Financial Vulnerability, Resilience, and Willingness to Pay for Social Protection Schemes Among Gig Workers: Empirical Evidence from Malaysia

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Abstract

This study aims to identify the financial dynamics of gig workers in Malaysia, focusing on their financial vulnerability, resilience, and willingness to pay for social protection schemes. Employing logit analysis, the study analyzed responses from 452 gig workers across Malaysia using a structured questionnaire. The findings reveal that income, education, and being a full-time gig worker emerged as pivotal factors influencing short-term financial vulnerability, shedding light on the disparities within this workforce segment. Even though most can meet their basic needs, some gig workers may lack resilience toward financial and social shocks. Besides income, financial resilience was closely tied to financial literacy,

emphasizing the role of financial education in enhancing economic stability. The willingness to pay for social protection was closely linked to one's financial circumstances and literacy level, highlighting the necessity for personalized social protection strategies tailored to the unique needs of gig workers.

Keywords: financial vulnerability, gig worker, resilience, social protection, willingness to pay.

1. Introduction

Technological advancement and the COVID-19 pandemic have accelerated the gig economy's significant growth. The impact of the pandemic on Malaysia's labor market is evident in the high unemployment rate. Gig work has emerged as an alternative and an opportunity for individuals who are underemployed or unemployed, respectively, due to the low barriers to entry into the workforce. In addition, due to the Movement Control Order (MCO) measures that limit the movement of people, there has been an increasing reliance on gig workers to facilitate the home delivery of essential goods to consumers. This reliance has reshaped national consumption patterns and led to the increasing prevalence of online platforms that connect freelance workers with customers in need of various services (Kuhn & Maleki, 2017).

A gig worker, widely known as a freelancer, operates on a temporary, flexible, project-by-project basis—typically short-term—and is commonly connected through digital platforms for work. In Europe, a gig worker is defined as an individual who engages in economic activity through a digital platform or mobile application for at least one hour a week (ILO, 2023a). Singapore defined gig workers as freelancers, independent contractors, or task-based workers depending on their specific skills (Inland Revenue Authority of Singapore, 2023). This is consistent with the academic literature, which emphasizes direct connection with clients through technology platforms, on-demand work, short-term contracts, and the absence of employment benefits (Goods et al., 2019; Rockmann & Ballinger, 2017). Additionally, gig workers were classified as full-time if performing gig work every day and part-time if not working every day (Caro et al., 2021). The term "gig worker" has diverse definitions worldwide, but there is

no precise legal definition of gig worker in Malaysia. Thus, there is a need for a precise legal definition of gig workers, a group often stereotypically identified as freelancers and independent contractors. Furthermore, existing labor laws in Malaysia lack provisions and regulations to address the issues of the working conditions of gig workers. Despite the flexibility of work hours, gig workers are associated with a lack of social security protection such as health insurance, retirement benefits, and disability benefits (OECD, 2020). This situation often raises questions about the financial condition of gig workers, particularly their financial vulnerability.

Financial vulnerability occurs when individuals struggle to manage their expenses, cope with unexpected financial burdens, and face a heightened risk of financial crises (Salignac et al., 2019). While financial vulnerability may be seen as a short-term measure, financial resilience is a long-term measure that involves an individual's capability to withstand economic shocks and fluctuations. The financial vulnerability position can impact access to resources, subsequently impacting financial resilience. In this context, financial resilience refers to the ability of an individual to withstand and recover from financial shocks (Abbott-Chapman et al., 2008; Daud et al., 2024). Gig workers often face unexpected challenges such as illness, accidents, job loss, or natural disasters. Those who effectively manage their finances tend to rely on their savings during difficult times, borrow funds, seek assistance from family and friends, or utilize insurance coverage. Financial resilience necessitates allocating resources, time, and effort, which can be challenging for financially vulnerable individuals. A focus on short-term survival can hinder efforts to build long-term financial resilience. In such circumstances, allocating funds for social protection might be an additional burden,

exacerbating their financial stress and potentially reducing their willingness to contribute to social protection schemes.

Gig workers can bolster their financial resilience by enhancing access to social protection programs, empowering them to rebound from potential economic shocks swiftly. However, uncertainties surrounding the practical implementation of this extension persist, and understanding the diverse perspectives of gig workers toward social protection mechanisms in various contexts is still a vital area to explore. The concept of willingness to pay (WTP) for social protection plays a significant role in the discourse surrounding its expansion, which is the monetary value that individuals are prepared to allocate or expend to acquire certain services (Ogundejiid et al., 2019). Without the assurance of adequate support during challenging times, the perceived return on investment for contributing to social protection schemes may diminish, resulting in reduced willingness to participate.

