

The Welfare Implications of the Gig Economy: Empirical Evidence from Vulnerable and Double Burden Workers in Indonesia

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Abstract

The growth of the gig economy in Indonesia has emerged as an alternative source of income amid the limited opportunities in formal employment. The flexibility offered by gig-based work is often seen as a solution, but it also creates vulnerability related to workers' welfare. This study seeks to answer two main questions: (1) do gig workers have better welfare compared to non-gig workers, and (2) who gains the most significant benefits from the gig economy. This research uses data from the Indonesia National Labor Force Survey (Sakernas) 2024 with a total sample of 768,855 and applies interaction effect regression model and subsample regression approach, which can show the robust correlation of gig economy participation at the individual level with various characteristics, including double burden. Gig workers and the counterpart are defined based on differences in payment mechanisms, where gig workers are paid by output and/or service fees. This study finds that: (1) gig workers in Indonesia earn lower wages compared to non-gig workers, which occurs across different economic status groups; (2) however, the lower the individual's economic status, the smaller the wage gap between the two groups, indicating greater benefits of gig work for vulnerable groups; (3) if the individual is poor and female, then gig work provides same welfare to non-gig workers, which indicates that the gig economy can meet employment needs especially for double burden groups. The recommendations are: (1) the gig economy and gig jobs can be an alternative employment option for local governments experiencing stagnation in job creation; (2) the minimum wage payment mechanism needs to be regulated by the central government so that the flexibility of gig jobs is not seen as an excuse to provide unfair wages; (3) gig job absorption needs to be regulated and prioritized for the most vulnerable groups.

Keywords: Gig economy, vulnerability, double burden, interaction effect model.

1. Introduction

Digital platforms and output-based contracts have expanded rapidly and reshaped labor markets worldwide. In developing economies, platform work is often promoted for lowering entry barriers and

providing flexible earning opportunities, yet concerns persist about unstable income, weak social protection, and fragmented regulation (ILO, 2021; World Bank, 2023). For instance, a study found that in India and Indonesia, women drivers on ride-hailing and delivery platforms were drawn by the flexible hours, though they still faced gendered safety concerns and discrimination (Brăilovskaya et al., 2025; Surie & Huws, 2023).

Evidence from emerging markets suggests heterogeneous effects across workers and sectors, with participation more common among women and low-income groups facing constraints in formal employment (Liu, et al, 2025). Digital labour platforms facilitate the balance between paid work and household chores as a result of time flexibility, they eliminate entry and permanence barriers for typically male work sectors (Kasparian et al., 2023; Alfarizi et al., 2025). Meanwhile, the same study notes that occupational segregation and wage gaps persisted. Furthermore, women and workers from low and middle income countries participate heavily in microtasks and routine digital work, yet earn systematically lower rates than men or workers from high-income economies (Kässi, Lehdonvirta, & Stephany, 2021)

This paper studies the welfare implications of the gig economy in Indonesia, where labor-market duality remains pronounced and formal job creation has slowed. Using nationally representative microdata from the 2024 National Labor Force Survey (Sakernas, N = 768,855), we classify gig participation by the payment mechanism, identifying workers paid by output or service rather than by time-based salary. This definition captures gig work both on and off digital platforms, which is essential in settings where many output-based jobs remain offline.

We address two questions. First, do gig workers earn different wages than comparable non-gig workers at entry and on average. Second, are the wage differentials heterogeneous across vulnerable groups, particularly low-SES households and women who face double burdens of income generation and care. We estimate linear models of log wages that sequentially add controls and regional fixed effects, and then extend them with interaction terms for socioeconomic status and gender. We complement the analysis with subsample regressions along the wage distribution.

This paper contributes in three ways. It provides nationally representative evidence on wage outcomes associated with gig participation in Indonesia. It documents systematic heterogeneity by socioeconomic status and gender, separating first-job wages from average wages. It connects these patterns to policy by identifying where gig work yields near-parity at entry and where disadvantages persist over time.

