

The Political Economy Critique of the Gig Economy: Algorithmic Exploitation and Labor Alienation

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Abstract: the paper bases on the gig economy, transcending a simplistic narrative of technological progress. While its formal independence masks intensified control mechanisms, the ostensibly technology-enabled system operates under algorithmic domination. This study employs Marxist political economy theories—particularly the labor theory of value and alienated labor theory—to critically analyze the gig economy. Research reveals how platform capital systematically employs algorithmic technologies to achieve more efficient labor control and covert exploitation. Algorithms not only function as “digital overseers” extracting both absolute and relative surplus value with precision, but also lead to comprehensive alienation of workers in terms of labor products, processes, essential nature, and interpersonal relationships. The “freedom” facade of the gig economy is essentially an ideological construct where capital conceals exploitation and evades accountability through technological means. To address these challenges, potential solutions must be explored through algorithmic transparency, rights protection, and ownership of means of production.

Keywords: Gig Economy; Critique of Political Economy; Algorithmic Exploitation

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1.Introduction

Driven by digital technology, the gig economy has risen rapidly, advocating “flexibility and freedom” and “pay-as-you-go” to shape a narrative of individual technological empowerment. However, beneath its glamorous surface lies a web of irreconcilable contradictions. These contradictions not only reveal the inherent logic of its operation but also serve as the essential starting point for understanding this new economic paradigm. From the perspective of Marxist political economy, the classical categories such as labor value theory, organic composition of capital, and surplus value theory are still applicable to the analysis of the gig economy. They can penetrate the fog of “technological empowerment” to expose the essential logic of capital’s domination over labor. This study focuses on the structural contradictions, core operational mechanisms of the gig economy, and explores the path to build a new digital labor order that balances fairness and efficiency, aiming to provide a theoretical reference for solving the practical dilemmas faced by gig workers.

2.Structural Contradictions of the Gig Economy

The gig economy, while presenting a false image of “flexibility” and “empowerment,” inherently contains three sets of sharp contradictions. These contradictions are not accidental phenomena but the inevitable result of capital logic operating under the digital context, and they fundamentally determine the operational characteristics and practical dilemmas of the gig

economy.

2.1 The Paradox of Flexibility and Instability

The platform economy's proclaimed "work autonomy" and "time freedom" seem to grant workers unprecedented control—they can log in or out at will, supposedly achieving a perfect work-life balance. However, in reality, this often translates into "dual instability" in income and employment. On one hand, beneath the surface of freedom lies uncontrollable order supply, fluctuating pricing, and arbitrary reward-punishment rules, leaving gig workers with virtually no right to speak, making "freedom" an empty slogan. On the other hand, their income is not based on stable wages or clear expectations, but relies on algorithmic instant matching, market volatility, and unpredictable client demands. Without social security nets, the unpredictability of income and future uncertainty completely subvert the financial stability of traditional employment. To cope with this uncertainty and maintain basic living standards, gig workers are forced to engage in high-risk survival games, adopting self-exploitation strategies such as continuously extending online hours to wait for orders or even shuttling between multiple platforms. Thus, a paradox emerges: the "flexibility" promoted by platforms does not bring liberation, but evolves into "unpredictable income and complete lack of security." The fragility of this "freedom" essentially shifts all market risks to individual gig workers. They lack paid leave and sick leave protections, and any break or illness leads to immediate loss of income. This "no work, no pay" reality forces them into a state of forced labor, making them more dependent on jobs than traditional employees. Therefore, the truth behind flexibility is the creation of an unstable state that keeps workers in perpetual anxiety and overwork—a profound form of unfreedom disguised as freedom.

2.2 The Secret Connection between DE-Labor Relations and Strengthened Exploitation

Through sophisticated legal and contractual designs, platforms transform traditional employment relationships characterized by strong personal dependence into seemingly equal cooperative or crowd-sourcing relationships. This innovative model effectively exempts platforms from traditional employer obligations, including minimum wage guarantees, overtime pay, rest and leave protections, and work-related injury compensation.^[1] The labor market has regressed from the social contract framework regulated by the Labor Law and Labor Contract Law to a power-imbalanced transaction field governed solely by general civil law. Workers are forced to negotiate "equally" with platform enterprises that possess massive capital, technological resources, and data assets as isolated individuals. Capital uses technical means to extract deeper and more efficient value from the labor process. By transferring all operational risks to individuals, the "independent status" of workers achieves cost externalization and profit maximization. This "DE-labor-rationalization" does not eliminate exploitation, but manifests it in a more hidden and efficient form. While shedding traditional employer responsibilities, platforms achieve unprecedented control over the labor process through digital technology. Through real-time location tracking via positioning and mini-program monitoring, algorithmic systems for order dispatch, pricing, and route planning, and performance evaluation based on customer ratings and platform rules, every aspect of gig workers' labor is standardized, digitized, and tightly controlled by centralized algorithms. Capital's control has not weakened due to the "distance" of legal relationships; instead, it has become stronger, more invisible, more comprehensive, and more deceptive through technological penetration, making it more difficult to challenge through traditional labor rights protection channels.