A previous study by Hamid et al. (2023) found that individuals with low resilience are considered financially vulnerable. However, it is crucial to recognize that gig workers who can meet their basic needs might also exhibit low financial resilience, emphasizing the gradual nature of resilience development and, thus, connecting the three subjects of financial vulnerability, financial resilience, and WTP for social protection. An in-depth study exploring gig workers' financial situation and willingness to pay for social protection can offer valuable insights for formulating short-term and long-term policies. Simultaneously, evaluating the financial circumstances of gig workers plays a pivotal role in the policy formulation process, as it directly reflects their readiness to participate in social protection schemes. To the best of our knowledge, there are very limited studies conducted on the financial aspects and WTP for social protection schemes among

gig workers in Malaysia. Therefore, this study contributes to the existing literature on the gig economy by examining the dynamic relationship between financial vulnerability, resilience, and the WTP for social protection schemes in developing countries, particularly Malaysia. The remaining sections of this paper are structured, including the literature review, research methodology, results and discussion, and conclusion and recommendations.

2. Literature Review

The impact of the COVID-19 pandemic on the traditional labor market with digital advancement has reshaped global labor markets (Kässi & Lehdonvirta, 2018). Improvements in connectivity have been critical in facilitating the rise of the "gig economy" at a time when traditional job opportunities are in short supply (Au-Yeung & Qiu, 2022). The gig economy might be attractive to participants since it allows free entry and exit into the market (Donovan et al., 2016), while employers can easily connect with on-demand workers through digital labor platforms, which is an increasing trend in the gig economy. As a result, the gig economy, i.e., work that is digitally mediated, is facilitated by rapid digital platform growth (Woodcock & Graham, 2020).

The term "gig workers" is often used instead of "informal workers," as it specifically denotes individuals involved in short-term, project-based work and on-demand jobs through online platforms or apps. According to ILO (2016), the term "informal workers" is broader and includes workers in traditional sectors like agriculture and construction. Gig workers often rely on digital platforms to connect with customers (Dunn et al., 2023); however, informal workers typically engage in traditional, manual labor without the connection through digital platforms

(Malpica, 2011). In Western countries, gig workers fall into three categories: those with full-time jobs viewing the gig job as a hobby or networking opportunity; part-time workers diversifying income through platform earnings; and unemployed individuals relying solely on gig work as their main source of income (Leonardi & Pirina, 2020). The precise legal categorization of gig workers has been a focal point of controversy among many researchers, given its impact on the entire labor process, encompassing labor contracting, compensation, and protective measures. The classification holds significance as it influences various aspects of the gig economy.

The complexity of reforming employment policies stems from the ambiguity surrounding the definition of gig workers and the absence of a proper classification for this group, leaving them outside the purview of traditional employment standards and regulations. This lack of clarity is particularly evident in Malaysia, where gig workers are not legally recognized as "employees" within the national framework. Consequently, the lack of institutional support and legal social protection has forced them to rely on family members or other social resources (Chen, 2018). This proves to be a challenge for Asian gig workers who tend to work full-time due to unemployment or as their primary source of income (Uchiyama et al., 2022). The rising number of gig workers exposed various gaps within the framework of labor laws and the existing system (Coyle, 2017). These deficiencies expose gig workers to heightened financial vulnerability. Addressing the social protection gaps is imperative to providing gig workers access to health insurance, unemployment schemes, and pensions (ILO, 2023b).

Financial vulnerability demonstrates the inability to handle expenses effectively, cope with unforeseen expenses, or experience a decline in the ratio of

real household net wealth to disposable income (Daud et al., 2019). However, individuals who turn to gig jobs to address their financial difficulties frequently encounter lower earnings compared to the traditional mode of employment with no minimum wages, which compounds their financial challenges (Koustas, 2019). The flexibility of gig work results in income volatility, especially during the transition from traditional employment (Daniels & Grinstein-Weiss, 2019). Additionally, gig workers must bear on-the-job costs, such as fuel, car insurance, or unforeseen repairs, which increase their income instability. Mandatory insurance for gig workers represents a significant financial burden, particularly for those engaged in full-time gig work with higher associated risks (Uchiyama et al., 2022).

Previous studies by Abbott-Chapman et al. (2008) focused on resilience, denoting an individual's capacity to "bounce back" after economic setbacks. This resilience empowers individuals to meet economic challenges and adapt to changing circumstances. Conversely, Muir et al. (2016) defined financial resilience as individuals' capability to access internal resources, such as effective financial management through saving and expense control, and external resources, including support from family, friends, or the broader social network, when confronted with adverse financial shocks. Financial literacy also plays a pivotal role in shaping financial resilience (Kass-Hanna et al., 2021). Increased financial literacy is closely associated with improved emergency preparedness, exemplified by savings and the adoption of risk management behaviors, such as securing life and health insurance.

