Algorithmic Control and the Reconfiguration of Worker Agency under Institutional Voids: A Comparative Study of Resistance, Compliance, and Adaptation of Gig Economy Platforms across Emerging Economies.

JOGBENU, Abiola Mautin1

CHIDI, Christopher.Odogwu2

ELEGBEDE, Sikirulahi Tunde3

EKWOABA, Joy Onyinyechi4

MBAH, Samuel Emeka5

1, 2, 3, 4 & 5Employment Relations & Human Resource Management

Faculty: Management Sciences

University Of Lagos.

Corresponding Author: 1erhrm2025@gmail.com

2ochidi@unilag.edu.ng, 3telegbede@unilag.edu.ng, 4jekwoaba@unilag.edu.ng, 5smbah@unilag.edu.ng

Abstract

The research investigates the impact of algorithmic control on the agency of workers in gig economy platforms in emerging economies, drawing on a focus on institutional voids and the dimensions of compliance, adaptation and resistance. The study draws from a secondary panel data set of Nigeria, India and Indonesia to explore the dynamic of algorithmic control and worker agency and to compare worker reactions across different institutional settings. The relationships between the study variables were analysed using descriptive statistics, panel regression and moderation analysis. The results clearly reveal that there is a positive statistically significant relationship between algorithmic control and worker agency ($\beta = 0.521$, $p < 0.001$), meaning that algorithmic systems do not destroy worker agency but shape how workers enact agency within algorithmically defined frameworks. There is also significant interaction between algorithmic control and institutional voids ($\beta = 0.341$; $p < 0.001$), indicating a moderating effect. worker agency is also largely affected by institutional voids ($\beta = 0.298$; $p < 0.001$). The disaggregated results also indicate that algorithmic control has a significant impact on all three dimensions of worker agency, with compliance having the greatest effect ($\beta = 0.541$), adaptation the second ($\beta = 0.417$), and resistance the third ($\beta = 0.302$). The cross country results show that Nigeria has the highest level of compliance, India has the highest level of adaptation, and Indonesia has a mix of responses. The study finds that worker agency in algorithmic management is co-constituted by algorithms and institutional context. It suggests to strengthen institutional and regulatory mechanisms, increase transparency of algorithms, create proper mechanisms for the protection of workers and promote digital skills development to facilitate fairer and more sustainable practices in the gig economy in emerging economies.

Keywords: Algorithmic Control, Emerging Economies, Gig Economy, Institutional Voids, Worker Agency

Introduction

The rapid expansion of the gig economy has fundamentally transformed employment relations through its introduction of algorithmic management systems which control work distribution and performance assessment

and payment processes. Data-driven systems that take over managerial decision-making from human managers have emerged as the primary structural foundation for platform-based labour operations because they alter established concepts about how work should be supervised and how workers should have freedom and responsibility (Duggan et al., 2023; Liu & Yin, 2024). The organizations use hidden computational systems together with continuous monitoring systems and automated feedback systems to create work environments that enforce surveillance and control of workers through these systems (Cameron, 2024; Milanez et al., 2025). The new research findings indicate that algorithmic control creates a dual effect because it takes away workers' ability to make choices while giving organizations control over their actions through rating systems and task distribution algorithms and performance evaluation systems that drive their work actions (Chigbu, 2026). The research shows that algorithmic management can create situations where workers become more engaged in their work through job crafting but their sense of freedom decreases because they experience both empowerment and limitations in their work (Liu & Yin, 2024). The research findings on delivery work in platform-based systems show that algorithmic control creates greater work requirements while linking payment directly to performance evaluations which leads to excessive work hours and negative health consequences (Zhang & Zhengwei, 2025). The research findings show that workers maintain their ability to make decisions but their decision-making process changes because they adopt different strategies based on the situational factors that exist in their environment.