2.3 The Inherent Conflict between Technological Empowerment and Algorithmic Control

Technological empowerment and algorithmic control constitute the most core and tense contradiction in the gig economy. Technological tools such as smartphones, navigation apps, and big data have lowered market entry barriers for ordinary workers, enabling them to provide technical services and earn income. In public discourse, these tools are regarded as liberators and equalizers. However, when embedded in the logical framework of capital, these technologies become alienated and systematically transformed into "digital control" mechanisms for surveillance, discipline, and exploitation. From task assignment and route planning to performance evaluation and reward-punishment implementation, algorithmic systems penetrate every link of labor, forming a closed-loop control system. Although gig workers seem to work independently with smartphones, their physical movements, time allocation, behavioral patterns, and even emotional expressions are integrated into a sophisticated digital management system. Every action of workers is digitized, quantified, and subjected to precise algorithmic control. This control is not only ubiquitous but also often disguised as "optimization" and "efficiency,"

operating with strong concealment. More critically, this control is dynamic, opaque, and “learning-capable.” Algorithmic rules are often deliberately vague, making it difficult for gig workers to understand their operational logic and forcing them to passively adapt.^[2] Platforms silently increase labor intensity through continuous parameter adjustments. Every action of gig workers becomes a data stream, which is collected and analyzed by platforms to optimize control strategies. Workers lose the autonomy, dignity, and basic control over their own work rhythm that should exist in the labor process. The convenience of “connection” brought by technology ultimately weaves an inescapable digital cage. The promise of technology has been completely reversed: what was initially a commitment to liberation has degenerated into a reality of control, resulting in profound alienation in the relationship between humans and technology.

3.Labor, Value and Capital in the Gig Economy

Beneath the appearance of algorithms, platforms, and data, the profound opposition between capital and labor in the gig economy persists in a digital form. The basic theories of Marxist political economy still have strong explanatory power for the economic relations of the gig economy, revealing the essence of value creation and distribution in this new economic form.

3.1 The Reconfirmation of Labor Value Theory by the Digital Economy

No matter how digital technology reshapes the form of labor, labor is the only source of commodity value—a fundamental principle of Marxist political economy that remains unshakable.^[3] In the digital economy, the core commodity traded by platforms is “instant service.” The use value of these various forms of services is created by concrete labor, and the basis of their exchange value is abstract labor determined by socially necessary labor time. The prosperity of the platform economy has led many to believe that value is created by algorithms, data, and the platform ecosystem itself, but this is merely a superficial misunderstanding. Algorithms cannot automatically deliver meals, clean spaces, or renovate buildings; data cannot personally drive vehicles, produce short videos, or develop software. It is the living labor of millions of gig workers that constitutes the starting point of all value flows. What platforms do is use technological means to organize, coordinate, and commercialize these scattered and specific forms of labor on a large scale. Therefore, the digital age has not overturned the labor theory of value, but has made the process of value creation more decentralized, atomized, and hidden. Workers’ labor is deeply embedded in digital structures, but its fundamental status as the source of value remains unchanged. Any claim that “platforms create value” is essentially an ideological cover for capital to occupy the fruits of labor, a rhetorical strategy that technologies exploitative relationships.

