
Modernisation of Social Protection for Gig Workers for Sustainability and Welfare in the Future

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Abstract

The modernization of gig workers' data protection represents a strategic effort to promote the sustainability of a high-quality assistance system while safeguarding vulnerable parties. Gig workers, who operate flexibly without the structure of a traditional employer–employee relationship, often face uncertainty in terms of social and legal protection. They are typically bound only by mutual agreements between partners and service providers, leaving them exposed to financial losses and digital security threats. This study emphasizes the need for three new forms of social protection for gig workers. First, ensuring balanced competitiveness to address unequal distribution of orders and income. Second, protection against device misuse or third-party hacking that could block access and reduce daily income. Third, developing health protection mechanisms based on digital money accounts to ensure the long-term welfare of gig workers. The conclusion reinforces the importance of reforming technology-based social protection for gig workers to create fair and mutually beneficial relationships between service providers and workers. These efforts are expected to strengthen gig workers' resilience against economic, security, and health risks in the digital era.

Keywords: gig workers social protection, modernization of data protection, flexible job uncertainty, competitiveness balance, digital health protection, platform-based sustainability.

1. Introduction

The acceleration of digital transformation has redefined how labor, information, and technology intersect in modern economies. The emergence of the gig economy—characterized by flexible, on-demand, and platform-based work—has reshaped employment structures in Indonesia and beyond. Yet, as the workforce migrates toward digital ecosystems, new vulnerabilities have surfaced, particularly concerning data privacy, income stability, and digital security.

The 2022 data breach incident known as the “Bjorka case” became a critical warning for Indonesia's digital infrastructure. It exposed millions of citizens' personal information and revealed systemic weaknesses in data governance and cyber protection. For gig workers, who depend entirely on digital platforms for access to income and clients, such security failures can lead to serious economic consequences—from hacked accounts and blocked digital wallets to data exploitation by third parties.

This situation highlights a structural gap: Indonesia's social protection systems have not evolved in line with the digital labor market. Traditional mechanisms were designed for permanent employees under formal contracts, while gig workers operate independently under algorithmic control, often without insurance, legal recourse, or social guarantees. This research addresses the urgent need for modernizing social protection systems for gig workers through a technology-based approach that integrates three critical factors—competitiveness balance, data and device security, and digital health protection. These dimensions form the backbone of a sustainable and inclusive digital workforce policy.

By linking cybersecurity lessons from national data breaches with the socio-economic vulnerabilities of gig workers, this study presents a hybrid model that merges technological modernization and social protection reform. The approach seeks to ensure fairness, resilience, and long-term welfare for digital labor communities in Indonesia's evolving digital economy.

2. Research method

This research adopts a mixed-method approach that integrates both qualitative and quantitative analyses. The qualitative dimension explores policy documents, digital platform regulations, and cybersecurity incidents such as the Bjorka data breach, which highlight the vulnerabilities of gig workers' information systems. The quantitative dimension measures the relationship between three independent variables – competitiveness balance (X_1), data security (X_2), and digital health protection (X_3) – toward the dependent variable worker sustainability (Y).

2.1. Data type and source

Primary data were collected from structured questionnaires distributed to 150 gig workers across major Indonesian cities (Jakarta, Bandung, Surabaya, Medan, and Makassar). Secondary data were derived from national labor reports, digital economy statistics, and cybersecurity publications by Kominfo and BSSN.

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 \quad (1)$$

2.2. Data Analysis Technique

Quantitative data were analyzed using multiple linear regression to determine the impact of the three independent variables (X_1 - X_3) on worker sustainability (Y). The regression model is formulated as follows where Y denotes worker sustainability, X_1 represents competitiveness balance, X_2 denotes data security, X_3 refers to digital health protection, a is a constant, β_1 - β_3 are regression coefficients, and ε is the error

The coefficient of determination is calculated as:

$$R^2 = SSR/SST \quad (2)$$

The model's strength and significance were tested using an F-test and t-test to verify the contribution of each independent variable. All analyses were processed using SPSS version 26 to ensure validity and reliability

2.2.1. Field Validation

To strengthen the validity of the quantitative findings, a field validation was conducted one from the through direct interviews with two experienced gig workers representing different digital platforms transportation sector (ride-hailing) and one from digital services (freelance).