Previewing the results, gig workers earn lower wages than non-gig workers on average and at entry, but the gap narrows among low-SES workers. For several subsamples, first wages of female gig workers are statistically indistinguishable from those of female non-gig workers. These findings indicate that gig work can serve as an accessible entry point for vulnerable groups while longer-run earnings gaps remain for higher-SES workers.

2. Research Method

We use nationally representative microdata from the Indonesia National Labor Force Survey

(Sakernas) 2024, collected by Statistics Indonesia (BPS). The dataset covers 768,855 individuals, providing detailed information on employment status, payment mechanisms, income, demographic attributes, and household characteristics. The Sakernas is the most comprehensive labor force survey in Indonesia, conducted annually using a two-stage stratified random sampling design across all provinces. It serves as the primary source of labor market indicators and income structure in Indonesia.

2.1. Measurement and variable construction

This section summarizes the definition, measurement, and expected effects of all variables used in the regression models. The dependent variables capture both the current and initial labor market outcomes (log total and first job wages). The main explanatory variable focuses on workers' payment mechanisms, which distinguish *gig economy participants*, those paid based on output or service, from conventional wage earners.

The inclusion of control variables aims to reduce omitted variable bias by accounting for demographic, locational, and occupational heterogeneity. Furthermore, interaction terms are employed to test whether the wage effects of gig participation vary across socioeconomic groups and genders.

Table 1. List of Indicators and Explanation

Variable	Description	Measurement
Dependent Variables		
Log Total Wage	Natural logarithm of total monthly income from all main jobs	Continuous (log form of IDR)
Log First Job Wage	Natural logarithm of first job's monthly income	Continuous (log form of IDR)
Independent Variable		
Payment Mechanism	Type of payment scheme defining gig participation	1 = Output/service-based; 0 = Monthly or other
Control Variables		
Urban–rural location	Respondent's residence area	1 = Urban; 0 = Rural
Gender	Respondent's gender	1 = Female; 0 = Male
Non-agricultural self-employed (yes or no)	Employment type	1 = Self-employed (non-agriculture); 0 = Others
Type of firm (1 = Government / Public Sector, International and Non-Profit Organizations, For-Profit Business Entities (PT, CV, UD, Cooperatives, Firms, State-Owned Enterprises), Individual / Household Businesses)	Employment sector	1 = For-profit, NGO, government, or individual business
No formal written records (yes or no)	Availability of formal written financial records	1 = No formal record; 0 = Has record
Interaction Variables		
Payment Scheme × Socioeconomic Status	Interaction of gig participation with SES	SES: Poor (deciles 1–2) vs. Affluent (deciles 4–5)
Payment Scheme × Gender	Interaction of gig participation with gender	Interaction dummy (1 = female gig worker)

Source: Author's construction based on Sakernas 2024.

2.2. Empirical framework

We estimate the following linear regression model to identify the association between gig economy participation and individual wage outcomes:

$$Y_i = \alpha + \beta_1 \text{Gig}_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

where Y_i denotes the log of wage for individual i , Gig_i indicates the payment scheme (1 if output-based, 0 otherwise), X_i is the vector of control variables, α is the intercept, and ε_i is the error term.

To test the heterogeneity of gig wage effects across socioeconomic and gender groups, we extend Equation (1) into an interaction-effect model:

$$Y_i = \alpha + \beta_1 \text{Gig}_i + \beta_2 \text{SES}_i + \beta_3 (\text{Gig}_i \times \text{SES}_i) + \beta_4 \text{Female}_i + \beta_5 (\text{Gig}_i \times \text{Female}_i) + \beta_6 \text{Controls}_i + \mu_r + \varepsilon_i \quad (2)$$

Here, μ_r represents regional fixed effects at the regency/city level to control for unobserved local characteristics, such as regional labor market conditions or cost-of-living variations. The coefficients of interest are β_1 , β_3 , and β_5 , which capture the direct, SES-moderated, and gender-moderated effects of gig participation on wages, respectively.

