Asia Pacific Journal of Information Systems
Vol. 34 No. 2 (June 2024), 447-469

ISSN 2288-5404 (Print) / ISSN 2288-6818 (Online)
https://doi.org/10.14329/apjis.2024.34.2.447

An Empirical Study on Job Embracing by Mobile Platform Workers

Sung Yul Ryoo[a], Sang Cheol Park[b,*]

[a] *Professor, Daejin University, Korea*
[b] *Associate Professor, Daegu University, Korea*

ABSTRACT

Despite the maturity of platforms, only some studies have explored the relationships between the working conditions of platform workers and their organization-like responses to these platforms. Thus, this research utilized the Job Demands-Resources Model (JD-R Model) to analyze the effects of job demands and resources on platform workers' job embracing. The data were collected from 182 food delivery riders in South Korea. This study utilized the PLS technique (partial least squares) to examine the research model. Regarding job demands, this study has found that work overload and physical effort significantly affect burnout. Regarding job resources, the results revealed that service technology support and training significantly affect work engagement. In alignment with the Job Demands-Resources literature, the findings offer tangible proof that burnout has a detrimental impact on job embracing, whereas work engagement has a beneficial effect on job embracing. Our findings indicate that work engagement exerts a more substantial beneficial effect on job embracing, and burnout reduces job embracing. Results also provide novel insights to scholars seeking a comprehensive research model on the impact of on-demand workplace conditions to help platforms attract and retain platform workers.

Keywords: Platform Workers, Job Embracing, Job Demands, Job Resources, Job Demands-resources Model

Ⅰ. Introduction

Digital platforms create value by matching the demand and the supply. The supply of each platform depends on platform workers (Zhang et al., 2022a) to satisfy the demand and decrease coordination and labor costs (Leighton and Wynn, 2011). Platform workers are providers and serve as the platform interface with consumers (Hagiu and Wright, 2015). Both the rapid progress of platforms and the evolution of employment connections have resulted in a significant rise in the utilization of platform workers (Dunn, 2020; Gawer, 2014; Jin et al., 2021). The global platform labor market experienced a twofold

*Corresponding Author. E-mail: sangch77@gmail.com

increase from 2016 to 2019; during the COVID-19 pandemic, platform workers increased dramatically (Won et al., 2023). The rising need for platform workers is correlated with the potential impact of platform workers' dedication on the efficacy and enduring success of digital platforms (Li et al., 2023). The exceptional dedication exhibited by platform workers plays a vital role in driving the exceptional performance of platforms. Although a focus on customer commitment is vital for platforms, this may be driven by a parallel focus on platform workers' commitment, particularly in highly competitive platform markets where platform workers can choose freely between platforms. Better working conditions can achieve platform workers' commitment to a specific platform.

With its burgeoning platform economy, South Korea has experienced substantial expansion in the food delivery sector throughout the previous ten years (Rha et al., 2023). In 2021, the digital transactions within the food delivery sector surged to 25.7 trillion won, surpassing the online food and beverage market valued at 24.3 trillion won (Kang and Kim, 2023). In 2022, South Korea harbored approximately 2.9 million individuals engaged in platform work, constituting roughly 11 percent of the nation's overall workforce. Specifically, the count of narrow-sense platform workers, including food delivery drivers, reached approximately 795 thousand (Kim, 2023). With the reliance on food delivery services rapidly increasing, the lack of employment protection, such as employment and accident insurance, and severe job demands for delivery drivers has become an increasing problem(Wang et al., 2021). These delivery riders have faced challenges such as poor working conditions and job insecurity(Chan, 2021; Kougiannou and Mendonça, 2021; Quy Nguyen-Phuoc, 2023; Ting, 2022; Won, 2023).

Recent research suggested delivery workers may be victims of poor working conditions (Nielsen et al., 2022; Parwez, 2022). Given the diversity in the working environments of food delivery drivers and the importance of working situations, it is crucial to understand how the work settings of platforms affect food delivery drivers' psychological processes and behaviors (Kuhn and Maleki, 2017). However, prior studies have neglected to consider the perceived working conditions encountered by delivery riders in the course of their employment (Quy Nguyen-Phuoc, 2023). Furthermore, although research into platforms requires a multilateral approach encompassing platform workers (Karanović et al., 2021), few studies have shown how platform workers' working conditions are associated with their responses to platforms. The diverse facets of platform workers' roles encompass a range of elements such as physical, psychological, social, and organizational factors that impact both job productivity and overall well-being, must be examined to understand their response to working conditions (Demerouti et al., 2001). Thus, this study proposes a theoretical framework for research on platforms and on-demand workforce based on the job demands-resources model (JD-R model) (Demerouti et al., 2001). The JD-R model hypothesizes that characteristics of work, which are classified as either job demands or resources, have an impact on the well-being of employees and the outcomes of the organization (Demerouti et al., 2001). This investigation aims to examine the subsequent by placing emphasis on two research questions: 1. What is the impact of the working environment, categorized as either job demands and job resources, on burnout and work engagement of food delivery riders within the framework of the Job Demands-Resources model? 2. How can food delivery riders' burnout and work engagement influence job embrac-

ing in light of the JD-R perspective?

The objective of the study is to provide a comprehensive framework for analyzing the influences of Job Demands-Resources (JD-R) on burnout and work engagement and to explore their impacts on job embracing among a sample of Korean food delivery workers. This research makes a significant contribution to enhancing comprehension regarding the influences on the psychological processes and behaviors of food delivery workers through the empirical examination of the JD-R model within the on-demand work environment. Besides the traditional constructs in the JD-R model, this study included new dependent constructs of job embracing to investigate the retention intention of food delivery workers. This study gives practitioners and policymakers a deeper understanding of food delivery workers' job embracing concerning the working conditions of food delivery service. Also, this research can provide insights for interventions aimed at alleviating the occupational stress experienced by the fast-growing population of platform workers in South Korea.