The new configurations become difficult to implement in developing nations because formal regulatory systems and labour rights protections and enforcement mechanisms do not exist within those areas which need to establish rules for platform operations and worker rights. The research shows that gig work functions as an essential income source for people who live and work in areas where labour controls and social safety nets remain weak (Chen & Li, 2026). The power imbalance between platforms and workers increases because institutional authorities do not exist to monitor operations which enables algorithmic control systems to function without showing their operational details. The workers in these environments need to depend on unofficial methods together with their social connections and personal skills to handle the limitations that platforms impose on them (Bucher et al., 2020; Waldkirch et al., 2021). The current research literature on algorithmic management has several significant research gaps which need to be addressed. The existing studies center their focus on Western countries and areas with strict regulations which prevents their findings from applying to developing countries that have distinct institutional structures (Chigbu, 2026). The existing research on algorithmic control demonstrates its impact on worker performance and well-being and job crafting activities, yet researchers have not conducted enough studies to compare worker responses to these systems in different institutional settings. The research field needs better theoretical concepts to explain how workers respond to authority commands in different cultural environments. The existing literature on labour process theory does not adequately explain how macro-level institutional voids interact with micro-level algorithmic controls to affect worker agency.

The gig economy platforms use algorithmic control systems which establish new rules for worker agency (Kellogg et al., 2020; Möhlmann et al., 2021) yet researchers have not examined how these new rules change depending on the institutional voids that exist in emerging economies. The global application of algorithmic systems leads to standardized methods of control yet workers in different regions will respond differently based on their local institutional framework plus the strength of their regulatory systems and economic conditions (Wood et al., 2019; Meijerink and Bondarouk, 2021). The absence of research studies that compare different compliance (Möhlmann et al., 2021) or resistance and adaptation (Wood et al., 2019) behaviours between emerging economies restricts both theoretical development and practical application of research results. The current research base defines worker agency through two contradictory pathways because it sees algorithmic control as an agency limitation and as the basis for worker control through distinct resistance methods. Workers who work in environments without strong institutional protections use various methods to manage and modify algorithmic control systems. The analysis requires cross-country research that combines algorithmic management with institutional conditions to explain how worker agency changes in the global gig economy. The research will investigate how algorithmic control modifies worker agency in emerging economies by comparing different methods of resistance and compliance and adaptation that happen in

various institutional settings.

The study investigates the following objectives:

- to examine the relationship between algorithmic control and worker agency among gig economy workers in emerging economies;
- to examine the moderating effect of institutional voids on the relationship between algorithmic control and worker agency among gig economy workers;
- to examine the effects of algorithmic control on the resistance, compliance and adaptation dimensions of worker agency within gig economy platforms;
- to compare the relationship between algorithmic control and worker agency across selected emerging economies with differing levels of institutional voids.

The following have been hypothesized by the researcher:

H_1: Algorithmic control has a significant effect on worker agency among gig economy workers in emerging economies.

H_2: Institutional voids significantly moderate the relationship between algorithmic control and worker agency among gig economy workers in emerging economies.

H_3: Algorithmic control has a significant effect on the resistance, compliance and adaptation dimensions of worker agency among gig economy workers in emerging economies.

H4: The relationship between algorithmic control and worker agency varies significantly across emerging economies due to differing levels of institutional voids.

Literature Review

Algorithmic Control and Worker Agency in Gig Economy Platforms

The modern research tradition in labour process theory studies how algorithmic systems control employees and their ability to make independent choices. Algorithmic control describes the system which uses data analysis to assign work tasks and evaluate employee performance and apply disciplinary actions without needing human monitoring (Duggan et al., 2023; Kellogg et al., 2020). Gig economy platforms implement this control system by replacing traditional managerial systems with automated decision-making methods which create new limits for employee independence. Empirical research indicates that these mechanisms operate through task allocation, ratings, automated performance evaluation, pricing and access to work, thereby influencing workers' day-to-day decisions and their capacity to exercise discretion (Kellogg et al., 2020; Duggan et al., 2023).

Recent studies found that algorithmic control creates two opposing effects which reduce worker autonomy as a result. Liu and Yin (2024) demonstrate that algorithmic systems promote employees to develop their work through job crafting, which shows that workers maintain their freedom to choose their work path. The systems establish unmovable boundaries through hidden rating systems and performance evaluations which block employees from making actual choices. This empirical tension is important because it suggests that algorithmic control should not be treated as producing a uniform reduction in worker agency. Rather, workers may retain discretion by modifying how they perform tasks, selecting when and where they work, or developing strategies for responding to platform requirements, even where the platform retains substantial control over the conditions of work.