In Malaysia, social protection comprises policies to ensure basic income security, provide universal access to basic needs, and build resilience to

vulnerabilities. Social protection programs include social assistance, social insurance, and active labor market programs. Social assistance programs are non-contributory (publicly funded) to aid with basic needs. Meanwhile, social insurances are contributory insurance schemes (except for civil servants) that provide resilience against economic and financial shocks, e.g., the voluntary retirement savings in the i-Saraan[1] program by the Employees Provident Fund (EPF) or the Self-Employment Social Security Scheme (SESSS)[2] by Social Security Organization (SOCSO). In addition, stakeholders are crucial in active labor market programs, including various training and entrepreneurial programs (Hamid et al., 2021). Due to a higher degree of self-reliance, gig workers possess the autonomy to decide whether they want to contribute to social security schemes and recognize that such contribution maximizes their utility in terms of the value of their money (Uchiyama et al., 2022).

The emergence of the gig economy has sparked conversations regarding redefining the social contract to ensure adequate protection and benefits for gig workers. While short-term incentives have provided a safety net for gig workers during immediate crises, there remains a pressing need to address the long-term income stability of gig workers (Uchiyama et al., 2022). One notable challenge is the need for a comprehensive conceptual and analytical framework; the lack of one currently impedes academic comprehension and political discussions regulating the gig economy (Koutsimpogiorgos et al., 2020). Based on studies related to the

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[1] i-Saraan, launched by the Employment Provident Fund (EPF), provides voluntary retirement savings for self-employed individuals (who must be Malaysian and below 60 years old) and offers exclusive government incentives for retirement savings to those without fixed incomes.

[2] The Self-Employment Social Security Scheme (SESSS) Act 2017 was initially mandatory for self-employed persons in the passenger transport sector (taxi, e-hailing, and bus drivers). Starting from 1 January 2020, it protects self-employed and informal workers against employment-related injuries in various informal sectors. For more information, see https://www.perkeso.gov.my/en/our-services/protection/self-employed.html

subject matter, more research is needed on the empirical study of financial vulnerability and WTP for social protection among gig workers in the Malaysian context. Thus, this study presents empirical findings on the financial vulnerability of gig workers and their WTP for social protection schemes, considering their demographic and socioeconomic factors. These findings offer valuable insights and recommendations for bolstering worker protection measures.

3. Research Methodology

3.1 Research Instrument

This study employed a quantitative approach by distributing a questionnaire to gig workers across various regions, including Northern, Central, East Coast, Southern, and East Malaysia. The questionnaire items were modified and adapted from previous literature (Anderloni et al., 2012; Bradshaw et al., 2010; Hogarth & Hilgert, 2002; Loke, 2017; RinggitPlus, 2020). Given the study's objectives, relevant questions were selected to assess gig workers' financial situations regarding financial vulnerability, financial resilience, financial literacy, and their willingness to contribute to social protection. The questionnaire was divided into three main sections. Section 1 comprised respondent profiles. Section 2 delved into gig workers' financial vulnerability, resilience, and financial literacy. Section 3 examined the respondents' WTP for social protection schemes. The scores related to financial vulnerability, financial resilience, financial literacy, and WTP for social protection schemes were then classified in Table 1. The study employed a logit regression model to analyze the factors influencing gig workers' levels of financial vulnerability, resilience, and WTP for social protection schemes.

A four-point Likert scale was utilized in the questionnaire. In the financial vulnerability section, respondents were required to rank seven items on a scale ranging from point 1 (never) to point 4 (every time). Since the items exhibited consistent polarity, responses of "never" or "rarely" were categorized as indicative of not being financially vulnerable, while other responses indicated being financially vulnerable. The scores were calculated based on the mean of these responses. Conversely, the measurement for financial resilience (comprising 17 items), financial literacy (comprising 6 items), and WTP for social protection schemes (consisting of 5 items) ranged from 1 (strongly disagree) to 4 (strongly agree). Subsequently, the averages for each dimension were calculated and categorized according to the criteria outlined in Table 1 below.

A pre-test was conducted involving expert evaluation and feedback from 30 randomly selected gig worker samples. Following the expert review, the questions' sequence and wording were adjusted to enhance their clarity and comprehensibility for gig workers. Cronbach's Alpha was employed to ensure reliability, and the results demonstrated high reliability across the domains of financial vulnerability ($\alpha = 0.85$), financial resilience ($\alpha = 0.881$), financial literacy ($\alpha = 0.77$), and WTP ($\alpha = 0.724$).