The subsequent sections of the research are structured as outlined. Section 2 presents an extensive analysis of existing literature concerning platform workers and the Job Demands-Resources model. We introduce our research framework and propose hypotheses in Section 3. The methodology of the research is deliberated in Section 4, succeeded by the analysis of data and outcomes in Section 5. The ramifications of these findings are examined in Section 6, and Section 7 delineates the conclusions..

Ⅱ. Literature Review

2.1. Platform Work

Platforms comprise broadly three types of players: platforms (owners and providers), producers, and consumers (Alstyne et al., 2016). A platform offers the necessary infrastructure and regulations for the marketplace, facilitating appropriate exchanges among all participants. Every platform must induce producers and consumers to share their needs and resources to enhance positive network effects. For example, as the number of workers on a food delivery platform increases, so do its consumers (Zhu and Iansiti, 2019).

According to Gawer (2014), platforms (technological platforms) refer to evolving organizations that derive value through the facilitation of economies of scope in both supply and demand. In particular, high-quality matchmaking is essential to platform performance (Möhlmannn et al., 2021). Specifically, the recent IS literature focusing on online labor platforms has recognized that platforms are regarded as markets in which algorithms implement matching of producers and consumers, now called "algorithmic management" (Möhlmannn et al., 2021).

As algorithmic management is regarded as effective for managing platform workers, most IS research focused mainly on how algorithmic control affects platform workers' response to platforms' algorithmic management (Möhlmannn et al., 2023; Möhlmannn et al., 2021). While algorithmic control may effectively minimize marginal and labor expenses, its impact on the employment dynamic and the well-being of platform workers can be adverse (Kougiannou and Mendonça, 2021). One instance of this is when platform workers resist algorithmic control by engaging in collective efforts to improve working conditions related to wages, labor protection, and employment classification (Cini, 2022).

Thus, because platform workers are crucial to the superior performance of platforms, platforms must

improve platform workers' working conditions to reduce the turnover of platform workers and keep the supply side stable. Platform workers' statuses differ from traditional employees, with limited power over their working conditions. Currently, there exists a deficiency in comprehension regarding the influence of work-related circumstances on the well-being and performance of platform workers. As platforms operate as evolving organizations and platform workers are a new source in the platform economy (Gawer, 2014), the platform workers' behavior and structural characteristics within platforms need to be analyzed. Thus, platforms should consider new approaches to shift more value towards platform workers, which tend to grow platform workers' job embracing of platforms and maximize the value for both platform workers and platforms in the long run (Jin et al., 2021). Not relying on just algorithmic control over aspects of platform workers' work, platforms need to understand crucial work-related factors affecting platform workers' behaviors.

2.2. Job Embracing

Previous research on algorithmic management has identified two distinct response mechanisms observed in platform workers: "*organization-like responses*" and "*market-like responses*" (Möhlmannn et al., 2021). Organization-like responses refer to *"workers showing compliance or job embracing and enjoying their work environment"* (Möhlmannn et al., 2023, p. 38). However, market-like responses refer to *"workers trying to move or shift to alternative platforms"*.

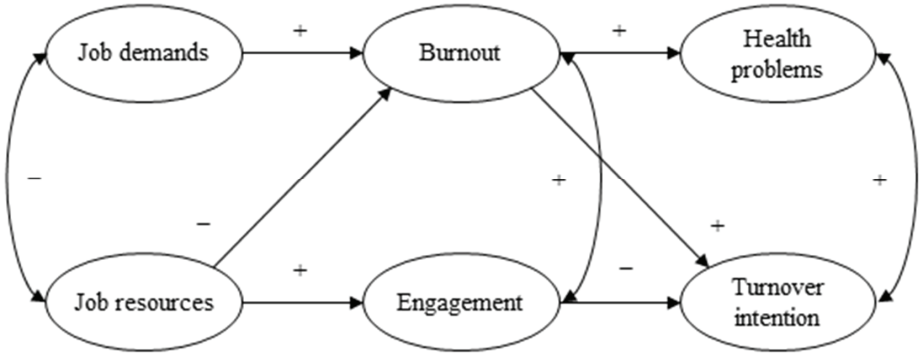
The approaches platform companies take to integrate platform workers into the workforce will affect their intention to stay with the company. One of the best ways to retain platform workers is to provide them with less uncertainty and more repeatability of algorithm management(Park and Ryoo, 2023). Furthermore, providing platform workers with good working conditions will motivate them to embrace platform companies. According to Möhlmann et al. (2021), platform workers with a higher job embracing of a specific platform company are likely to contribute to further developing the company and becoming a part of it.

In particular, embracing platforms, similar to the organizational commitment of traditional employees, is a crucial indicator of a platform's superior performance. The model of job demands-resources, which integrates different specific working conditions that influence the well-being and performance of employees, is utilized for comprehending platform workers' favorable reactions to platforms.

2.3. Job Demands and Resources Model

The job demands-resources model (JD-R model) is applied widely to explain the behavior of employees across jobs (Bakker and Demerouti, 2007; Bakker et al., 2003; Bakker et al., 2004; Demerouti et al., 2001; Schaufeli and Bakker, 2004). According to the JD-R model, job demands and resources affect employees' well-being and performance through burnout and work engagement. JDR research has discussed the different mechanisms of job demands and job resources affecting employees' well-being and performance. Previous studies utilizing the Job Demands- Resources model has integrated a variety of potential work settings, examining both detrimental and beneficial mechanisms impacting the employee's welfare and productivity. <Figure 1> shows the psychological processes the JD-R model offers (Schaufeli and Bakker, 2004).