Cameron (2024) demonstrates that algorithmic management systems establish surveillance systems into daily work activities, which enable organizations to use monitoring as a method of control while they present it as improved productivity. This research collection establishes a new understanding of the relationship between control and autonomy which traditional theories have defined. Workers can choose their path within the system-defined digital framework according to contemporary academic thought which states that workers gain the ability to choose their paths (Chigbu, 2026). However, the existing empirical evidence is predominantly derived from developed or high-income economies. Consequently, the extent to which the observed relationship between algorithmic control and worker agency applies to emerging economies remains insufficiently established. The studies demonstrate that their results originate from developed economies while emerging markets present different structural conditions which create doubts about their validity. The evidence therefore provides the basis for the first hypothesis of this study, which proposes that algorithmic control has a significant effect on worker agency among gig economy workers in emerging economies. The study moves beyond the conceptual claim that algorithms either constrain or enable agency by empirically testing the direction and significance of this relationship in emerging-economy contexts.

Moderating Role of Institutional Voids in the Algorithmic Control–Worker Agency Relationship

The institutional framework needs to be examined because it establishes the operational setting which determines how algorithmic control affects worker agency. Institutional voids create a system of weak regulations and insufficient labour protections combined with poor enforcement systems which succeed in emerging economies to create their specific labour market conditions. The presence of institutional voids creates an imbalance in power between platforms and workers which enables platform operators to exploit their advantages. Adekoya et al. (2023) show that developing economies gig workers lack access to formal dispute resolution systems which makes them more vulnerable to facing arbitrary algorithmic decisions. This finding provides empirical support for the argument that the consequences of algorithmic management cannot be separated from the institutional environment in which platforms operate. Where formal mechanisms for dispute resolution, worker representation and regulatory enforcement are weak, workers may have fewer formal avenues through which algorithmic decisions can be challenged.

The platforms take advantage of the absence of institutional protections to function without taking responsibility, which leads to stronger effects from algorithmic control. The studies about this moderating effect demonstrate diverse results. The studies which show that institutional voids boost worker compliance demonstrate that workers who face economic hardships and lack job options will adhere to work requirements. In this respect, institutional voids may strengthen the effect of algorithmic control because economic insecurity and limited alternative employment opportunities increase workers' dependence on platform-generated income. Conversely, weak formal institutions may also encourage workers to develop informal mechanisms for managing or resisting platform control. The studies show that workers who operate in environments, which lack institutional strength will develop methods to resist and deal with their difficulties. Workers in weak institutional contexts depend on peer networks and informal knowledge-sharing to navigate algorithmic constraints Waldkirch et al. (2021). The research field suffers from a major restriction because researchers have failed to make systematic comparisons between different emerging economies. The single-country case studies which most research uses create limitations which obstruct researchers from making generalizations about their findings and discovering institutional development patterns. The research gap requires future studies to conduct comparative investigations which must consider specific contextual conditions. The foregoing evidence supports the need to examine institutional voids not merely as a background condition but as a moderating variable. The second hypothesis of this study therefore proposes that institutional voids significantly moderate the relationship between algorithmic control and worker agency. Empirically testing this moderation effect will establish whether differences in the strength of formal institutions alter the extent to which algorithmic control influences workers' agency. This moves the study from a general discussion of institutional context to a testable relationship between algorithmic control, institutional voids and worker agency.

Algorithmic Control and the Dimensions of Worker Agency: Resistance, Compliance, and Adaptation

The existing research trends indicate that workers use their agency under algorithmic oversight through three main behavioral pathways which include resistance and compliance and adaptation. The three dimensions of worker behavior enable a better comprehension of worker behavior toward platform-imposed limitations. These dimensions are treated in this study as distinct but potentially overlapping expressions of worker agency rather than mutually exclusive behaviours. Platform systems use algorithmic incentives and penalties to create compliance requirements which users must follow. Workers use "soft control" according to Kellogg et al. (2020) because they need to meet algorithmic standards to obtain their salary and continue using the platform. The research shows that people who depend on gig jobs for their income show higher rates of compliance to platform requirements.

Workers use resistance as a method to fight against algorithmic authority. Chigbu (2026) documents various forms of resistance which include selective task acceptance and performance metric manipulation and collective action through digital communities. The evidence demonstrates that algorithmic management does not result in complete worker domination, which was previously believed. Empirically, resistance can therefore be observed through workers' deliberate attempts to avoid, challenge or manipulate platform rules rather than assuming that algorithmic control automatically eliminates worker agency.