3.2 Sample Selection

The target population for this study comprised gig workers from all five regions in Malaysia. A multi-stage sampling approach was employed, selecting one state to represent each region. As the precise number of gig workers in Malaysia was unknown, the number of informal workers in 2020 was used as a proxy to determine the sample size of gig workers from each region. A minimum

of 385 gig workers were thus needed to meet the sample requirements at a 95 percent confidence level. The study considered various categories of gig workers, including participants in p-hailing, e-hailing, freelancing, and contract-based workers aged 16 years and above. The respondents received a detailed briefing outlining the research purpose, and monetary incentives were offered as compensation for their participation. Participation was entirely voluntary, and participants were required to sign a consent form before answering the questionnaire. The survey was conducted through a combination of online and physical face-to-face interviews, with 452 responses usable for analysis. The survey was conducted between June 2022 and November 2022.

3.3 Definition of Variables

Table 1 provides comprehensive information on financial vulnerability, financial resilience, WTP for social protection, and socioeconomic factors included in this analysis.

Table 1. Definition of variables in the statistical model

Variables	Definitions	Mean/%
Financial vulnerability	1 = Financially vulnerable if the score ranges from 2.51–4.00	11.95
	2 = Non-financially vulnerable if the score ranges from 1.00–2.50	88.05
Financial resilience	1 = High financial resilience if the score ranges from 2.51–4.00	39.60
	2 = Low financial resilience if the score ranges from 1.00–2.50	60.40
Willingness to pay	1 = High willingness to pay if the score ranges from 2.51–4.00	88.94
	2 = Low willingness to pay if the score ranges from 1.00–2.50	11.06
Age	Measured in years	28.78
Number in household	Number of people in a household	4.67
Monthly income	Household monthly income, measured in Ringgit Malaysia (RM)	2397.47
Gender: Male	= 1 if male; 0 otherwise	67.26

Marital status: Single	= 1 if single; 0 otherwise	68.58
Education level		
Secondary	= 1 if secondary education level; 0 otherwise	42.04
Tertiary	= 1 if tertiary education level; 0 otherwise	54.42
Working status: Full-time	= 1 if full-time gig work; 0 otherwise	63.94
Region		
Central	= 1 if the respondent is from the Central region; 0 otherwise	21.24
Southern	= 1 if the respondent is from the Southern region; 0 otherwise	16.59
East Coast	= 1 if the respondent is from the East Coast region; 0 otherwise	19.91
East Malaysia	= 1 if the respondent is from the East Malaysia region; 0 otherwise	19.47
Financial literacy: High	= 1 if financial literacy scores range from 2.51–4.00; 0 otherwise	84.73

3.4 Method of Analysis

A logit regression model was employed to examine the factors affecting the odds of being financially vulnerable, resilience, and WTP for social protection among gig workers. Likelihood ratio (LR) and Pearson Chi-square tests were conducted to test the goodness-of-fit of the regression model. Correlation coefficients between all variables were estimated to diagnose the potential multicollinearity issues. The statistical analysis was performed using Stata statistical software. Student t-test was used to analyze continuous variables, while Chi-square test was used for categorical variables. To see the net association between financial vulnerability, resilience, WTP, and socioeconomic factors, logit regression was applied in this study.

3.5 Conceptual Framework

From the existing literature, we illustrate a conceptual framework (Figure 1). In the emerging gig economy, it is imperative to comprehend the

relationships between financial vulnerability, resilience, literacy, and WTP for social protection. Financial vulnerability exerts a negative effect on financial resilience. Individuals or households with high levels of vulnerability encounter more significant difficulties in recovering from financial setbacks. Factors such as limited savings, excessive debt, or a lack of financial knowledge impede their capacity to rebound and adapt to adverse financial events. Conversely, the framework highlighted the pivotal role played by financial literacy (financial knowledge) in empowering individuals to develop the resilience needed to build the capacity to withstand and recover from financial shocks and challenges (financial resilience). High financial literacy motivates individuals to safeguard their financial well-being proactively.

Furthermore, financially vulnerable individuals often encounter financial constraints and challenges. They are more focused on short-term survival as they grapple with immediate financial pressures. Meeting basic needs, covering essential expenses, or paying off debts can become formidable tasks for them. In such circumstances, they prioritize immediate financial concerns over long-term investments in social protection, which requires regular contributions. In contrast, individuals with high financial resilience are more likely to have financial resources. They are willing to allocate some of their income toward insurance or safety net programs, recognizing that these safety nets can safeguard them during unexpected events. In addition, higher levels of financial literacy tend to be associated with a greater WTP for social protection. Individuals with high financial literacy are better informed about the benefits of these programs, more proactive in financial planning, and better equipped to make rational decisions that prioritize

their financial security. They understand the significance of social protection as a part of their overall financial well-being.