Job demands are defined as the "aspects of the



<Figure 1> Two Psychological Processes of the JD-R Model (Schaufeli and Bakker, 2004)

job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs" (Demerouti et al., 2001, p. 501). As a health impairment process, excessive job demands (e.g., work overload) result in adverse consequences, including burnout, deteriorating health, and substandard performance (Schaufeli, 2017). The job resources refer to *"aspects of the job that may (a) be functional in achieving work goals, (b) reduce job demands and the associated physiological and psychological costs, or (c) stimulate personal growth and development"* (Demerouti et al., 2001, p. 501). As a motivational process, abundant job resources (e.g., job autonomy) lead to favorable consequences, including engagement in work, ensuring safety at work, and displaying exceptional performance (Schaufeli, 2017). The dual processes proposed by the JD-R model (Bakker and Demerouti, 2007) have received substantial support in prior research studies. As a result, the JD-R model can be used to understand employees' psychological states from ambidextrous perspectives associated with employees' outcomes.

The JD-R model has been utilized in studying employees of various transport-related sectors, such as those with comparable work settings to platform workers in the food delivery industry. An instance of this is seen in the work of Chu et al. (2020), who explored the correlation between work-home conflict and safety behaviors among railway drivers. Similarly, Zheng et al. (2019) presented empirical findings indicating that adverse working conditions (such as severe weather, poor road conditions, and long work hours) can lead to heightened stress levels and a decline in their overall quality of life. After the COVID-19 pandemic, some researchers have applied the JD-R model to investigate the functions of job demands and job resources in the context of food delivery workers. <Table 1> summarizes the key empirical studies on the food delivery worker with the JD-R model and shows their research constructs. Chen (2023) suggested job overload and time pressure as job demands of food riders and regarded self-efficacy as their job resources. Quy Nguyen-Phuoc et al. (2022) examined the dual processes of job demands (time pressure, work/life imbalance, and working environment) and job resources (social support and feedback) in a specific food delivery context. Also, Quy Nguyen-Phuoc et al. (2023) examined the influence of job demands and job resources on the risky riding behaviors of food delivery motorcyclists. Woon et al. (2022) developed a theoretical framework for psychological well-being for food delivery workers. Zhang et al. (2022b) examined the impacts of job demands and resources on burnout

and investigated the moderating effects of mindfulness. Zhang et al. (2022c) showed that job resources positively influence "positive affect," and job demands have a direct correlation with the occurrence of "negative affect" experienced by food delivery drivers in China.

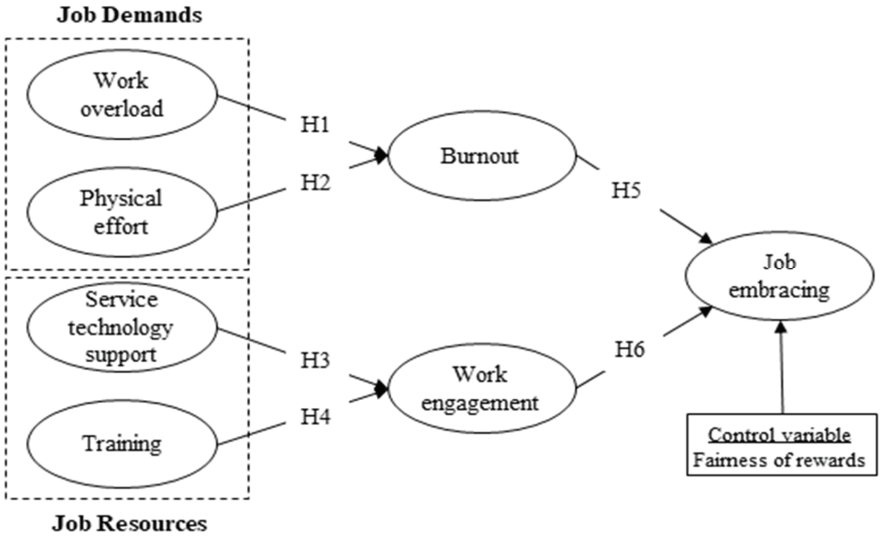
Considering that every job includes specific job demands and resources, this study evaluated the job demands and resources specific to food delivery drivers. Although other studies considered time pressure and work overload as the primary job demands encountered by food delivery riders, the study focused on their physical effort because they are physically demanding under a precarious working environment (Tran et al., 2022). Regarding job resources, superior service technology support and training help delivery riders work more effectively because their work is operated on apps (Babakus et al., 2009).

Ⅲ. Research Model and Hypotheses

The JD-R model provides a more flexible approach to include various work-related indicators that affect employees' performance and well-being, thus enabling the customization of antecedents to suit particular work environments (Bakker and Demerouti, 2007). Drawing from the JD-R model literature, an integrative model was developed in the context of platform workers. <Figure 2> presents the research model. The model proposes that work overload and physical effort serve as job demands, which might

<Table 1> Previous Studies Adopting the JD-R Model in the Food Delivery Platform Context

Research	Job Demands	Job Resources	Intermediate Variables	Dependent Variables
Chen (2023)	· Job overload · Time pressure	· Self-efficacy	· Job stress	· Risky driving · Distraction
Quy Nguyen-Phuoc et al. (2022)	· Time pressure · Work/life imbalance · Working environment	· Social support (Org. level) · Social support (Co-worker level) · Feedback	· Job strain · Risk-takin attitude	· Road safety · compliance
Quy Nguyen-Phuoc et al. (2023)	· Time pressure · Work/life imbalance · Working environment	· Social support (Org. level) · Social support (Co-worker level) · Work autonomy · Rewards · Feedback	· Job burnout · Risky riding behaviors	· Perceived safety risk
Woon et al. (2022)	· Workload · Time pressure	· Social support · Autonomy	· Psychological capital	· Psychological well-being
Zhang et al. (2022b)	· Workload · Emotional workload	· Relationship with colleagues · Relationship with supervisor · Support from company · Support from customers	· Mindfulness	· Burnout
Zhang et al. (2022c)	· Workload · Emotional workload	· Relationship with colleagues · Relationship with supervisor · Support from company · Support from customers		· Positive affect · Negative affect



<Figure 2> Research Model

trigger food delivery drivers' burnout. Regarding job resources, there are positive effects of service technology support and training on the work engagement of food delivery workers. In turn, job embracing is affected negatively by burnout and positively by work engagement.