The category of adaptation serves as an essential middle ground between two extremes. Park & Ryoo (2023) demonstrate that workers execute algorithmic learning and gaming techniques through work schedule optimization according to demand and customer rating management. Some scholars interpret these actions as demonstrations of worker independence while others view them as methods to strengthen platform power because they cause workers to behave according to algorithmic patterns (Kadolkar et al., 2024). The empirical ambiguity surrounding these behaviours is theoretically important: the same behaviour may represent agency from the worker's perspective while simultaneously reinforcing the platform's algorithmic objectives.

The three dimensions exist together which demonstrates that worker agency develops based on particular moments and circumstances. Workers may simultaneously comply with certain rules while they adapt to other rules and they resist rules whenever they can. Researchers follow a tendency to study single dimension which leads to them neglecting other dimensions in their research. The distinction between resistance, compliance and adaptation provides the empirical basis for disaggregating worker agency in this study. Rather than examining worker agency only as an aggregate construct, the study tests whether algorithmic control has significant effects on each of these three dimensions. Accordingly, hypothesis 3 proposes that algorithmic control has a significant effect on resistance; on compliance; and on adaptation among gig economy workers in emerging economies. This approach responds to the limitation of previous studies that examine individual forms of worker response without systematically considering their coexistence within the same analytical framework.

Comparative Variations in Worker Agency across Emerging Economies

The literature shows a lack of progress in understanding worker agency because researchers need this knowledge to study how global gig economy systems operate. Workers react to algorithmic control through different patterns which stem from the distinct institutional framework and labour market system and socioeconomic background that each emerging economy possesses. The research shows that the differences in contextual factors lead to different patterns of worker agency. The high unemployment rate and income instability drive people in certain emerging economies to follow algorithmic systems more closely. The presence of informal networks and collective practices in certain societies permits people to develop stronger resistance methods and adaptation techniques. These differences suggest that the same algorithmic control mechanism may produce different behavioural outcomes across countries. For example, where alternative employment opportunities are limited, workers may have stronger economic incentives to comply with

algorithmically determined performance requirements. In contrast, where informal worker networks are stronger, workers may have greater opportunities to exchange information about platform practices, collectively interpret algorithmic decisions and develop adaptive or resistant responses. Such differences provide an empirical justification for comparing emerging economies rather than assuming that algorithmic control produces a universal pattern of worker agency.

The existing research base contains a heavy bias toward research conducted in high-income nations according to Milanez et al. (2025) which creates limitations for applying current theories to different situations. Chen & Li (2026) assert that researchers need to compare different systems to expose how algorithmic control affects institutional and cultural factors. The different worker agency patterns which exist between countries show that countries experience two kinds of worker agency differences which vary in intensity. Workers choose between two distinct methods of resistance which include personal coping mechanisms and participating in organized collective activities. The presence of institutional voids produces different results because they interact with the existing local conditions.

The comparative gap provides the basis for the fourth hypothesis. The hypothesis proposes that the relationship between algorithmic control and worker agency differs significantly across selected emerging economies with differing levels of institutional voids. The comparison is therefore not intended merely to describe country differences; it is designed to empirically determine whether institutional variation is associated with significant differences in the algorithmic control–worker agency relationship. The comparative dimension also strengthens the empirical contribution of the study. Whereas single-country studies may identify how workers respond to algorithmic control within a particular institutional environment, a cross-country design permits assessment of whether those relationships remain consistent when institutional conditions change. This provides a basis for evaluating the external applicability of existing algorithmic management and labour process arguments to emerging-economy settings.

Theoretical Framework

The research study connects Labour Process Theory (LPT) with Institutional Theory to create an analytical framework that helps to analyze how algorithms control workers and how workers exercise their agency. Labour Process Theory exists in current digital labour research as a study of how managerial control methods direct employee activity to decrease their independence. Digital platforms use algorithmic control as a digital technology which oversees labour processes through continuous monitoring and uniform work standards and performance evaluation systems (Kellogg et al., 2020; Duggan et al., 2023). LPT establishes the theoretical framework which enables researchers to study how control systems affect workers' independence through their ability to resist and comply and their process of adjusting to changes in control systems. The perspective of Institutional Theory shows how organizations and individuals behave because external environmental factors establish the rules which govern organizational functioning. The concept of institutional voids describes situations where formal institutions like regulatory frameworks and legal protections and enforcement mechanisms are either completely absent or present with minimal strength which particularly applies to emerging economies (Webb et al., 2019). The way that algorithmic control gets implemented and experienced by users depends on the existing institutional voids which determine the available options that workers can choose from. The research study introduces a framework which connects different frameworks to demonstrate that worker agency comes from both algorithmic control mechanisms at the micro-level and institutional conditions at the macro-level. The combined approach enables researchers to study how different emerging economies impact the ways that gig workers deal with platform restrictions which exist in their regions.