3.2 Evolution of the Power Structure of the Organic Composition of Digital Capital

According to Marx’s theory, the organic composition of capital refers to the ratio of constant capital (C) to variable capital (V), reflecting both the technical structure of production and capital’s control over living labor. In the gig economy, this composition has undergone profound structural changes, presenting completely new characteristics. Firstly, the form of constant capital has undergone qualitative changes. It no longer mainly manifests as factories, machinery, and raw materials, but as data assets, algorithm systems, server clusters, software platforms, and their intellectual property rights. These materialized “dead labor” constitute the core production resources and competitive barriers of platform enterprises, with the characteristics of high replicability, economies of scale, and monopolistic tendencies. Secondly, the payment form of variable capital has been restructured. Platforms pay workers through “service fees” or “commission splits,” which essentially still belong to the scope of labor reproduction funds. Through legal means, platforms have successfully compressed this variable capital to only cover the minimum labor reproduction costs, thereby avoiding long-term reproduction expenses such as social security and vocational training that traditional employers need to bear. Capital externalizes these costs, leaving workers to bear all labor risks. The gig economy is characterized by “highly concentrated technical capital, monopolized labor markets, and atomized workers.” Platforms monopolize data and algorithms as core production factors, forming a serious power imbalance with gig workers who only possess their own labor and no other production resources. This sharp contrast between centralized platforms and scattered, vulnerable individuals reveals a new dimension of the organic composition of capital in the digital age: the highly centralized C (capital) exercises an unprecedented dominant position over the highly scattered V (labor). This is not only a value ratio but also a fundamental power structure.

3.3 Upgrade of the Digital Elastic Exploitation Mechanism

Platform capital's extraction of surplus value breaks through the physical and temporal constraints of traditional factories, penetrating the entire social space and fragmented time through algorithmic networks. Its exploitation mechanism has achieved dual upgrades: On the one hand, the exploitation of absolute surplus value has become more hidden. Platforms use incentives such as "the more you work, the more you earn" and survival anxieties such as "no work, no income" to encourage workers to blur the boundaries between work and leisure. Features such as 24-hour order receiving, peak-hour bonuses, and order completion rewards all drive workers to continuously extend their online time for a living. This "voluntary" overwork is a digital version of the traditional method of extracting absolute surplus value by extending working hours, disguised as "free choice." On the other hand, the extraction of relative surplus value has achieved unprecedented efficiency, which is the essence of platform algorithmic control and its main form of exploitation. By continuously optimizing order dispatch logic, compressing delivery time limits, and planning "optimal" routes, algorithms essentially increase labor intensity, forcing workers to complete more orders within a certain time and endure a more intense work rhythm. This means that through technological means, the necessary labor time for labor reproduction is significantly shortened, while the surplus labor time that creates surplus value for platforms is proportionally extended. This constitutes a more sophisticated and cruel production method of relative surplus value, which does not rely on extending working hours but on squeezing labor density per unit time. The substantial commissions extracted from each transaction and the profits generated from value-added services based on aggregated labor data ultimately come from the unpaid surplus labor of gig workers. Under the guise of seemingly free and fair cooperation, platform capital achieves more efficient and extensive social occupation of surplus value.

4. Mechanism Analysis of the Gig Economy

From the perspective of Marxist political economy, the "flexible and efficient" appearance of the gig economy conceals the core logic of algorithmic exploitation as a means and labor alienation as an end. These two processes together form a new paradigm of capital's control over labor in the digital age, reflecting profound changes in production relations behind technological progress.

4.1 Core Mechanism of Algorithmic Control

In the gig economy, algorithms are redefined as more automated, sophisticated, and hidden. As the executor of platform capital's will, their exploitation mechanism is manifested through three interlocking dimensions. Firstly, through massive historical data, algorithms continuously "learn" and compress processing time, setting theoretically ideal time standards for smooth workflows, while shifting all real-world risks to gig workers. To meet this algorithm-driven "optimal standard," gig workers are even forced to sacrifice personal safety. Through invisible time pressure, algorithms maximize labor intensity—the peak of extracting "relative surplus value" in the digital age. Secondly, platforms create the illusion of income volatility through complex dynamic pricing systems, but their core design ensures stable platform profits while transferring all market risks to workers. Platforms take the lion's share through fixed proportional commissions, while workers bear the risk of low income during periods of weak demand. This pricing mechanism makes workers' hourly wages highly uncertain and vulnerable, while capital owners hold "preferred income certificates" that stably extract surplus value regardless of market fluctuations. Finally, platforms package economic incentives into a gamified symbolic system. This mechanism skillfully exploits workers' competitive psychology, achievement needs, and peer pressure. Through this process, workers internalize the platform's evaluation logic, mistakenly regarding the capital's requirement of "faster and more" as proof of self-worth, which greatly weakens the traditional labor-capital opposition. This voluntary self-motivation and overwork transform systemic structural coercion into individual active choices, thereby effectively preventing the formation of workers' collective identity and potential resistance.