2.3. Robustness check and subsample analysis

To ensure robustness, the regression models are estimated sequentially under three specifications:

1. Model 1: Baseline model without controls and fixed effects;
2. Model 2: Including individual and employment controls but excluding fixed effects;
3. Model 3: Full specification including all controls and regency/city fixed effects.

Additionally, we perform subsample regressions across wage percentiles (1st, 10th, 15th, 20th, 25th, 90th, and 95th) to capture heterogeneous effects along the wage distribution. This approach allows testing whether participation in the gig economy yields differential returns across low- and high-income segments, in line with literature on earnings inequality in flexible labor markets.

2.4. Descriptive statistics

Descriptive summaries of key variables are presented in Table 1. The average total monthly wage among respondents is IDR 2.68 million, with substantial variation across individuals. About 16% of workers are paid by output or service, representing the gig workforce. Women account for 51% of the sample, and 48% of respondents reside in urban areas. Among the employed, 3% are classified as non-agricultural self-employed, 86% work in formal or institutional entities, and 65% operate without formal bookkeeping systems.

Table 2. Descriptive summaries of indicators

Variables	(1) Obs	(2) Mean	(3) Std.Dev	(4) Min	(5) Max
Total wage (monthly average)	435.940	2.679.451	3.890.504	5.000	7.50e+08
First job wage (monthly average)	115.912	2.204.866	2.058.608	10.000	2.50e+08
Wage by output (yes or no)	211.774	0,16	0,36	0	1
Log total wage (monthly average)	435.940	14,42	0,90	9	20
Log first job wage (monthly average)	115.912	14,32	0,83	9	19
Urban (yes or no)	767.187	0,48	0,50	0	1
Women (yes or no)	767.187	0,51	0,50	0	1
Non-agricultural self-employed (yes or no)	524.445	0,03	0,18	0	1
Type of firm (1 = Government / Public Sector, International and Non-Profit Organizations, For-Profit Business Entities (PT, CV, UD, Cooperatives, Firms, State-Owned Enterprises), Individual / Household Businesses)	524.445	0,86	0,35	0	1
No formal written records (yes or no)	469.297	0,65	0,48	0	1

In summary, the study employs a quantitative approach using *Sakernas 2024* microdata to examine wage differentials between gig and non-gig workers through multiple regression models with interaction and fixed effects. The use of logarithmic transformation, sequential robustness tests, and subsample regressions ensures statistical rigor and robustness. This approach allows capturing the heterogeneity of gig economy participation across gender and socioeconomic strata in Indonesia's labor market.

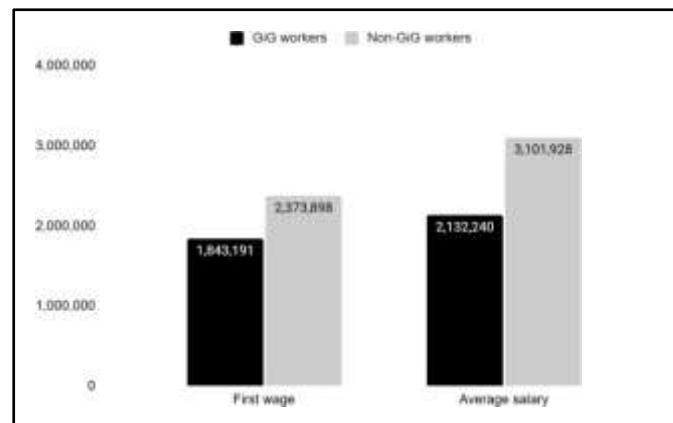
3. Results and Discussion

3.1. Lower wage for GiG workers in Indonesia across all Socio-economic Status (SES), but the gap smaller for lower SES

3.1.1. Descriptive Analysis

We begin by documenting baseline differences in labor market outcomes between gig and non-gig workers. Graph 1 shows that gig workers earn substantially lower wages both at entry and on average. The mean first wage among gig workers is approximately IDR 1.84 million, compared to IDR 2.37 million for non-gig workers, implying a wage gap of roughly IDR 0.53 million. A similar pattern emerges for average earnings, where gig workers receive IDR 2.13 million versus IDR 3.10 million for non-gig workers, a differential of nearly IDR 1 million.