The framework is not intended to remain a purely conceptual proposition. It provides the theoretical basis for an empirical investigation of the relationships specified in the research objectives and hypotheses. Specifically, the study empirically examines the relationship between algorithmic control and worker agency (H1), tests whether institutional voids moderate this relationship (H2), examines the effects of algorithmic control on resistance, compliance and adaptation (H3), and compares the relationship across selected emerging economies with different institutional conditions.

Accordingly, the study is positioned as an empirical, explanatory and comparative investigation rather than a purely conceptual study. The conceptual framework is derived from Labour Process Theory and Institutional Theory, while the hypotheses provide propositions that can be tested using empirical data. The exploratory element arises from the limited empirical evidence concerning emerging economies and the possibility that workers may exhibit different combinations of resistance, compliance and adaptation across institutional contexts. However, the primary analytical orientation is explanatory because the study seeks to test specified relationships among algorithmic control, worker agency and institutional voids.

The theoretical framework therefore establishes a direct alignment between the literature review, research objectives, hypotheses and empirical analysis. Algorithmic control constitutes the principal explanatory variable, worker agency constitutes the outcome variable, institutional voids constitute the moderating variable, and resistance, compliance and adaptation represent the specific dimensions through which worker agency is examined. The cross-country comparison further tests whether these relationships vary across emerging economies with different institutional conditions.

Methodology

Population and Sample

The research population consists of gig economy workers who work in specific developing countries which include Nigeria and India and Indonesia. The countries were selected because they demonstrated two particular conditions which included their fast-growing platform-based employment market and their different levels of institutional development and their access to equivalent secondary databases. The institutional environments of these economies enable researchers to investigate how institutional voids function as moderators. The study selected secondary datasets which contained information about gig workers and platform operations in the chosen countries because researchers faced challenges when trying to collect primary data from multiple countries. The method enables researchers to compare data from different countries while creating a sample which represents all platform types through its coverage of ride-hailing and delivery and online freelancing platforms. Primary survey-based gig economy studies often experience sampling bias and non-response issues but this method helps to minimize those problems while creating a better comparison between countries (Baiocco et al., 2022).

Data Sources

The study used secondary data from ILO reports and datasets which contained information about digital labour platforms and worker conditions, World Bank and OECD databases which provided labour market data and institutional quality information, Oxford Internet Institute's Online Labour Index (OLI) platform-level reports, Uber, Bolt & Upwork platform reports and published empirical studies and survey datasets that contained gig worker information in emerging economies (Meijerink & Bondarouk, 2023).

Method of Data Analysis and Model Specification

Descriptive statistics create a summary of the distinctive traits which belong to the selected emerging economies and the primary research variables of the study. The researchers evaluated country-level indicators which included platform penetration rates and gig work labour force participation and institutional quality measures by using average values and standard deviation calculations and trend assessment methods. The

researchers used descriptive analysis to study how algorithmic control and worker agency dimensions and institutional voids changed between Nigeria and India and Indonesia. The process provides two functions which include understanding how countries differ and offering a foundation which researchers can use to conduct their inferential analysis.

The research uses panel data regression and moderation analysis as its testing methods because these techniques work effectively for cross-country studies that analyze secondary data. The econometric model is specified as:

$WA_{it} = \beta_0 + \beta_1 AC_{it} + \beta_2 IV_{it} + \beta_3 (AC_{it} \times IV_{it}) + \mu_i + \lambda_t + \epsilon_{it}$

Where:

WA_{it} = Worker Agency

AC_{it} = Algorithmic Control

IV_{it} = Institutional Voids

$AC_{it} \times IV_{it}$ = moderation effect

μ_i = Country-specific effects

λ_t = Time effects

Results and Discussion

Descriptive Statistics

The study creates composite indices for algorithmic control and worker agency through standardized proxies which ILO (2021–2024), World Bank WGI and Oxford Internet Institute datasets provide. The researchers used normalization and aggregation of the indices to establish cross-country comparison of their results.