4.2 The Total Alienation of Digital Labor

Under the continuous operation of the algorithmic exploitation system, the "alienated labor" revealed by Marx has not been alleviated in the gig economy, but has presented a more profound and extensive new dimension. Workers are completely alienated from their labor products, labor processes, their own essence, and interpersonal relationships. The first layer is the alienation of labor products. Gig workers create data value, but platforms use this data for algorithm optimization, AI

training, or commercial insight mining to obtain profits. Workers become “prosumers” in their own data production systems, permanently deprived of ownership. The second layer is the alienation of the labor process. Labor should be an active way for humans to transform the world and realize self-worth, but under precise algorithmic control, gig work becomes passive compliance with cold instructions. Workers lose autonomy over work rhythm, methods, and tools. Labor loses its inherent creativity and dignity, reduced to external coercion. The third layer is the alienation of workers’ “human essence.” Through high-intensity repetitive labor and prolonged “on-call” time to cope with income instability, the gig economy systematically depletes workers’ time and energy for learning, thinking, socializing, and skill development. Human potential and creativity are reduced to a single skill, forming the dilemma of the “digital proletariat”: trapped in platform labor, gig workers develop increasingly specialized skills and narrow horizons, losing opportunities for social mobility and development. The fourth layer is the alienation of interpersonal relationships. As an intermediary, algorithms reshape all social connections. On one hand, algorithms systematically create direct competition among workers, turning colleagues who could have formed mutual assistance communities into guarded rivals, isolating and atomizing them. On the other hand, algorithms establish a distorted real-time evaluation mechanism between consumers and workers, successfully shifting the labor-capital conflict to individual conflicts between service providers and consumers.^[4]

4.3 Reinforcement of Systemic Dominance

Algorithmic exploitation and labor alienation are not isolated processes, but form a self-reinforcing cycle. The mechanism of algorithmic exploitation directly leads to the four-fold alienation of labor; at the same time, workers’ alienated state—such as atomization, narrowed skills, and lack of awareness of data products—weakens their ability to recognize systemic exploitation and organize collective actions, ultimately consolidating algorithmic dominance. The ultimate result of this dual process is the establishment of a more solid digital-based systemic dominance. Under this framework, exploitation becomes impersonal, seemingly originating from “objective algorithms,” while alienation is packaged into an inspirational narrative of “free choice” and “the more you work, the more you earn.” Workers are trapped in the system, alienated from their labor, colleagues, and even their own development potential, but struggle to find clear targets for resistance. This reveals that behind the seemingly “advanced” productivity level of the gig economy, there may be a profound regression in production relations. It raises a sharp contemporary question: Can we use technology to break this digital closed loop of exploitation and alienation, and build a future work landscape that empowers rather than dominates, liberates rather than alienates? This requires transcending the blind worship of technical efficiency and promoting profound innovations in social systems and power structures.

5. Building a New Digital Labor Order with Equal Emphasis on Fairness and Efficiency

As direct producers of data, gig workers lack both control over data usage and access to value-added benefits. Relying on technological advantages and market dominance, platform enterprises convert these socially generated data resources into exclusive assets to optimize algorithms, strengthen control, and expand profit margins. This “collective production, capital monopoly” dynamic constitutes the fundamental contradiction of the gig economy. To resolve this contradiction, it is necessary to construct a new digital labor order that balances fairness and efficiency through institutional innovation and system improvement.

5.1 Occupational Security Reconstructs Labor Dignity

To solve the dilemma of the gig economy, we must start with the institutional guarantee of labor rights and interests, and break the power structure unilaterally dominated by platforms. Firstly, we must promote the implementation of the “algorithmic fairness” principle. “Fairness” does not negate algorithmic efficiency, but emphasizes that algorithms should embody fairness, transparency, and a consultative process. Platforms must disclose key algorithmic parameters such as task assignment logic, compensation rules, and reward-punishment standards to workers, ensuring their right to know and right to appeal. More importantly, during algorithmic iterations, a consultation mechanism involving worker representatives should be established to incorporate practical factors such as workload intensity, reasonable rest time, and emergency situations into system design, preventing “optimization” from evolving into “extreme exploitation.” For example, implementing humanized mechanisms such as daily order quantity limits, automatic mandatory rest reminders, and complaint channels for abnormal orders can