3.1. Job Demands Affecting Burnout

The JD-R model posits that elevated job demands are positively associated with burnout via an energy-draining process (Bakker et al., 2003). Specifically, work overload, which has been identified as a predictor of burnout, applies to the context of platform workers because the working conditions have been characterized by long hours, on-call duty, and waiting for their next work (Parwez, 2022). Burnout is a phenomenon that is predominantly observed among platform workers engaged in physical tasks related to the delivery of food and groceries to end consumers. According to the JD-R model, burnout is most likely when work overload and physical effort as job demands are high (Bakker and Demerouti, 2007). Thus, this paper proposes the following:

H1. Work overload is positively associated with burnout.

H2. Physical effort is positively associated with burnout.

3.2. Job Resources Affecting Work Engagement

The JD-R model postulates that there is a positive relationship between high job resources and work engagement (Bakker et al., 2003). In studies grounded in the JD-R model, employees with greater job resources can achieve work goals more easily, satisfy the needs for competence, and increase their abilities for work tasks (Crawford et al., 2010). Indeed, to be a food delivery worker only requires personal mobility and a smartphone. Platforms have adopted new technologies to enhance the functions of apps for food delivery work and developed some training

programs, leading to enhanced performance. Superior service technology support can produce information that helps platform workers improve performance by reducing task-related uncertainties. This can, in turn, help employees feel competent in performing their jobs effectively and increase their work engagement (Ting and Ahn, 2022). In addition, training also enables platform workers to deal with the consumer effectively, leading to enhanced work engagement (Sendawula et al., 2018). Overall, both superior service technology support and training are essential job resources for platform workers in a food delivery context. According to the JD-R model, work engagement is most likely when service technology support and training as job resources are high (Bakker and Demerouti, 2007). Hence, this paper proposes the following:

H3. Service technology support is positively associated with work engagement.
H4. Training is positively associated with work engagement.

3.3. Antecedents of Job Embracing

A negative link between burnout and positive outcomes has been established in the JD-R literature (Schaufeli, 2017). Burnout reduces the available energy of employees, and their performance diminishes. Moreover, burnout decreases employees' concern for the organization and their willingness to embrace the organization (Bakker et al., 2004). As platform workers are exhausted by job demands, they are less likely to show signs of embracing platforms. In contrast, engaged employees are more likely to be dedicated to their work and the organization (Bakker et al., 2006). When platform workers have high work engagement, they experience positive emotions, which develops the level of commitment, leading to their becoming more attentive and embracing their work. Hence, the following is proposed:

H5. Burnout is negatively associated with job embracing.
H6. Work engagement is positively associated with job embracing.

In addition, this study considers the fairness of rewards as a control variable and explores its impact on job embracing. Fairness of rewards pertains to the concept that remuneration is proportional to the level of effort exerted by the worker, and that the distribution mechanism of rewards is equitable (Allen et al., 2003). Consistent with previous research (Armstrong et al., 2015), fairness of rewards acts as an extrinsic motivational factor because the perception of being rewarded fairly will convey to employees that the organization places importance on their well-being by safeguarding them from any form of injustice or unfair treatment. For example, the fairness of rewards plays a vital role in promoting engagement among platform workers, particularly due to their uncertainty surrounding the impact of consumer ratings on their ability to secure orders and bonuses (Parwez, 2022).

Ⅳ. Research Methodology

4.1. Scale Development

All constructs from previous studies were adapted to the study context. Most variables were assessed through the utilization of multi-item scales employing a seven-point Likert-type scale. The initial scales being in English prompted all the authors to initially

convert a questionnaire into Korean, followed by a revision process to enhance its comprehensibility. Subsequently, a professional editor translated the Korean version back into English to ensure questionnaire consistency.

As a dependent variable, the items related to job embracement were modified from Möhlmannn et al. (2021) and Karanović et al. (2021). As job demands, items for work overload were derived from Ahuja et al. (2007), while items for physical effort were drawn from de Croon et al. (2004). To serve as job resources, items for service technology support and training were adopted from Babakus et al. (2009). Moreover, items for burnout were taken from Ahuja et al. (2007), and items for work engagement were sourced from Schaufeli et al. (2006) and Wang et al. (2022). For the purpose of being a control variable, items concerning the fairness of rewards were adapted from Ahuja et al. (2007). Various demographic variables such as age, number of jobs, and marital status were considered. The operational definitions of research variables, specific measurement items for constructs, and their origins are detailed in <Table 2>.

This research utilized data from a singular source obtained through a self-reported questionnaire, a method susceptible to common method variance. Through the employment of the Partial Least Squares (PLS) approach, examination of the Variance Inflation Factor (VIF) values was conducted to mitigate the potential presence of common method bias (CMB). The results displayed in <Table 3> indicated VIF values ranging from 1.055 to 2.024, significantly lower than the recommended threshold of 3.3 (Kock, 2015), hence indicating the unlikelihood of CMB being a significant issue.

4.2. Data collection

The escalation in expenditures towards contactless services, with a focus on enhancing online grocery

<Table 2> Operational Definition and Measurements of Research Variables

Constructs	Definitions	Items	Sources
Work overload	The degree of work that is beyond the platform worker's capability in the workplace	I feel that the number of requests, problems, or complaints I deal with is more than expected.	Adapted from Ahuja et al. (2007)
		I feel that the amount of work I do interferes with how well it is done.	
		I feel busy or rushed.	
Physical effort	The degree of exposure to physical demands that is necessary to meet the needs of their duties in the workplace	I find my work physically strenuous.	Adapted from de Croon et al. (2004)
		My work requires physical strength.	
		I have to work in uncomfortable or tiring positions.	
Service technology support	The degree of technical support to meet the needs of their duties in the workplace	This platform has "state-of-the-art" technology to enhance our service quality.	Adapted from Babakus et al. (2009)
		Sufficient money is allocated for technology to support my efforts to deliver better service.	
		I have the necessary technology support to serve my consumers better.	
		Management works hard to make our systems and processes more consumer friendly.	

<Table 2> Operational Definition and Measurements of Research Variables (Cont.)