Figure 1. Conceptual framework
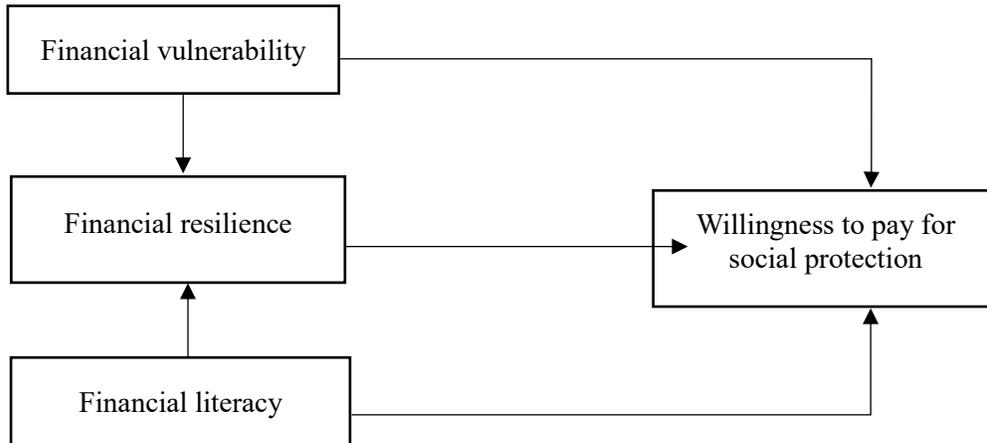
Source: Authors' illustration

4. Results and Discussion

This section presents the empirical results derived from the study and comprehensively analyzes these findings. All analyses were conducted using the statistical software STATA version 17.0. The study utilized cross-tabulation to examine the association between financial vulnerability, financial resilience, and WTP for social protection based on socioeconomic factors, examining the t-test and Chi-square value in Sections 4.1 and 4.2, respectively. Furthermore, Section 4.3 employed a logit model to identify the net relationships of financial vulnerability, resilience, and WTP for social protection among gig workers. Finally, the last section reveals the respondents' first choice of benefits.

4.1 Distribution of Financial Vulnerability and Resilience by Socioeconomic Factors

The distribution of financial vulnerability and resilience is shown in Table 2. The two-sample t-test indicated significant mean differences in age, number in household, and monthly income, each at a minimum significance level of 10 percent. For the non-financially vulnerable group, the mean age (Struckell et al., 2022) was 28, while for the vulnerable group, the mean age was 31. Financial vulnerability also indicates a significant difference based on the number in household at 10 percent confidence level. There is a difference in monthly income between the non-financially vulnerable group and the financially vulnerable group, with a gap of RM591.26. This is consistent with a prior study revealing that gig workers who face income insecurity often experience financial hardship (Zipperer et al., 2022). On the other hand, there is a significant difference in financial resilience based on monthly income at 1 percent confidence level, as supported by Salignac et al. (2019).

Furthermore, a Chi-square test of independence was conducted to examine the relationship between financial vulnerability and resilience by socioeconomic factors. The results show significant differences in financial vulnerability with education level, employment status, and location (Table 2). The association between education level and financial vulnerability aligns with previous research (Anderloni et al., 2012), while the significant difference in employment status is evident in previous research (Wang et al., 2022). Additionally, the findings reveal that financial resilience significantly differs based on education level, employment status, geographic location, financial literacy, and financial vulnerability. The level of education differs by financial

resilience, which is consistent with previous research (Hamid et al., 2023). Employment status is also associated with financial resilience at 5 percent confidence level, reporting a result similar to Wong et al. (2021). There is also a significant difference in financial resilience status by region. A significant variation in financial resilience status is observed across financial vulnerability and literacy status, which was reported the same in previous studies (Hamid et al., 2023; Hasler et al., 2023).

Table 2. Descriptive statistics of financial vulnerability and resilience (t-test and Chi-square)
(n=452)

Variables	Financial vulnerability			Financial resilience		
t-test	Yes (Mean)	No (Mean)	p-value	High (Mean)	Low (Mean)	p-value
Age (years)	31.259	28.442	0.0303*	28.743	28.802	0.9454
Number in household	5.167	4.601	0.0596*	4.642	4.685	0.8314
Monthly income (RM)	1876.852	2468.111	0.0090*	2920.771	2054.359	0.0000*
Chi-square test	Yes (%)		p-value	High (%)		p-value
Gender			0.255			0.190
Female	9.5			43.9		
Male	13.2			37.5		
Marital status			0.207			0.435
Single	10.6			38.4		
Married	14.8			42.3		
Education level			0.000*			0.049*
No formal/Primary	43.7			37.5		
Secondary	11.1			33.2		
Tertiary	10.6			44.7		
Employment status			0.004*			0.013*
Full-time	15.2			35.3		
Part-time/Casual	6.1			47.2		
Region			0.075*			0.029*