These descriptive gaps align with global evidence that platform-based and output-linked contracts are associated with lower average earnings and greater income volatility relative to standard employment arrangements (Berg et al., 2018; ILO, 2021).

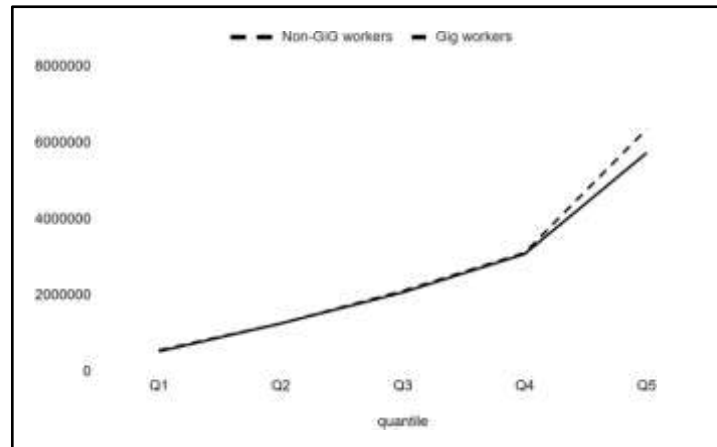


Graph 1. GIG and Non-GIG workers wage, both first average and total average

Source: Sakernas 2024, calculated by Authors

However, when stratifying workers by socioeconomic status (SES), the wage gap appears heterogeneous across the income distribution (Graph 2). The difference between gig and non-gig wages is modest in the lower SES quintiles, and only becomes pronounced in the upper-middle and top quintiles (Q4–Q5). This suggests that the relative earnings penalty associated with gig work is smaller among vulnerable, low-SES workers, consistent with the interpretation that the gig economy functions as a *subsistence employment channel* rather than an *earnings-enhancing opportunity* for higher-skilled groups (Rengaraju, 2024).

Taken together, these patterns indicate that gig work, on average, delivers lower monetary returns than conventional employment, with the largest divergence observed among individuals with higher socioeconomic potential. Conversely, at the lower end of the wage distribution, gig work appears to provide comparable earnings to formal employment, suggesting its role as a safety-net labor market segment in contexts of limited job creation and labor market duality, a dynamic also observed in emerging labor markets (Thakur, 2025; World Bank, 2023).



Graph 2. GIG and Non-GIG workers wage, total average by quintile

Source: Sakernas 2024, calculated by Authors

3.1.2. Empirical analysis

3.1.2.1. General regression result

Table 3. General regression results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VARIABLES	Log wage average	Log wage average	Log wage average	Log first wage	Log first wage	Log first wage
Wage by output (yes or no)	-0.319***	-0.201***	-0.195***	-0.227***	-0.237***	-0.218***
	-0.00501	-0.00482	-0.00472	-0.00777	-0.00784	-0.00758
Urban (yes or no)		0.155***	0.0754***		0.0999***	0.0370***
		-0.00369	-0.00425		-0.00526	-0.00613
Women (yes or no)		-0.539***	-0.508***		-0.458***	-0.427***
		-0.0042	-0.00394		-0.00551	-0.00513
Non-agricultural self-employed (yes or no)		-0.158***	-0.101***			
		-0.00624	-0.00612			
Type of firm		0.0834***	0.116***		0.135***	0.150***
		-0.00684	-0.00675		-0.0108	-0.0106
No formal written records (yes or no)		-0.475***	-0.390***		-0.419***	-0.352***
		-0.0041	-0.00399		-0.00674	-0.00664