Constructs	Definitions	Items	Sources
Training	The degree of educational support to meet the needs of their duties in the workplace	At this platform company, sufficient time is allocated for training.	Adapted from Babakus et al. (2009)
		At this platform company, sufficient money is allocated for training.	
		At this platform company, training programs are consistently evaluated.	
		At this platform company, training programs focus on how to improve service quality.	
Burnout	The degree of depletion of emotional and mental energy that is necessary to meet the needs of their duties in the workplace	I feel emotionally drained from my platform's work.	Adapted from Ahuja et al. (2007)
		I feel used up at the end of the workday.	
		I feel fatigued when I get up in the morning and have to face another day on the work.	
		I feel burned out from my work.	
Work engagement	The level of concentration that platform workers experience while performing a task	Performing this platform's work is so absorbing that I forget everything else.	Adapted from Schaufeli et al. (2006) and Wang et al. (2022)
		I am rarely distracted when performing this platform's work.	
		Time passes quickly when I perform this platform's work.	
Job embracing	The degree of willingness to adapt to new ways of working and enjoy their jobs while performing a task	I enjoy my job as I see it as an easy opportunity to earn money.	Adapted from Möhlmannn et al. (2021) and Karanović et al. (2021)
		I have worked for this platform for many years, showing loyalty to the platform.	
		I recommend this platform to others to encourage them to join the platform.	
Fairness of rewards	The degree of operating compensation procedure to provide financial and non-financial rewards equally among platform workers	My platform has processes that assure that all team members will be treated fairly and equitably.	Adapted from Ahuja et al. (2007)
		I work in an environment in which good procedures make things fair and impartial.	
		In my workplace, sound practices exist that help ensure fair and unbiased treatment of all platform workers.	
		Fairness to platform workers is built into how issues are handled in my work environment.	

and local restaurant delivery, has led to a significant expansion in the food delivery industry (Ecker and Strüver, 2022). Despite the temporary nature of the working relationship between platforms and food delivery workers, the latter play a crucial role in the operation of online food platforms. Food delivery workers face several problems, including technological control, the illusion of autonomy, and the precarity of work (Parwez, 2022).

The data utilized to examine the research model was obtained from individuals working as platform workers within the realm of food delivery services.

<Table 3> Collinearity Statistics (VIF)

Constructs	WO	PE	STS	TRA	BUR	WE	JE	FR
Work overload					1.347			
Physical effort					1.347			
Service technology support						2.024		
Training						2.024		
Burnout							1.055	
Work engagement							1.299	
Job embracing								
Fairness of rewards							1.239	

Legends: WO=Work overload, PE=Physical effort, STS=Service technology support, TRA=Training, BUR=Burnout, WE=Work engagement, JE=Job embracing, and FR=Fairness of rewards

A survey was administered to the participants through in-person meetings and gathered over a duration of one month (from January 2022 to February 2022). Out of the 250 food delivery workers in South Korea who were approached, 68 responses containing primarily missing data from participants were excluded, resulting in 182 valid responses, thereby achieving an overall response rate of 72.8%. The demographic characteristics of the sample are presented in Table 4. Within the sample, 87.90% of participants were male, and 50.50% were married. Concerning platform workers, 75.30% of the participants were engaged

<Table 4> Demographic Characteristics of the Respondents

Items	Category	Frequency	Ratio (%)
Gender	Male	160	87.90
	Female	22	12.10
Marriage	Single	86	47.30
	Married	92	50.50
	Celibacy	4	2.20
Number of Jobs (including platform work)	1	137	75.30
	2	32	17.60
	3	10	5.50
	4	3	1.60
Age	Mean	37.45	
	Min	20	
	Max	59	
	Median	37	
Age Percentiles	25th	30	
	50th	37	
	75th	43	

solely in platform work. The mean age of the participants was 37.45 years.

Ⅴ. Data Analysis and Results

This research utilized the partial least squares (PLS) technique to examine the study. The advantages of utilizing the PLS methodology are associated with addressing small sample sizes, non-normally distributed data, and integrating formatively evaluated latent variables (Ringle et al., 2012). The utilization of PLS analysis was justified as a suitable methodological option for testing the research framework as the main aim of this study was exploratory in nature, focusing on theory development and prediction (Hair et al., 2011).

5.1. Measurement Model

The theoretical model is evaluated through the utilization of SmartPLS 4.0 in order to examine the validity of the measurement model. Initially, an evaluation of the measurement model was conducted encompassing all reflectively measured constructs, focusing on convergent and discriminant validity as outlined by Hair et al. (1998). The results presented in <Table 5> demonstrate that each individual item exhibited substantial loadings on their respective construct, with factor loadings ranging from 0.719 to 0.878. To ensure construct validity, it is imperative that the composite reliability (CR) surpasses 0.7 and the average variance extracted (AVE) exceeds 0.5, as advocated by Fornell and Larcker (1981) and Gefen and Straub (2005). Analysis in Table 6 reveals that the composite reliability varied between 0.836 (Work overload) and 0.918 (Training), whereas the AVE ranged from 0.601 (Burnout) to 0.738 (Training).

We examined the Fornell and Larcker criterion, indicator cross-loading, and Heterotrait–Monotrait Ratio of correlation (HTMT) to assess discriminant validity. It is essential for the square root of AVE to surpass the inter-construct correlations (Fornell and Larcker, 1981). By analyzing the inter-construct correlations (off-diagonal elements) and the square root of AVE (diagonal elements) in <Table 7>, it is evident that all constructs exhibit a higher degree of shared variance with their respective indicators

<Table 5> Item-factor Loadings and Cross-loadings

	Work Overload	Physical Effort	Service Technology Support	Training	Burnout	Work Engagement	Job Embracing	Fairness of Rewards
WO1	**0.778**	0.468	-0.049	-0.026	0.499	-0.079	-0.064	0.034
WO2	**0.830**	0.391	0.049	0.034	0.424	0.011	0.102	0.188
WO3	**0.772**	0.344	0.104	0.035	0.485	0.081	0.020	0.160
PE1	0.331	**0.831**	-0.104	-0.118	0.558	-0.137	-0.114	-0.058
PE2	0.418	**0.878**	-0.160	-0.152	0.538	-0.199	-0.141	-0.056
PE3	0.495	**0.719**	-0.194	-0.232	0.502	-0.184	-0.183	-0.055
STS1	0.064	-0.144	**0.771**	0.631	-0.116	0.515	0.418	0.608
STS2	0.002	-0.175	**0.858**	0.571	-0.242	0.465	0.551	0.485
STS3	0.045	-0.151	**0.859**	0.583	-0.179	0.464	0.470	0.496

<Table 5> Item-factor Loadings and Cross-loadings (Cont.)