Northern	7.8	41.7	
Central	9.4	50.0	
Southern	8.0	42.7	
East Coast	17.8	27.8	
East Malaysia	17.1	35.2	
Financial literacy		0.616	0.000*
High	12.3	43.6	
Low	10.1	17.4	
Financial vulnerability		-	0.013*
Yes	-	24.1	
No	-	41.7	

4.2 Distribution of Willingness to Pay for Social Protection by Socioeconomic Factors

Age, marital status, employment status, geographical location, financial literacy, financial resilience, and financial vulnerability demonstrate statistically significant differences with WTP for social protection schemes (Table 3). The association between age and WTP in the previous research contrasts with the findings of this study (Bogliacino et al., 2019). A similar result is obtained for financial resilience by marital status (p=0.042) (Shafie & Hassali, 2013), as well as for employment status (p=0.028)(Berdahl & Moriya, 2021). Furthermore, the study reveals a noteworthy impact of geographic location on the WTP for social protection schemes, which is similar to previous studies (Atake & Agbodji, 2017; Ogundejiid et al., 2019). Financial aspects such as financial vulnerability, resilience, and literacy demonstrated a significant difference with WTP.

Table 3. Descriptive statistics of WTP for social protection schemes (t-test and Chi-square) (n=452)

Variables	Willingness to pay for social protection schemes		
t-test	**High (Mean)**	**Low (Mean)**	**p-value**
Age (years)	28.453	31.400	0.0284*
Number in household	4.679	4.580	0.7503
Monthly income (RM)	2418.677	2227.000	0.4145
Chi-square test	**High (%)**	**Low (%)**	**p-value**
Gender			0.162
Female	91.9 (136)	8.1 (12)	
Male	87.5 (266)	12.5 (38)	
Marital status			0.042*
Single	91.0 (282)	9.0 (28)	
Married	84.5 (120)	15.5 (22)	
Education level			0.129
No formal/Primary	75.0 (12)	25.0 (4)	
Secondary	87.9 (167)	12.1 (23)	
Tertiary	90.6 (223)	9.4 (23)	
Employment status			0.028*
Full-time	86.5 (250)	13.5 (39)	
Part-time/Casual	93.3 (152)	6.7 (11)	
Region			0.025*
Northern	96.1 (99)	3.9 (4)	
Central	89.6 (86)	10.4 (10)	
Southern	88.0 (66)	12.0 (9)	
East Coast	81.1 (73)	18.9 (17)	
East Malaysia	88.6 (78)	11.4 (10)	
Financial literacy			0.000*
High	91.1 (349)	8.9 (34)	
Low	76.8 (53)	23.2 (16)	
Financial resilience			0.007*
High	93.8 (168)	6.2 (11)	

Low	85.7 (234)	14.3 (39)	
Financial vulnerability			0.000*
Yes	74.1 (40)	25.9 (14)	
No	90.9 (362)	9.1 (36)	

4.3 Logit Regression Results

4.3.1 Logit Model Analysis of Financial Vulnerability and Resilience Among Gig Workers

Table 4 presents the relationships between financial vulnerability, resilience, and socioeconomic factors estimated by the logit model. Within the financial vulnerability model, 88.50% of the outcomes were accurately predicted. The Pearson chi-square test yielded a significant result with $x^2 = 527.26$ and a p-value less than 0.1. Meanwhile, the Hosmer-Lemeshow test assessed the significance of the relationship between observed and predicted probabilities. The results indicate that the logit regression model fits the data well, returning an insignificant result (p-value>0.05). Further, the maximum VIF of 8.81 and a mean VIF of 2.53 (less than 10) confirmed that multicollinearity was not a concern in the present model.

All variables were meticulously scrutinized at three significance levels: 10%, 5%, and 1%. The findings in Table 4 imply an association between the financial vulnerability of gig workers and various factors, including education level, employment status, region, and monthly income. In contrast, the impact of other variables considered in the logit regression model, such as age, gender, marital status, number in household, and financial literacy, did not reach statistical significance.

The results reveal significant associations among gig workers with higher monthly incomes. There was a significant reduction in the odds of financial vulnerability by a factor of 0.9996 compared to those reporting lower monthly income. Regarding gig workers' education levels and financial vulnerability, individuals with a secondary education level exhibited a remarkable 76.1% reduction in odds of experiencing financial vulnerability compared to respondents with other education levels; those with a tertiary education level showed a substantial 70.2% decrease in the odds of financial vulnerability relative to respondents without formal education or only primary education (OR=0.2387 and OR=0.2982, respectively). Further, full-time gig workers faced a 2.3089 greater likelihood of experiencing financial vulnerability than their part-time counterparts. Moreover, gig workers in East Malaysia were notably more susceptible to financial vulnerability.