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VARIABLES	Log wage average	Log wage average	Log wage average	Log first wage	Log first wage	Log first wage
Constant	14.62***	14.71***	14.06***	14.35***	14.44***	13.75***
	-0.00194	-0.00773	-0.0898	-0.00255	-0.0119	-0.143
Control	No	Yes	Yes	No	Yes	Yes
Fixed-effect	No	No	Yes	No	No	Yes
Observations	211,774	156,644	156,644	115,912	86,905	86,905
R-squared	0.02	0.225	0.335	0.008	0.156	0.284
Significance level: * p < .10, ** p < .05, *** p < .01						
Source: Author's calculation.						

Table 3 reports six baseline specifications using log wages as the dependent variable. Columns 1 to 3 use log average wage, while columns 4 to 6 use log first wage. Across all specifications the coefficient on **Wage by output (yes = 1)** remains negative and statistically significant at the one percent level.

For log average wage, the coefficient ranges from **-0.319*** in the unconditional model to **-0.201*** and **-0.195*** once controls and fixed effects are added. For log first wage, the coefficient ranges from **-0.237*** to **-0.218*** across comparable specifications. These estimates confirm that individuals paid based on output structure receive systematically lower wages than those in non output based employment arrangements. The magnitude of the coefficient remains stable after inclusion of controls and fixed effects, indicating that the gap persists even after accounting for observable characteristics normally correlated with wage outcomes.

The inclusion of urban, gender, sector, contract form, and firm type as controls increases the explanatory power of the model. The R-squared rises from 0.02 in the simplest specification for average wages to 0.225 when controls are added and to 0.335 when fixed effects are also included. A similar improvement is observed in the first wage specifications, where the R-squared increases from 0.008 to 0.156 and 0.284. These patterns suggest that the control variables account for a substantial share of variation in earnings, yet the wage by output coefficient remains consistently negative.

3.1.2.2.1st Interaction regression result: GIG and socio economic status

Table 4. Interaction regression result: Socio economic status

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
VARIABLES	Log wage average	Log wage average	Log wage average	Log first wage	Log first wage	Log first wage	Log wage average	Log wage average
Wage by output (yes or no)	-0.0831***	-	-	-	-0.105***	-	-	-
	-0.00542	-0.00628	-0.00651	-0.013	-0.0137	-0.0139	-0.00959	-0.00862
Poor (yes or no)	-2.408***	-2.278***	-2.225***	-2.222***	-2.147***	-2.073***	-2.244***	-2.173***
	-0.00383	-0.0056	-0.00619	-0.00664	-0.0103	-0.0118	-0.00819	-0.00956
Wage by output & poor	0.0155*	-0.0107	-	-0.0208	-0.0443**	-	-	-
	-0.0094	-0.0103	-0.0104	-0.0197	-0.0218	-0.0216	-0.016	-0.0138
Urban (yes or no)		0.0595***	0.0339***		0.0513***	0.0522***		
		-0.00442	-0.00544		-0.00771	-0.00949		
Women (yes or no)		-	-		-	-	-	-
		0.0765***	0.0830***		0.0645***	0.0592***	0.0697***	-0.112***
		-0.00497	-0.00494		-0.00839	-0.00832	-0.00603	-0.00871
Non-agricultural self-employed (yes or no)		-0.122***	-0.116***				-0.135***	-
		-0.00839	-0.00848				-0.0116	0.0760***
Type of firm		-	-		-	-	-	-
		0.0299***	-0.0166**		0.0790***	0.0677***	-0.0269**	-0.0121
		-0.00823	-0.0083		-0.0157	-0.0159	-0.011	-0.0133
No formal written records (yes or no)		-	-		-	-	-	-
		0.0674***	0.0636***		0.0641***	0.0741***	0.0750***	0.0542***
		-0.00565	-0.00573		-0.0116	-0.0118	-0.00829	-0.00819
Constant	15.53***	15.53***	15.16***	15.19***	15.27***	15.03***	15.48***	15.08***
	-0.0018	-0.00951	-0.116	-0.00358	-0.0176	-0.113	-0.0444	-0.125
Control	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Fixed-effect	No	No	Yes	No	No	Yes	Yes	Yes