	Work Overload	Physical Effort	Service Technology Support	Training	Burnout	Work Engagement	Job Embracing	Fairness of Rewards
STS4	0.022	-0.145	**0.804**	0.544	-0.198	0.400	0.534	0.504
TRA1	-0.028	-0.173	0.602	**0.848**	-0.164	0.425	0.415	0.507
TRA2	0.019	-0.180	0.639	**0.861**	-0.219	0.445	0.537	0.499
TRA3	0.041	-0.142	0.557	**0.866**	-0.191	0.451	0.473	0.494
TRA4	0.023	-0.201	0.642	**0.860**	-0.202	0.491	0.462	0.500
BUR1	0.549	0.483	-0.174	-0.136	**0.766**	-0.150	-0.180	-0.038
BUR2	0.448	0.442	-0.149	-0.221	**0.783**	-0.177	-0.303	-0.040
BUR3	0.372	0.523	-0.147	-0.168	**0.804**	-0.157	-0.189	-0.056
BUR4	0.466	0.582	-0.206	-0.179	**0.747**	-0.210	-0.180	-0.076
WE1	0.058	-0.083	0.487	0.399	-0.122	**0.840**	0.507	0.354
WE2	-0.057	-0.136	0.451	0.390	-0.218	**0.848**	0.515	0.286
WE3	0.007	-0.298	0.493	0.536	-0.226	**0.851**	0.621	0.454
JE1	0.020	-0.215	0.513	0.452	-0.196	0.526	**0.790**	0.313
JE2	-0.058	-0.126	0.457	0.409	-0.276	0.544	**0.845**	0.286
JE3	0.081	-0.093	0.468	0.464	-0.188	0.505	**0.776**	0.458
FR1	0.132	0.050	0.521	0.453	0.033	0.311	0.308	**0.785**
FR2	0.132	-0.078	0.586	0.542	-0.118	0.353	0.397	**0.857**
FR3	0.132	-0.099	0.539	0.476	-0.053	0.392	0.368	**0.867**
FR4	0.114	-0.083	0.440	0.423	-0.067	0.369	0.360	**0.752**

<Table 6> Reliability of Each Construct

Constructs	Mean (SD)	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Work overload	5.053 (0.960)	0.707	0.836	0.630
Physical effort	5.300 (0.993)	0.737	0.852	0.659
Service technology support	4.239 (1.157)	0.842	0.894	0.679
Training	4.099 (1.235)	0.882	0.918	0.738
Burnout	5.059 (0.985)	0.779	0.857	0.601
Work engagement	4.273 (1.156)	0.803	0.883	0.716
Job embracing	4.244 (1.097)	0.727	0.846	0.647
Fairness of rewards	4.365 (1.123)	0.833	0.889	0.667

rather than with other constructs. The factor loading of indicators on the initially assigned construct exceeds all loadings of alternative constructs, meeting the criterion of 0.70 <Table 5> (Hair et al., 1998). Moreover, HTMT was computed to tackle the issue of discriminant validity (Henseler et al., 2015). When

<Table 7> Correlation Matrix and Average Variance Extracted

Constructs	WO	PE	STS	TRA	BUR	WE	JE	FR
Work overload	***0.794***							
Physical effort	0.508	***0.812***						
Service technology support	0.042	0.187	***0.824***					
Training	0.017	-0.203	0.711	***0.859***				
Burnout	0.596	0.658	-0.220	-0.226	***0.775***			
Work engagement	0.004	-0.213	0.565	0.529	-0.225	***0.846***		
Job embracing	0.019	-0.178	0.596	0.550	-0.273	0.652	***0.804***	
Fairness of rewards	0.156	-0.070	0.640	0.582	-0.068	0.438	0.441	***0.817***

Legends: WO=Work overload, PE=Physical effort, STS=Service technology support, TRA=Training, BUR=Burnout, WE=Work engagement, JE=Job embracing, and FR=Fairness of rewards

* Figures along the diagonal in bold *italics* are values of the squared root of the AVE.

<Table 8> Heterotrait–Monotrait Ratio (HTMT)

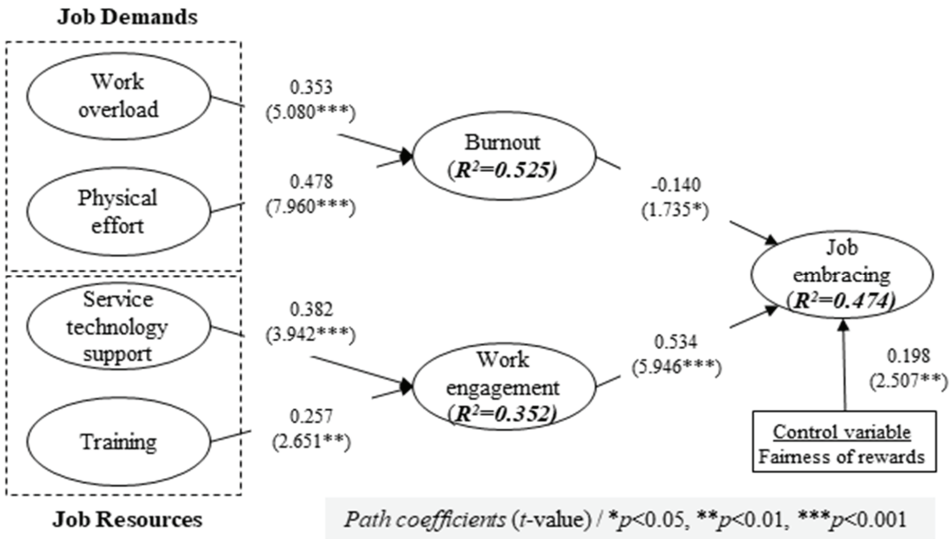
Constructs	WO	PE	STS	TRA	BUR	WE	JE	FR
Work overload								
Physical effort	0.706							
Service technology support	0.113	0.239						
Training	0.057	0.255	0.819					
Burnout	0.791	0.865	0.273	0.273				
Work engagement	0.118	0.267	0.678	0.618	0.280			
Job embracing	0.145	0.249	0.766	0.686	0.365	0.846		
Fairness of rewards	0.217	0.120	0.758	0.677	0.109	0.526	0.561	