The financial resiliency model demonstrated a commendable 66.81% accuracy in predicting outcomes. The Pearson chi-square test showed an insignificant result with $x^2 = 437.79$ and a p-value exceeding 0.1. Based on the Hosmer-Lemeshow standard, this model's goodness of fit was confirmed as significant (p>0.05), indicating it aligns well with the data. Furthermore, an examination for multicollinearity revealed a maximum VIF of 8.96 and a mean VIF of 2.46, below the threshold of 10, affirming the absence of multicollinearity. This model identified monthly income and financial literacy as significant variables at the 0.01 significance level. Gig workers with higher monthly incomes exhibited a 1.0004 times greater likelihood of being financially resilient than those with lower monthly incomes. Further, gig workers with a higher degree of financial literacy demonstrated a substantial 2.8456 times higher likelihood of financial

resilience than their less financially literate counterparts. In addition, financially vulnerable gig workers exhibited a 0.5212 times lower likelihood of being financially resilient compared to those who are non-financially vulnerable.

Table 4. Logit regression of financial vulnerability and resilience (n=452)

Variables	Financial vulnerability		Financial resilience	
	Coefficient (Std. Err)	OR	Coefficient (Std. Err)	OR
Age (years)	0.0157	1.0158	-0.0187	0.9814
	(0.0190)		(0.0158)	
Number in household	0.1228	1.1306	0.0478	1.0490
	(0 0848)		(0.0515)	
Monthly income (RM)	-0.0004**	0.9996	0.0004***	1.0004
	(0.0002)		(0.0001)	
Gender: Male	0.3433	1.4097	-0.0769	0.9260
	(0.3797)		(0.2342)	
Marital status: Single	-0.4479	0.6389	-0.1470	0.8633
	(0.3934)		(0.2749)	
Education level				
Secondary	-1.4325**	0.2387	-0.6723	0.5105
	(0.5781)		(0.5987)	
Tertiary	-1.2100**	0.2982	-0.3571	0.6997
	(0.6103)		(0.6057)	
Employment status: Full-time	0.8368**	2.3089	-0.3000	0.7408
	(0.3881)		(0.2249)	
Region				
Central	0.4650	1.5921	0.2980	1.3472
	(0.5438)		(0.3101)	
Southern	0.2601	1.2970	-0.0603	0.9414
	(0.5821)		(0.3265)	
East Coast	0.5620	1.7541	0.0335	1.0341

	(0.5440)		(0.3663)	
East Malaysia	0.8676*	2.3812	0.0401	1.0410
	(0.5050)		(0.3223)	
Financial literacy: High	0.6372	1.8912	1.0458***	2.8456
	(0.4889)		(0.3875)	
Financial vulnerability: Yes	-	-	-0.6516*	0.5212
	-		(0.3633)	
_cons	-2.5311	0.0796	-1.0705	0.3429
	(1.3967)		(1.1140)	
Correct prediction (%)	88.50		66.81	
Pearson chi2	527.26		437.79	
p-value	0.0006		0.3361	
Hosmer-Lemeshow	6.54		9.47	
p-value	0.5868		0.3044	
Maximum VIF/Mean VIF	8.81/2.53		8.96/2.46	

Note: The number in brackets ( ) refers to standard error, and OR refers to the odds ratio.

*=p<0.10, **=p<0.05, ***=p<0.01.

4.3.2 Analysis of the Logit Model on Willingness to Pay for Social Protection

In this model, a commendable 88.27% of outcomes were accurately predicted. However, the overall goodness of fit is statistically insignificant, as evidenced by an $x^2 = 439.99$ and a p-value exceeding 0.1. Nevertheless, the Hosmer-Lemeshow test result indicates a favorable fit with an insignificant p-value (p>0.05), suggesting that the logit regression model effectively aligns with the data. Furthermore, an examination for multicollinearity reveals a maximum VIF of 8.97 and a mean VIF of 2.38 (below 10). This outcome confirms that the model did not encounter issues related to multicollinearity.

The findings in Table 5 suggest that the WTP for social protection is significantly influenced by factors such as region, financial vulnerability, and

financial literacy. However, including other variables, such as age, gender, marital status, number in household, education level, employment status, and monthly income, in this logit regression model did not yield statistically significant effects.

The results indicate that gig workers in Central, Southern, and East Coast regions significantly reduce the odds of WTP for social protection by factors of 0.2675, 0.2566, and 0.3115, respectively. Conversely, gig workers with higher levels of financial literacy demonstrate a substantial increase in the odds of being willing to contribute to social protection schemes, with a factor of 2.9242 compared to those less financially literate. This finding is consistent with the results of past studies (Yeboah & Obeng, 2016); Gidey et al., 2019), which suggest that having financial literacy related to premium contributions, benefit packages, quality of health services, and eligibility of family members to be covered might increase the WTP for social protection programs. In addition, individuals with higher financial resilience are more likely to contribute to social protection schemes, with a factor of 2.0131, compared to those with lower financial resilience. As anticipated, gig workers experiencing financial vulnerability are associated with a reduced WTP for social protection, with the odds diminished by a factor of 0.321 compared to non-financially vulnerable individuals. This finding is consistent with Deblon and Loewe's (2011) study, which demonstrated that vulnerable individuals tend to be cautious about expanding their economic activities.