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
VARIABLES	Log wage average	Log wage average	Log wage average	Log first wage	Log first wage	Log first wage	Log wage average	Log wage average
Sub-sample regression							Urban	Rural
Observations	80,524	51,020	51,020	37,870	26,032	26,032	32,287	18,733
R-squared	0.874	0.869	0.876	0.786	0.795	0.81	0.87	0.871
Significance level: * p < .10, ** p < .05, *** p < .01								
Source: Author's calculation.								

Table 4 presents interaction regressions examining whether the wage gap associated with output-based work varies by socioeconomic status. Across Models 7 to 12, the coefficient on Wage by output (yes = 1) remains negative and statistically significant, although smaller in magnitude than in the baseline specification. For log average wages, the coefficient ranges from -0.0831^* to -0.0507^* , while for first wages it ranges from -0.105^* to -0.0834^* . These results indicate that gig workers continue to earn lower wages relative to non-gig workers even after accounting for socioeconomic background, but the magnitude of the difference declines relative to the pooled sample.

The Poor indicator is consistently negative and strongly significant across all models, with coefficients around -2.40^* to -2.07^* . This confirms a substantial wage disadvantage for workers from low socioeconomic backgrounds. The magnitude remains large under various model specifications, including when controls and fixed effects are included. This pattern reflects broad structural inequality in labor market returns for individuals in lower economic strata.

The interaction term Wage by output $\times$ Poor shows smaller and in some cases attenuated effects relative to the main gig coefficient. In several specifications the interaction is negative and statistically significant, such as -0.0285^* in Model 9 and -0.0588^* in Model 12, while in earlier models the magnitude is smaller or weakly significant. These results indicate that while poor gig workers also experience lower wages compared to their non-gig counterparts, the magnitude of the penalty is less pronounced than in the general population. This pattern supports the earlier descriptive findings that gig work may offer relatively closer wage parity for individuals in vulnerable socioeconomic groups.

3.2. There is no wage gap for GiG and non-GiG workers from poor and female group

Table 5. Interaction regression result: Socio economic status

	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20	Model 21	Model 22
VARIABLES	Log wage average	Log wage average	Log wage average	Log wage average	Log first wage	Log first wage	Log first wage	Log first wage
Wage by output (yes or no)	-0.0324	-0.0404**	-0.0497***	-0.0509**	-0.112	-0.111***	-0.0567*	-0.0119