Legends: WO=Work overload, PE=Physical effort, STS=Service technology support, TRA=Training, BUR=Burnout, WE=Work engagement, JE=Job embracing, and FR=Fairness of rewards

compared to the criteria of cross-loadings (0.00%) and Fornell-Larcker (20.82%), HTMT demonstrates superior specificity and sensitivity levels (97% to 99%). HTMT values nearing 1 signify a lack of discriminant validity, with the designated threshold being 0.85 (Henseler et al., 2015). The data presented in <Table 8> indicates that the HTMT criterion, which reflects the average correlations of indicators across constructs, meets the stringent threshold of 0.85. In conclusion, these findings indicate that the measures of all constructs are dependable and showcase both convergent and discriminant validity.

5.2. Structural Model

Analysis of the structural model was conducted utilizing the PLS bootstrapping method in SmartPLS 4.0, incorporating 5,000 subsamples (Chin et al., 2003). <Figure 3> presents a summary of the path coefficients and provides an explanation of variances within the research model. The value of explained variances (R^2) depicted in <Figure 3> suggests that the structural model employed in this study elucidated 52.5% of the variance in burnout, 35.2% of the variance in work engagement, and 47.4% of the



<Figure 3> Path Analysis

<Table 9> Results of PLS Analysis

Hypothesis	Path Coefficient	*T*-Value	P Values	Outcome
Work overload → Burnout	0.353	5.080	0.000	Supported
Physical effort → Burnout	0.478	7.960	0.000	Supported
Service technology support → Work engagement	0.382	3.942	0.000	Supported
Training → Work engagement	0.257	2.651	0.004	Supported
Burnout → Job embracing	-0.140	1.735	0.041	Supported
Work engagement → Job embracing	0.534	5.946	0.000	Supported
Fairness of rewards → Job embracing	0.198	2.507	0.006	Supported

variance in job embracing. Also, because the correlation between service technology and training is worrisome, we checked the multicollinearity by using VIF in <Table 3> (Diamantopoulos and Siguaw, 2006). Since the VIF values of both service technology and training are less than ten as a rule of thumb, we retained highly inter-correlated items (Diamantopoulos and Siguaw, 2006).

With respect to job demands, the findings indicated that the level of work overload had a substantial impact on burnout (β = 0.353, p < 0.001), while the degree of physical effort significantly contributed to burnout (β = 0.478, p < 0.001). In relation to job resources, it was observed that support from service technology exhibited a noteworthy positive association with work engagement (β = 0.382, p < 0.001), and participation in training had a significant positive effect on work engagement (β = 0.257, p < 0.01). In terms of predictors of job embracing, burnout was found to have a negative effect on job embracing (β = -0.140, p < 0.05), whereas work engagement demonstrated a significant positive impact on job embracing (β = 0.534, p < 0.001).In addition, fairness of rewards, as a control factor, was

found to be positively linked with job embracing ($\beta = 0.198$, $p < 0.01$). The outcomes of the hypotheses testing are detailed in <Table 9>.

Ⅵ. Discussion and Implications

6.1. Discussions of the Findings

Most of the literature on platforms focused on algorithm management from the perspective of platforms. Thus far, relatively few studies have been devoted to an analytic examination of demands as well as resources of platform work. Rooted in the JD-R framework, this study aimed to theoretically combine job demands with job resources within a single framework to predict better platform workers' job embracing.

Job demands consisting of work overload and physical effort were hypothesized as direct predictors of burnout. The results showed that work overload significantly affects burnout (Schaufeli, 2017). Although employment in food delivery is on-demand, platform workers are subjected to work overload by algorithmic management (Möhlmannn et al., 2021). This algorithmic management controls platform workers with work compensation and punishment. This algorithmic control pushes platform workers to work more. Platform workers face work pressure, resulting in work overload owing to tensions between platform workers' autonomy and algorithmic control. In addition, physical effort significantly affects burnout. This finding is consistent with de Croon et al.'s (2004) findings on the effects of job demands, showing that physical effort results in burnout. Physical effort impacts burnout (ß = 0.478) more than work overload (ß = 0.353). Against the nature of the employment relationship of platform workers, they are compelled to labor under harsh circumstances and extended time frames (12 hours daily), resulting in significant physical exertion (Parwez, 2022). Hence, such a physical effort exposes platform workers to burnout. The results show that the two kinds of job demands have the potential to independently stress platform workers by making them feel exhausted mentally and, ultimately, hindering them from embracing platforms.