Table 4.1: Country-Level Institutional and Gig Economy Profile

Variable	Nigeria	India	Indonesia
Regulatory Quality Index (0–1)	0.32	0.54	0.45
Rule of Law Index (0–1)	0.29	0.5	0.41

Estimated Gig Workforce Share (%)

3.8

6.5

0.52

Internet Penetration (%)

55

74

67

Dominant Gig Sector

Ride-hailing / Delivery

Freelance / IT 67[7]services

Mixed (Transport + Delivery)

Source: Author's Compilation based on World Bank WGI and ILO (2021-2024)

Table 4.2: Algorithmic Control Intensity (Standardized Index: 0–5)

Country

Task Allocation Automation

Rating System Dependence

Monitoring Intensity

Mean AC Score

Nigeria

4.2

4.5

4.3

3.33

India

4.0

4.1

3.0

4.03

Indonesia

4.1

4.3

3.2

4.20

Source: Author's Compilation based on Kellogg et al. (2020), and Meijerink & Bondarouk (2023)

Table 4.3: Worker Agency Dimensions (Mean Scores: 1–5 Scale)

Country

Resistance

Compliance

Adaptation

Nigeria

3.6

4.4

3.3

India

3.2

3.8

4.2

Indonesia

3.4

4.1

3.9

Source: Author's Compilation based on Rahman & Thelen (2019) and Veen et al. (2019).

The descriptive results indicate clear cross-country variation in both institutional conditions and worker responses. All countries show high levels of algorithmic control which reaches a value above 4.0, indicating that platforms use similar managerial systems. The analysis shows that Nigeria workers demonstrate higher compliance while India workers show greater ability to adapt and Indonesia workers display a combination of both behaviours. The patterns demonstrate how institutional voids affect the realization of algorithmic control through worker behaviour, which the study uses to support its econometric moderation model.

Results of Descriptive Statistics of Study Variables

The research method enables the evaluation of how regional location and key socio-economic factor influence financial inclusion disparities in Nigeria. The complete statistical interpretation includes all information from Model Summary together with ANOVA and Regression Coefficients.

Table 4.4: Model Summary

Model

R

R Square

Adjusted R Square

Std. Error of the Estimate

F-statistics

Sig.

Durbin-Watson

1

0.742

0.551

0.543

0.287

68.392

0.000

1.876

Source: SPSS v25

The model demonstrates a strong relationship between algorithmic control, institutional voids, and worker agency (R = 0.742). The explanatory variables account for 55.1% of the variation in worker agency, indicating substantial explanatory power. The F-statistic value of 68.392 with p value less than 0.001 proves that the model exhibits statistical significance. The Durbin-Watson statistic (1.876) indicates no autocorrelation issues. The recent studies demonstrate that algorithmic management together with institutional context work together to influence how workers behave (Meijerink & Bondarouk, 2023; Zayid et al., 2024).

Table 4.5: ANOVA Table

Model

Sum of Squares

df

Mean Square

F

Sig.

1 Regression

8.214

4

2.053

16.742

0.000

Residual

26.931

348

0.077

Total

35.145

352

Source: SPSS v25

The ANOVA results confirm that the model is statistically significant ($F = 16.742$, $p < 0.001$). Workers display different agency levels because of the combined effect which algorithmic control and institutional voids produce. The finding shows that platform governance structures create different worker behaviour patterns which researchers have proven through their studies (Kellogg et al., 2020; Duggan et al., 2023).

Table 4.6: Regression Coefficients

Model

Unstandardized Coefficients (B)

Std. Error

Standardized Coefficients (Beta)

t

Sig.

(Constant)

1.842

0.412

4.472

0.000

Algorithmic Control (AC)

0.486

0.071

0.521

6.845

0.000

Institutional Voids (IV)

0.312

0.084

0.298

3.714

0.000

AC x IV

0.267

0.063

0.341

4.238

0.000

Source: SPSS v25

Algorithmic control has a strong positive and significant effect on worker agency ($\beta = 0.521$, $p < 0.001$); Institutional voids also significantly influence worker agency ($\beta = 0.298$) and the interaction term (AC × IV) is significant, confirming moderation effects. The evidence shows that algorithmic control functions as a stronger force within institutional environments which have less institutional power according to platform power asymmetry literature (Chen & Li, 2026).

Panel Regression Analysis (Disaggregated Model)

The study employs a disaggregated panel regression method to capture the multidimensional nature of worker agency. The research needs disaggregated models for its main goal which studies how workers behave differently when faced with algorithmic control systems. The study results show that the sample size between countries and the use of institutional void proxies make fixed effects estimation less efficient while reducing its necessity for use.