	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20	Model 21	Model 22
VARIABLES	Log wage average	Log wage average	Log wage average	Log wage average	Log first wage	Log first wage	Log first wage	Log first wage
	-0.0275	-0.0167	-0.0176	-0.0238	-0.0775	-0.0409	-0.0299	-0.044
Women (yes or no)	-0.0177	0.0691***	0.0813***	0.0998***	-0.0214	0.0743***	0.0817***	0.0923***
	-0.0202	-0.0124	-0.0115	-0.015	-0.0491	-0.0263	-0.0193	-0.0284
Wage by output & women	-0.0792**	-0.0550**	0.152***	0.233***	0.00722	-0.00972	-0.0169	0.2
	-0.0342	-0.0216	-0.0524	-0.0689	-0.0905	-0.0509	-0.0884	-0.137
Urban (yes or no)	-0.00269	-0.0212*	0.0554***	0.0518***	0.0551	0.0264	0.0587**	
	-0.0182	-0.0118	-0.0146	-0.0196	-0.0434	-0.0248	-0.0234	0.0596*
Type of firm	-0.0527**	0.0787***	0.000713	-0.0035	-0.122**	-0.150***	0.151*	0.107
	-0.0244	-0.0148	-0.0412	-0.0585	-0.06	-0.0316	-0.0771	-0.116
No formal written records (yes or no)	-0.0473***	0.0412***	-0.112***	-0.0680*	-0.0825**	-0.0207	-0.102**	-0.144*
	-0.0169	-0.0107	-0.0251	-0.0381	-0.0411	-0.0231	-0.0479	-0.0772
Non-agricultural self-employed (yes or no)	-0.0770***	0.0886***	-0.113***	-0.112*				
	-0.02	-0.0132	-0.0402	-0.063				
Constant	12.08***	12.68***	15.45***	15.98***	12.43***	12.86***	15.83***	15.91***
	-0.153	-0.109	-0.415	-0.235	-0.633	-0.263	-0.294	-0.377
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed-effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-sample regression	Percentil e<5	Percentil e<10	Percentil e>90	Percentil e>95	Percentil e<5	Percentil e<10	Percentil e>90	Percentil e>95
Observations	4,311	10,867	10,038	6,061	1,613	4,342	5,387	3,079
R-squared	0.18	0.117	0.124	0.17	0.331	0.193	0.202	0.217

Significance level: * p < .10, ** p < .05, *** p < .01

Source: Author's calculation.

Table 5 presents interaction regressions examining gender differences in the wage gap associated with output-based work. Across Models 15 to 22, the coefficient on Wage by output (yes = 1) remains negative in most specifications. For log average wage, the coefficient ranges from -0.0324 to -0.0509 and becomes statistically significant in the broader lower and upper percentile samples. For log first

wages, the coefficient varies across subsamples, with smaller magnitudes relative to the earlier pooled regressions. These findings indicate that gig workers continue to earn lower wages relative to non-gig workers, although the size of the penalty is reduced in subsamples stratified by gender and wage distribution.

The Women variable is consistently negative and statistically significant in the majority of models, indicating lower wages for female workers across both average and first wage outcomes. The effect is stronger in the upper percentile regressions, particularly for average wages, where coefficients range from -0.0691 to -0.0998 . This pattern confirms the persistence of a gender wage gap across the labor market, including among workers with higher earning potential and those at early stages of employment.

The interaction term Wage by output $\times$ Women shows mixed results. In models using average wage, coefficients are negative and significant in lower percentiles, while turning positive and significant in the upper percentiles. In the first wage regressions, interaction coefficients are small and statistically insignificant across most specifications. This indicates that while female gig workers face lower average wages overall, their first wages do not differ significantly from comparable female non-gig workers in several subsamples. Taken together, Models 15 to 22 show that gig work provides comparable entry-level wage outcomes for women relative to non-gig work, even though disparities emerge in long-run earnings captured by average wage outcomes.

3.3. The discussion on GiG Economy and Vulnerable Groups

The evidence presented in the previous section demonstrates that the gig economy offers meaningful labor market entry points, particularly for individuals with limited access to formal employment. The descriptive and regression results consistently show that flexibility in gig work enables participation from groups that are traditionally more constrained in the labor market, including women, low-income individuals, and workers at the beginning of their careers. This aligns with recent findings that digital labor platforms reduce barriers to entry and can expand opportunities for non-standard workers and new labor force entrants (World Bank, 2023; Stewart & Stanford, 2022; Andika, 2025).

The results also indicate that the benefits of gig work become more apparent among vulnerable groups. The wage gaps between gig and non-gig workers are relatively smaller for low-SES individuals and early-career workers, suggesting that gig jobs may function as an accessible employment pathway in contexts where formal job creation is limited. Similar patterns have been documented in emerging economies where platform work serves as a transitional mechanism for workers with limited experience or mobility constraints (ILO, 2021; Graham et al., 2017). Furthermore, interaction results show that entry-level wages for female gig workers are comparable to female non-gig workers in several models, reinforcing the potential for gig work to support double-burden groups such as women in low-income households who face both economic and caregiving responsibilities (Yusran, 2024).

