSE	0.001	Small	

Source: Processed data (2026)

Note. : AMC (Algorithmic Management Control), FSE (Financial Self-Efficacy), FWB (Financial Well-Being)

4.6 Discussion

4.6.1 The Relationship between Algorithmic Management Control and Financial Well-Being

The study result shows that algorithmic management control negatively affects the financial well-being of gig workers in Indonesia. These findings indicate that the greater the influence of algorithmic control workers feel, the lower their financial well-being. This is in line with social cognitive theory, which identifies the environment as an important factor affecting individual perception, attitudes, and behavior. These results are consistent with previous research by Zhang et al. (2022), which found that algorithmic management design, particularly information asymmetry and manipulative incentives, can be detrimental to worker well-being. In addition, the findings of this study support Meijerink and Bondarouk (2023), who stated that algorithms in work management introduce a duality of efficiency within the platform but can reduce worker autonomy and create an unbalanced distribution of value. In addition, Lee et al. (2021) emphasized that algorithmic management often harms workers' well-being rather than improving it, so the results of this study strengthen the argument that algorithmic control can significantly affect the financial well-being of gig workers in Indonesia.

In Indonesia itself, this negative impact is becoming increasingly relevant as gig workers generally face unstable incomes, high operational costs, and limited social protection. This condition makes the pressure from the algorithmic system even worse, as it affects workers' ability to meet their current needs, save, and plan for their financial future. This is also in line with the findings of Zareka et al. (2025), Wibowo (2023), and Shafira et al. (2024), which show that gig workers in Indonesia are still vulnerable to low wages, long working hours, and unstable welfare. The results of this study, at first glance, are evident in the characteristics of the study respondents: the majority are online motorcycle taxi drivers with monthly net incomes in the low- to medium-range, and they use platforms frequently. In situations like this, algorithmic policy changes, commission cuts, and uncertainty in order allocation can directly affect household cash flow. Therefore, algorithmic control is no longer just an operational issue for the platform but also a matter of workers' financial well-being.

4.6.2 The Role of Financial Self-Efficacy Moderation

The results showed that financial self-efficacy did not moderate the relationship between algorithmic management control and financial well-being. This shows that an individual's belief in their ability to manage finances is insufficient to offset the negative impact of algorithmic controls on gig workers' financial well-being. Conceptually, these findings show that the influence of structural pressures from digital platforms is more dominant than individuals' psychological capacity to manage finances. Although financial self-efficacy theoretically reflects an individual's confidence in managing spending and budgeting, and in addressing financial problems, it does not seem to fully withstand the impact of income uncertainty stemming from algorithmic mechanisms.

These findings differ from research by Hesniati et al. (2025), Lone and Bhat (2024), and Sabrin et al. (2021), which showed that financial self-efficacy is positively related to financial behavior and well-being. Variations in the research context can explain these differences. In previous studies, financial self-efficacy was more often conceptualized as

directly influencing financial behavior. In contrast, this study tested it as a moderator of the relationship between algorithmic stress and financial well-being. The non-significant moderating effect may be attributed to algorithmic management control creating structural constraints that individual psychological resources alone cannot overcome. Gig workers operate within a system where income is largely determined by algorithmic decisions beyond their control, making it difficult for even those with high financial self-efficacy to fully buffer the negative effects of algorithmic pressure on their financial well-being. This finding highlights the importance of addressing structural issues in the gig economy, rather than solely focusing on individual-level interventions.

4. Conclusion

This study demonstrates that algorithmic management control negatively affects the financial well-being of gig workers in Indonesia. In other words, the stronger the algorithmic control workers feel, the lower their financial well-being. On the other hand, financial self-efficacy has not been shown to moderate the relationship between algorithmic management control and financial well-being. The results of this study show that individual confidence in managing finances is insufficient to offset the structural pressures arising from algorithm-based work systems. Therefore, efforts to improve the financial well-being of gig workers need to be made not only by strengthening individual capacity but also by improving platform management systems and providing adequate policy protection.

Theoretically, this study expands the management accounting literature by demonstrating that algorithm-based management control systems affect not only performance but also workers' financial well-being. This research also contributes to understanding the limits of self-efficacy when individuals face the strong structural pressures of digital platforms.

In practical terms, the results of this study signal for digital platforms to increase the transparency of order distribution, incentive schemes, and rule changes so that workers are better able to predict their income. For the Ministry of Manpower, these findings can serve as a basis for strengthening regulations to protect gig workers, including decent income, social security, and protection from harmful algorithmic practices. For financial institutions and social organizations, these results underscore the importance of financial literacy and planning programs tailored to gig workers. The program should not only increase workers' knowledge but also help them manage income volatility and financial risks in the gig economy.

This research has several limitations. First, the research design used is cross-sectional, so it cannot describe changes in the financial well-being of gig workers over time. Second, the number of samples is relatively limited and only includes two main groups, namely online motorcycle taxi drivers and marketplace sellers, so generalization of results to all gig workers in Indonesia still needs to be done. Third, research data was obtained through respondents' perceptions, so that subjective bias is still possible. Fourth, the research model includes only one independent variable and one moderation variable, so it does not fully capture the complexity of other factors that may also affect financial well-being, such as financial literacy, family conditions, dependents, and social support.

Further research is recommended to employ a longitudinal design to observe the dynamics of gig workers' financial well-being more comprehensively. With this approach, the influence of algorithmic control on workers' financial condition can be analyzed over time. Future research could also extend the sample to other types of gig

workers. This expansion will help generalize findings across various segments of Indonesia's gig economy. In addition, future research can add several other variables, such as financial literacy, job insecurity, work autonomy, or social support, as mediators and moderators. The approach has the potential to provide a more robust model for explaining how algorithm-based work environments affect workers' financial well-being.

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