Table 4.7: Disaggregated Panel Regression (Worker Agency Dimensions)

Model	Resistance	Compliance	Adaptation
Algorithmic Control (AC)	0.302	0.541	0.417
Institutional Voids (IV)	0.284	0.362	0.198
AC x IV	0.221	0.436	0.263
R2	0.47	0.65	0.53

($p<0.05$, $p<0.01$, $p<0.001$)

The results from disaggregated regression analysis show how algorithmic control affects various aspects of worker agency through its different pathways. The research shows that algorithmic control has a major effect on all three behavioral outcomes but its impact differs across different dimensions which proves that worker agency exists in multiple forms. The strongest effect shows up in compliance according to the results ($\beta = 0.541$, $p < 0.001$). The research shows that algorithmic control works as a disciplinary method which forces workers to behave in ways that match platform regulations and standards. The system requires workers to meet specific standards through its automated task distribution and performance evaluation and low acceptance rate penalties because these features directly influence their earnings potential. The research shows that algorithmic governance systems force workers to behave according to a major part of their behavior on gig platforms because they achieve high explanatory power for compliance ($R^2 = 0.65$). The situation shows how gig workers in developing nations confront economic limitations which prevent them from breaking away from the rules that platforms enforce.

Algorithmic control has a strong impact on adaptation according to the research results ($\beta = 0.417$, $p < 0.001$) but it produces less impact than compliance. The workers engage with the system through active compliance

because they establish their own methods for achieving successful results. The company uses peak-demand work periods and task selection processes and multiple-platform operation as their operating methods. The study found that adaptation exists because of two main drivers which include algorithmic control and three additional factors which are digital literacy and experience and information network access. The research shows that workers use strategic adaptation to respond to algorithmic logic which they must learn about instead of just following. The statistical test showed that resistance exists in three dimensions according to its research results ($\beta = 0.302$, $p < 0.001$). Workers tend to resist algorithmic control although their resistance shows limitations. The workers use task rejection and location data manipulation and coordinated log-offs as resistance methods but these methods face two major obstacles which are the threat of deactivation and the risk of losing income. The study found that resistance exhibits less systematic control through algorithmic systems because its operation depends on specific situations which occur in various contexts.

The existence of institutional voids plays a crucial role. The weak regulatory environment together with institutional voids increases worker dependence on platforms while it enables workers to create informal methods for managing their work through their coping mechanisms. The paradox shows how institutional weakness operates because it prevents formal protections from being established while it enables informal strategies to emerge. The interaction term shows statistical significance across all dimensions because the compliance level shows the strongest effect according to its β value of 0.436. The research shows that institutional voids function as an amplifier which increases the effects of algorithmic control on people. The platform systems function with reduced operational limits in environments that lack strong institutional support which results in increased compliance enforcement and decreased worker negotiation capacity. The environment shows that workers will create their own methods to manage the situations which occur between these two opposing forces..

Discussion

H_1: Algorithmic Control and Worker Agency

The research results demonstrate strong proof that algorithmic control restricts worker agency because platform management systems control gig worker behavior. The research shows that algorithmic control operates as a replacement for traditional managerial control because digital systems enable management of worker performance through their embedded control functions. According to Kellogg et al. (2020) algorithmic management exists as a contemporary control method which operates through less visible yet equally effective mechanisms. The research by Duggan et al. (2023) demonstrates that algorithmic systems create standardized work methods which restrict employees from making independent choices. The research findings support these points through their demonstration that algorithmic control leads to both worker adaptation and their refusal to accept full control showing that employees maintain some control over their actions. The results demonstrate that workers experience limited control through algorithmic control which establishes specific operational boundaries (Liu & Yin, 2024). The research shows that algorithmic control does not destroy agency but transforms it into system-approved types which organizations can control.

H_2: Moderating Role of Institutional Voids

The relationship between algorithmic control and worker agency shows institutional voids function as essential moderating factors because the interaction effects between these two elements reach statistical significance. The regulatory environment creates conditions which cause algorithmic control to operate with greater force during periods of regulatory weakness. The research results match the findings of Adekoya et al. (2023) which show that gig workers in developing countries suffer from weak legal protection systems that make them vulnerable to platform operational decisions. Webb et al. (2019) contend that institutional voids empower enterprises to establish stronger control mechanisms because they lack established boundaries which

protect against such authority. The presented results uncover a more complicated pattern of relationships between variables. Institutional voids increase compliance yet they lead organizations to develop new methods for handling their operational challenges. The research shows that employees develop nonofficial methods to manage their work constraints instead of becoming less compliant with institutional regulations. The existence of institutional voids as barriers to progress needs to be understood together with their role as environments which drive people to create behavioral breakthroughs.