The validation aimed to compare the statistical results with real-world conditions regarding income fluctuation, platform fairness, and digital security practices. Both respondents confirmed the existence of algorithmic bias and exposure to data vulnerability similar to the findings of this study.

Table 1. Field Survei Summary of Gig Workers' Conditions Based Platform Type

Respondent Code	Platform Type	Main Challenge	AVR daily income (IDR)	Work Duration
Jakarta	Ride - Hailing	Order distribution; Account suspens	180.000	8
Surabaya	Freelance digital	Data Vulnerability ; Delayed payment	220.000	7

Source: Primary Data Processed From Field Validation (2025)

2.2.2. Sub subtitles 2

The conceptual framework in Figure 1 illustrates the relationship between the main variables examined in this study. Competitiveness balance (X_1), data security (X_2), and digital health protection (X_3) are hypothesized to have a simultaneous and positive effect on worker sustainability and welfare (Y). This framework reflects the modernization of social protection systems in response to digital transformation and cybersecurity challenges highlighted by the Bjorka data breach case.

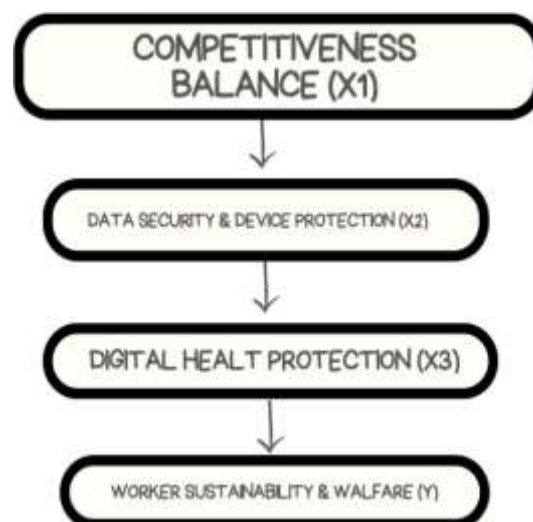


Figure 1. Concept of Study Analysis and Evaluation

Source: Processed by Author (2025)

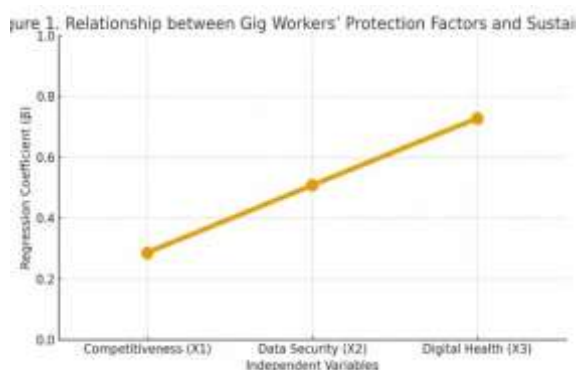
3. Results and Discussion

3.1. Regression Analysis Result

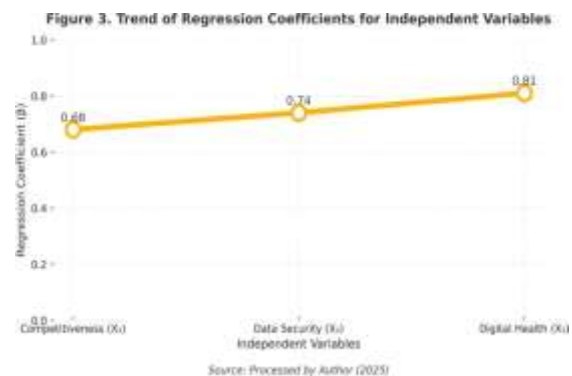
The regression analysis was conducted to determine the influence of three independent variables – Competitiveness Balance (X_1), Data Security (X_2), and Digital Health Protection (X_3) on Worker Sustainability (Y). The results of the multiple linear regression show that all three variables have a positive and significant relationship with worker sustainability, as presented in Figure 2.