transform algorithms from management tools into auxiliary labor protection measures. Secondly, there is an urgent need to establish a comprehensive occupational injury protection system covering all gig workers. The traditional work-related injury insurance under formal labor relations cannot cover flexible workers, leaving many trapped in the dilemma of “no recourse” when encountering traffic accidents or work-related injuries.^[5] A special protection mechanism should be explored, where platforms calculate premiums based on orders, with government guidance and supervision, and commercial insurance institutions responsible for specific implementation. The coverage should include key gig economy scenarios such as food delivery, transportation, and housekeeping services, with premiums shared by platforms, workers, and the government to form a sustainable funding model. In addition, a streamlined identification and compensation process should be established to ensure that workers receive timely assistance when facing occupational risks, truly realizing the principle of “protection for injuries and support for hardships.”

5.2 Exploring the Social Sharing Path of Data Revenue

Data is the core production factor of the gig economy, and its value creation is inseparable from the continuous participation of workers. Therefore, it is necessary to break the platform’s monopoly on data revenue and promote the establishment of a fair and reasonable sharing mechanism. A pilot “data contribution rebate” system can be implemented: platform enterprises should allocate a certain percentage of excess profits generated through data-driven operations to the “Gig Economy Development Fund” every year. Managed by industry unions or third-party public institutions, this fund will be specifically used to support workers’ skill training, health check-ups, legal aid, and children’s education subsidies. Alternatively, a “data dividend” model can be explored: on the premise of ensuring data security and privacy, blockchain technology can be used to record workers’ data contribution levels, and the corresponding income from data usage rights can be distributed proportionally. This mechanism not only reaffirms the labor value of workers but also serves as an important practice to promote the sharing of digital economic dividends. In addition, regional or industry-specific “data cooperatives” should be supported to encourage workers to collectively participate in data governance. These cooperatives can represent workers to negotiate data usage rights and revenue distribution with platforms on an equal footing, enhancing workers’ right to speak in the data value chain and preventing excessive capitalization of data assets.

5.3 Promoting the Publicity of Key Platform Infrastructure

For large platforms with the attributes of public infrastructure, their governance model should transcend pure capital logic and incorporate more public responsibilities and democratic participation. Firstly, strengthen governance to highlight the public nature of digital platforms. For platforms with a large user base, extensive service coverage, and an impact on people’s basic livelihood needs, regulatory frameworks similar to public utilities should be implemented. These platforms must hold public hearings on major decisions such as algorithm updates, fee adjustments, and service rule revisions, and solicit opinions from workers and consumers. The government should establish specialized regulatory agencies to regularly monitor issues such as platform monopolies, data abuse, and algorithmic discrimination. Secondly, explore a multi-stakeholder governance structure. At the corporate governance level, platforms should set up worker representative director positions or form a “Platform Governance Committee” composed of government representatives, platform operators, labor organizations, and academic experts to participate in decision-making consultations and supervision. Encourage non-profit public platforms as supplements to commercial platforms, providing basic and inclusive employment services to foster a competitive ecosystem and prevent excessive market concentration.

6. Conclusion

The future of the gig economy should not be a “digital alienation” where humans become slaves to algorithms, but a return of technology to its fundamental purpose of serving humanity. In this vision, algorithms are no longer tools of control but bonds of cooperation; platforms are transformed from strongholds of capital into shared spaces; gig workers evolve from data “prospers” to masters of the digital world. This transformation cannot be achieved overnight—it requires institutional innovation, ethical regulation of technology, and the awakening of workers’ consciousness. However, by adhering to a people-centered development philosophy and daring to regulate and transcend capital logic, the gig economy can truly become a ladder for human freedom and all-round development, rather than a “system” that shackles the soul.

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Reference

- [1] Harvey, D. (2016). *A brief history of neo-liberalism* (Q. Wang, Trans.). Shanghai Translation Publishing House.
- [2] Zuboff, S. (2020). *Surveillance capitalism: The smart trap* (H. Ma, Trans.). CITIC Press.
- [3] Marx, K. (2004). *Capital* (Vol. 1) (Compilation and Translation Bureau of the Central Committee of the Communist Party of China, Trans.). Peoples Publishing House.
- [4] Wu, Q., & Li, Z. (2021). The labor process and labor alienation under the gig economy: An empirical study based on platform workers. *Sociological Research*, 36(2), 125.
- [5] Beck, U. (2018). *Risk society* (B. He, Trans.). Yilin Press.