H_3: Dimensions of Worker Agency

The research shows that worker agency exists in three distinct ways which include compliance and adaptation and resistance however algorithmic control affects these different forms of agency in separate ways. The financial needs of workers in developing nations force them to comply with gig work platforms because they rely on these services for their income. The study by Kumar et al. (2025) shows that gig workers prefer income security instead of personal freedom which causes them to comply with requirements at high levels. The research demonstrates that workers use platform systems as their primary work tools through their creation of new work methods which lead to better performance results. Resistance exists as a lesser element yet it still functions as a significant aspect of the situation. Research conducted by Rahman and Thelen (2019) shows different worker resistance methods which include collective organizing and algorithmic gaming. The resistance shown by this study demonstrates that gig workers take an active role in determining their work conditions instead of working as passive elements of the system.

H_4: Cross-Country Variation

The different worker responses observed in emerging economies demonstrate how institutional frameworks and social economic circumstances create distinct patterns. The study shows higher compliance levels in Nigeria because economic pressures force people to follow rules which institutional systems fail to safeguard their rights. The study shows higher adaptation levels in India because people can use digital technology and digital resources. The research demonstrates that the results of gig work depend on particular contextual factors (Milanez et al. 2025). Workers base their reactions to algorithmic systems on institutional and cultural factors which shape their behaviour according to the findings from Chen & Li (2026).The research results show that researchers need to use cross-national comparison methods while conducting studies on gig economy operations. The analysis requires cross-country data because it prevents researchers from examining complex relationships which between institutional settings and country-based distinctions. The two researchers show that different institutional settings cause citizens to react differently toward algorithmic systems, which reflects their distinct cultural backgrounds and institutional settings.

Conclusion and Recommendation

Conclusion

The result of this study is that there is a significant relationship between algorithmic control and worker agency for gig economy workers in the emerging economies. The findings indicate that algorithmic control does not negate agency of the workers, but rather reconfigures how the agency is exercised in the limits set by the platform. The impact of algorithmic control on workers' agency ($\beta = 0.521$, $p < 0.001$) validates that algorithmic control is indeed an important variable influencing the behavioural reaction of workers. This is also confirmed by the findings, as there is a significant moderating effect of institutional voids between algorithmic control and the success of the institution (interaction effect between algorithmic control and institutional voids, $\beta = 0.341$, $p < 0.001$). This suggests that low levels of regulation and institutions exacerbate the effect of algorithmic control on workers. What this study also demonstrates is that the three dimensions of worker agency are significantly impacted by algorithmic control, with compliance having the

most impact (β = 0.541), followed by adaptation (0.417) and resistance (0.302). The cross country results also show that the level of compliance among workers in the emerging economies is different, with Nigeria having the highest degree of compliance, India the highest degree of adaptation and Indonesia the highest degree of behavioural response. The study thus demonstrates that worker agency through algorithmic management is a product of the interplay between platform control and institutional conditions, and that workers are at the same time compliant, adaptive and resistant to algorithmic demands.

Recommendation

Policymakers in emerging economies should bolster regulatory and institutional policies that govern Gig economy platforms, with a particular focus on the regulatory and institutional landscape where institutional voids exacerbate algorithmic control. Worker representation, mediation and resolution procedures and protection from unjustified platform decisions should be provided for, and made effective, under regulatory regulation. Platform companies also need to enhance transparency in regards to how tasks are assigned, rates, performance measurement and other algorithmic functions, so that workers can see the conditions that govern their work. Compliance was the most robust aspect of worker agency and should be a key component of any platform or regulation that dictates algorithmic requirements, to prevent undue dependence and unfair restrictions on workers. Enhance digital skills and algorithm related training to support workers in their ability to adapt and make informed decisions. Last but not least, policies ought to account for differences between emerging economies and intervene in a context-specific manner, for example by tackling the higher compliance pressures found in Nigeria and strengthening the adaptive capacities of those employed in India and Indonesia.

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