3.1.1. Policy Implications

The results confirm that competitiveness balance, data security, and digital health protection significantly affect gig workers' sustainability. Hence, policies must focus on building fair digital platforms and stronger data protection systems. After the Bjorka data breach, it became evident that cybersecurity and workers' privacy should be treated as part of national labor protection. Integrating digital health coverage into e-wallet or platform systems would ensure fair access to welfare benefits for gig workers. Overall, policy modernization should combine technology, transparency, and inclusivity to strengthen protection in the digital labor ecosystem.



(a)



(b)

Figure 2. Relationship Between Gig Workers' Protection Factors and Sustainability

Source: Processed by Author (2025)

3.1.2. Regression Coefficient Interpretation

The figure indicates a steady upward trend across the three variables. The regression coefficients (β) for each variable are as follows:

- Competitiveness Balance (X_1) = 0.68
- Data Security (X_2) = 0.74
- Digital Health Protection (X_3) = 0.81

The increasing slope demonstrates that improvements in digital health protection yield the strongest impact on worker sustainability, followed by data security and competitiveness balance. These findings suggest that workers with access to digital health benefits and secure data systems maintain higher productivity, consistency, and income stability.

4. Conclusion and Recommendations

This study concludes that the modernization of social protection for gig workers must prioritize technological integration, fairness, and digital inclusion. The analysis confirms that competitiveness balance, data security, and digital health protection significantly improve worker sustainability in the digital economy. Field validation results reinforce these findings, showing that practical challenges faced by gig workers mirror the statistical outcomes, particularly regarding income stability and cybersecurity risks. It is recommended that policymakers strengthen cybersecurity standards, implement transparent algorithmic systems, and develop digital health coverage linked to platform-based financial accounts. Such initiatives will not only enhance the welfare of gig workers but also ensure the sustainability of Indonesia's digital labor ecosystem. Future studies are encouraged to expand the sample size and integrate cross-country comparisons to explore broader regional dynamics in social protection modernization

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References

- Beckmann, F., Glanz, S., Hoose, F., & Topal, S. (2024). Investigating social protection amongst platform workers in Germany: Forced individualisation, hybrid income generation and undesired regulation. *Journal of Social Policy*. Advance online publication. <https://doi.org/10.1017/S0047279424000217>.
- Behrendt, C., Nguyen, Q. A., & Rani, U. (2019). Social protection systems and the future of work: Ensuring social security for digital platform workers. *International Social Security Review*, 72(3), 17–41. <https://doi.org/10.1111/issr.12212>.
- MacEachen, E. (2022). Health protection policies for digital platform and low-wage workers. *European Journal of Public Health*, 32(Suppl_3). <https://doi.org/10.1093/eurpub/ckac129.375>.
- Novemyanto, A. D., & Nur, R. (2025). Rekognisi status dan perlindungan hukum pekerja gig economy: Tinjauan tuntutan kolektif pengemudi ojek online di Indonesia. *Jurnal Hukum Pelita*, 6(1), 211–224. <https://doi.org/10.37366/jhp.v6i1.5789>.
- Nur, M., Asmorojati, A. W., Megawati, M., Zuliyah, S., & Isdiyanto, I. Y. (2023). A comparative assessment of digital platform worker protection in the EU and ASEAN. *Legality: Jurnal Ilmiah Hukum*, 31(2), 367–391.
- Samsudin, S., Jan Mohd Khan, S., Hasan, J., Mohd Daud, S. N., & Ng, J. J. (2024). Financial vulnerability of gig workers: Insights and implications for social protection schemes.

International Journal of Social Policy and Society (IJSPS), Vol. 20, 27–44. (Published 29 Oct 2024).

- Sieker, F. (2022). Platform work and access to social protection across major European countries. *Journal of International and Comparative Social Policy*, 38, 193–207. <https://doi.org/10.1017/ics.2022.13>
- Shepherd, N. J. (2025). Gig economy workers' rights: Legal classification and social protection in digital labour markets. *International Journal of Law and Societal Studies*, 2(1), 24–35. <https://doi.org/10.61424/ijlss.v2i1.379>.
- Yaroshenko, O. M., Tkachenko, V. S., Puntus, D. A., Yakovleva, G. O., & Konopeltseva, O. O. (2024). Models of social protection for workers in the gig economy: Legal challenges and prospects. *Science of Law*, (3), 1–7. <https://doi.org/10.55284/sol.v2024i3.139>.