Despite these possible advantages, the findings also reveal widening disparities among higher-SES workers. While gig work offers opportunities to vulnerable groups, the analysis shows that individuals with higher socioeconomic backgrounds obtain greater long-term wage returns in non-gig

employment. This pattern suggests that the gig economy may reproduce broader labor-market inequalities over time, consistent with literature noting that platform work can amplify pre-existing structural divides, particularly in skill-biased and high-income segments (Florisson & Mandl, 2022). Chen et al. (2022) demonstrate that algorithmic control and customer-rating systems shape workers' daily routines, often intensifying workload and reducing autonomy among food-delivery drivers. Similarly, a field survey shows that while gig platforms have increased access to employment for low-income youth, most participants remain confined to low-skill, unstable tasks (Ayentimi et al., 2023). Therefore, although gig work provides short-term flexibility and labor market inclusion, improvements in labor protection, income stability, and institutional support remain necessary to ensure that the gig economy contributes to sustainable and equitable welfare outcomes (Parman., et al, 2025). Stewart & Stanford (2017) further argue that without explicit regulatory intervention, the flexibility promoted by gig platforms can become a channel for precariousness rather than empowerment, as employment relationships are redefined to minimize employer responsibility.

4. Conclusion and Recommendations

This study examines the welfare implications of the gig economy in Indonesia using nationally representative labor force data and regression models with interaction and subsample analysis. We focus on whether gig workers experience different wage outcomes compared to non gig workers, and whether such effects vary across vulnerable population groups. While the gig economy has expanded rapidly and offers new labor market channels amid limited formal job creation, concerns persist regarding wage inequality and employment protection.

The findings show that gig workers earn significantly lower average wages and first wages than non gig workers across a range of specifications. However, the wage penalty is not uniform. The gap narrows among lower socioeconomic groups, and in several subsamples female gig workers receive first wages that do not differ significantly from female non gig workers. These results suggest that the gig economy may provide meaningful labor market entry points particularly for vulnerable groups, including low income individuals and women experiencing double work burdens, although wage disadvantages tend to emerge as workers progress in their careers.

Despite its inclusive entry features, the gig economy also shows signs of reinforcing broader labor market inequality. Workers with higher socioeconomic backgrounds benefit more from non gig employment trajectories over time, indicating that platform based and output based employment structures may not deliver upward mobility for all groups. Without adequate protections and institutional safeguards, gig work risks becoming a segmented labor market tier with limited pathways toward stable earnings. Strengthening governance and worker protections will therefore be essential to ensure that the gig economy contributes to equitable and sustainable labor market outcomes in Indonesia.

To translate these findings into actionable policy, three strategic recommendations emerge. First, the gig economy can serve as an alternative employment channel for local governments experiencing stagnation in job creation, particularly for young, low income, or female workers who face greater

barriers to entering formal employment. Targeted partnerships between local governments and platform providers can expand localized gig opportunities while ensuring accountability and monitoring. Second, a minimum compensation safeguard tailored to gig work arrangements should be established at the national level. While flexibility remains a central feature of gig work, regulatory mechanisms are needed to prevent flexible contracts from being used to justify unfair or unstable compensation. Introducing minimum earnings guarantees, transparent pricing, and wage floor mechanisms proportional to working hours or output can help balance flexibility with fairness. Third, gig job facilitation and capacity building programs should prioritize vulnerable groups. This may include targeted skills training, subsidized onboarding for low income workers, digital access support for women and rural residents, and protections against algorithmic or contractual discrimination. Ensuring inclusive participation is essential so that gig economy growth enhances, rather than undermines, social equity objectives.

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