Importantly, as platform competition is more intense with a fixed supply side (platform workers), platform workers with more outstanding tenure at a specific platform could be valuable resources (Nwafor et al., 2022). As job resources have the nature of a motivational process, they make platform workers feel engaged. Job resources consisting of service technology support and training were hypothesized as direct predictors of work engagement in the context of platform workers. The results revealed that service technology support significantly affects work engagement. Food delivery workers' support with mobile application experience as job resources can help increase the ability of platform workers to work (Ting and Ahn, 2022). The results suggest that service technology support reduces stress by satisfying platform workers' need to be competent in the job, leading to work engagement (Babakus et al., 2009). In addition, the findings indicated that the training had a significant impact on work engagement. This finding is consistent with Sendawula et al.'s (2018) findings regarding the effect of training on work engagement. Training can improve platform workers' capabilities to operate their jobs, resulting in higher work engagement. Proper training yields benefits for platform workers and platforms by affecting work engagement. Therefore, job resources for platform workers are essential to retain them and make them feel engaged, ultimately leading to better-performing

platforms (Schaufeli, 2017).

In alignment with the JD-R literature, the resultss present empirical proof that burnout has a negative impact on job embracing, while work engagement has a positive effect on job embracing (Babakus et al., 2009; Bakker et al., 2003; Demerouti et al., 2001; Schaufeli and Bakker, 2004). Furthermore, fairness of rewards, as a control factor, notably influences job embracing. This corresponds with earlier research findings indicating that increased fairness of rewards enhances the likelihood of platform workers embracing platforms (Boyd et al., 2011; Nwafor et al., 2022).

Overall, the JD-R model could potentially function as the guiding framework for a managerial procedure focused on enhancing work engagement and alleviating burnout among platform workers. Furthermore, due to its adaptable nature, the JD-R model can be tailored to suit the specific circumstances of platform workers. The balanced approach of the JD-R model, encompassing all pertinent characteristics of platform work, is crucial for comprehending the operational dynamics of platform workers within the sharing economy.

6.2. Theoretical Implications

This study makes several contributions to the platform literature. First, because platforms depend on platform workers to create value, platforms should account for the platform workers' points of view. Previously, although IS researchers have focused on algorithmic control and gained much insight into platform organizing, research has failed to incorporate the perspective of the supply side, platform workers. This study contributes to the literature on platform workers by presenting a parsimonious model that explains the effects of platform workers' job demands and job resources rooted in the JD-R model.

Second, this study has clarified platform workers' job resources, which consist of work overload and physical effort, and job demands, which consist of service technology support and training. Thus, the scope of the JD-R model was extended to the platform workers' situations field. Accordingly, this study could contribute to researchers who find the interplay between job demands and job resources of platform workers to explain their psychological processes.

Third, this study showed how burnout and work engagement influence platform workers' job embracing, supporting the results of extant studies based on the JD-R model. In addition, our finding that work engagement exerts a more substantial beneficial effect on job embracing and burnout reduces job embracing is consistent with earlier studies in the transportation industry (Nahrgang et al., 2011). These results suggest that establishing work engagement is among the best ways to improve platform workers' job embracing.

6.3. Practical Implications

This study has notable implications for platform managers. First, the pressure of work, especially for food delivery workers, has intensified by algorithmic control. This pressure can accelerate work overload and the physical effort of platform workers, leading to burnout. Thus, platforms should accommodate the complete life needs of each platform worker to overcome their precarious working situations and reduce burnout.

Second, this study points to the value of superior service technology support, which allows platform workers to combine the flexibility of self-employment with benefits to fulfill their specific needs, improving work engagement. In addition, training in managing precarious working conditions is part of the job re-

sources available to platform workers. Platforms need to take the position that training platform workers is a better strategy to improve the service quality of food delivery than penalizing them.

Third, this study focuses on platform workers' job embracing. Although platform workers are regarded as self-employed and independent workers, platform workers are implicitly treated as traditional workers. Because platforms do not provide benefits traditionally associated with salaried workers, platform workers are subject to work in vulnerable situations (Parwez, 2022). By identifying job demands and job resources that can improve platform workers' job embracing, these findings will be of great significance for policymakers interested in improving the on-demand workplace conditions to help platforms attract and retain platform workers.

Ⅶ. Conclusion, Limitations, and Future Research

Based on the JD-R model, this study developed a conceptual framework of the predictors of platform workers' job embracing. These results suggest that the effects of both burnout and work engagement on platform workers' job embracing can be understood by paying attention to job demands and resources. Considering the precarity of work and the change in employment at platforms, scholars should consider the effects of job demands and resources to understand the net effect these variables can have on platform workers' job embracing and other organizational outcomes.

The research encountered certain limitations that require further elucidation in future studies. First, this investigation employed cross-sectional data to scrutinize the proposed hypothesis. A prospective study ought to incorporate longitudinal research to comprehend the extent of the influence of job demands and job resources among platform workers. Second, this study includes the limited dimensions of job demands and job resources. A future study should consider adding other dimensions of job demands and job resources to investigate their impacts on platform workers' well-being and performance. Third, the study sample consists of food delivery workers. A future study should incorporate a representative from various platform workers to generalize the results. Fourth, although this study focused on organizational-level factors, future studies could include the personal resources of platform workers in the model. Previous studies showed that personal resources (e.g., self-efficacy and organization-based self-esteem) could serve as mediators in the association between job resources and work engagement (Xanthopoulou et al., 2007).

Acknowledgments

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea(NRF-2021S1A5A2A03064273).

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◆ About the Authors ◆

Sung Yul Ryoo

Sung Yul Ryoo is a Professor in the Department of Business Administration at Daejin University, South Korea. His research interests are in digital shadow work, platform labor, and digital exclusion and inclusion. He has published his research works in journals such as the Journal of Strategic Information Systems, European Journal of Information Systems, Omega, Journal of Business Research, Computers in Human Behavior, Information Systems Frontiers, and others.

Sang Cheol Park

Sang Cheol Park is currently an Associate Professor of College of Business at Daegu University in Korea. He previously worked for Georgia State University as a post-doctoral researcher and joined in University of Tennessee (Knoxville) as a visiting scholar. His research focuses on the areas of judgment and decision making in technology usage context and digital platform work with shadow work. His research has appeared in the *JAIS, EJIS, ISJ, JGIM, CHB, JCIS*, and among others.

Submitted: August 28, 2023; 1st Revision: October 24, 2023; Accepted: January 24, 2024