Table 5. Logit regression: Willingness to pay for social protection (n=452)

Variables	Willingness to pay for social protection	
	Coefficient (Std. Err)	OR
Age (years)	-0.0058	0.9942
	(0.0240)	
Number in household	0.0581	1.0598
	(0.0842)	
Monthly income (RM)	-8.0600	0.9999
	(0.0001)	
Gender: Male	-0.3445	0.7086
	(0.3599)	
Marital status: Single	0.5338	1.7054
	(0.4362)	
Education level		
Secondary	0.4588	1.5822
	(0.8824)	
Tertiary	0.3294	1.3901
	(0.8814)	
Employment status: Full-time	-0.3835	0.6815
	(0.3712)	
Region		
Central	-1.3188**	0.2675
	(0.6570)	
Southern	-1.3603**	0.2566
	(0.6709)	
East Coast	-1.1663*	0.3115
	(0.6420)	
East Malaysia	-1.0433	0.3523
	(0.6432)	
Financial literacy: High	1.0730**	2.9242

	(0.4367)	
Financial resilience: High	0.6997*	2.0131
	(0.3772)	
Financial vulnerability: Yes	-1.0857***	0.3377
	0.4092	
Correct prediction (%)	88.27%	
Pearson chi2	439.99	
p-value	0.3591	
Hosmer-Lemeshow	3.69	
p-value	0.8839	
Maximum VIF/Mean VIF	8.97/2.38	

Note: The number in brackets ( ) refers to standard error, and OR refers to the odds ratio.

*=p<0.10, **=p<0.05, ***=p<0.01.

5. Conclusion and Recommendations

The COVID-19 pandemic has increased the reliance on gig workers for essential services. With the pandemic increasing unemployment rates, the gig economy has become an accessible option for those seeking employment, offering flexible working hours. Nevertheless, the inherent flexibility of gig work, coupled with the absence of adequate financial safety nets, has left gig workers financially vulnerable and exposed to economic risks. This study aimed to identify the relationship between financial vulnerability, resilience, and the willingness of gig workers to contribute to social protection schemes. The study revealed a significant negative correlation between financial vulnerability and the willingness to participate in social protection among gig workers. However, it is worth noting that among financially secure gig workers, over 90% demonstrate a positive willingness to contribute to social protection.

Furthermore, the study highlights the substantial association between the financial vulnerability of gig workers and factors, including age, education level, employment status, monthly income, and financial resilience. A significant relationship was identified between financial resilience and education level, employment status, geographic location, monthly income, and financial literacy. The lack of access to essential benefits such as savings and insurance plans contributes to the financial vulnerability of gig workers. These benefits constitute crucial components in shaping financial resilience for long-term financial security. In addition, factors such as geographic location, financial literacy levels, financial resilience, and financial vulnerability play a significant role in understanding gig workers' willingness to contribute to social protection schemes.

Therefore, flexible and cost-effective social protection schemes must be tailored to accommodate the irregular income streams of gig workers. Subsidies or tiered contribution rates based on income levels could be introduced within these schemes to enhance inclusivity. Collaboration with gig platform service providers should be pursued to streamline the integration of social protection schemes into their platforms, offering gig workers various enrolment options. This strategic alliance ensures that gig workers receive adequate information about available protection programs, ultimately fostering increased participation in social protection schemes. Surprisingly, recommendations from the ILO (2015) and World Bank (2019) proposed the consideration of formalization, given the lack of safety nets for gig workers who work outside the framework of labor administration. The issue of whether gig workers should undergo formalization is complicated and subject to debate. Formalization is not suitable to be imposed on gig workers as it contradicts the inherent nature of flexible work. On the other hand,

the primary reason workers engage in the gig economy is the flexibility associated with their current status, leading many of them to prefer remaining as gig workers. It is an issue that requires consideration of various factors, such as labor laws, social policies, and the preferences of gig workers.

Accordingly, further research is imperative to comprehensively understand classification, financial situation, and WTP for social protection schemes among gig workers. Given that this study employed convenience sampling and regional segmentation (Northern, Central, Southern, East Coast, and East Malaysia), future studies should aim for broader coverage, potentially encompassing all the states or cities in Malaysia. Such comprehensive investigations are necessary to gain a deeper insight into the specific requirements and types of support needed by gig workers, thereby addressing the gaps within the current labor market framework more effectively.

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Declaration of interest statement

The authors report no competing interests to declare.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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