

The Digital Economy and the Quality of Flexible Employment: A Literature Review

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ABSTRACT

This paper reviews the current research on the quality of flexible employment in the context of the digital economy, with a systematic analysis focused on four key dimensions: labor income, labor protection, work intensity, and work flexibility. The findings indicate that while digital platforms have expanded employment opportunities and enhanced work flexibility, they have also led to increased work intensity and insufficient labor protection. Flexible employment is thus characterized by a structural contradiction of "high flexibility and low security." To improve the conditions of flexible workers, future research should deepen the study of platform algorithmic management, pay closer attention to the employment experiences of different groups, and explore targeted policy intervention strategies.

KEYWORDS

Digital economy; Flexible employment; Employment quality; Platform labor; Algorithmic management

1 Introduction

In the 21st century, the rapid development of digital technologies such as big data, artificial intelligence, and blockchain has reshaped the economic landscape and driven the rise of the digital economy. These technologies have profoundly transformed labor markets by diversifying employment forms, work methods, and workspaces ^[1]. This transformation has given rise to new forms of flexible employment—such as online food delivery workers, ride-hailing drivers, crowdsourced laborers, and livestreamers—enabled by internet platforms and providing significant job and income opportunities. The platform economy has grown rapidly; it is estimated that global digital labor platforms generate at least USD 50 billion annually ^[2], with approximately 40 million platform workers in the Global South alone, accounting for about 1.5% of the total labor force ^[2].

Flexible employment exerts a far-reaching social impact. Due to its low entry barriers and diverse forms, it offers employment opportunities for various groups, including laid-off workers, surplus rural labor, and university graduates ^[3], thereby alleviating employment pressure. Flexible workers participate broadly in economic activities—from food delivery to programming—thus stimulating economic growth ^[4]. This model breaks the fixed matching between workers and positions, allowing workers to flexibly choose jobs based on skills, time, and market demand. For example, during peak or off-season periods, individuals may shift between industries such as agriculture, construction, and domestic services, improving labor allocation efficiency and overall economic productivity ^[5].

However, this employment model also brings challenges such as low wages, wage deductions, irregular working hours, employment discrimination, job instability, unfair dismissals, lack of autonomy, and occupational safety risks ^[6]. The impact of the digital economy on flexible employment is complex and requires a comprehensive analysis to maximize its positive effects while improving the quality of work. Although the academic community has explored this issue in depth, a systematic review is still lacking. This study investigates the impact of digital technologies and platforms on the quality of flexible employment under the digital economy, categorizing employment quality into four dimensions: labor income, work intensity, labor protection, and job satisfaction. It aims to provide a novel synthesis of existing literature and inspire future research.

2 Impact of the digital economy on the income of flexible workers

2.1 Positive impacts

From a micro perspective, digital technologies such as smartphones and the internet have had a significant positive effect on the income of flexible workers. Yin found that smartphones reduce information asymmetry, helping workers obtain more relevant information and income opportunities ^[7]. Smartphones also expand social networks, enhance social capital, and promote business growth and customer accumulation ^[7]. Qi et al., using 2018 CFPS (Chinese Family Panel Studies) data, found that internet use increased the average monthly income of flexible workers by approximately 12.41% ^[1]. Their research also showed that this positive effect applies to both low- and middle-to-high-income groups ^[1]. Similarly, Liu et al. argued that flexible workers can leverage digital tools to access information and engage in online learning, enhancing both social and human capital to improve income ^[8]. Li and Liu further pointed out that knowledge-based

flexible workers use digital networks and platforms to work across multiple platforms without time constraints, thereby increasing their earnings through content creation^[9]. From the employment transformation perspective, Xie et al. noted that digital technologies facilitate the transition from informal to formal employment, allowing low-income flexible workers to move into more stable and higher-paying jobs^[10]. On the macro level, Xu and Guo found that regional digital economic development significantly boosts the income of flexible workers^[11]. Qi et al., using data from the China Statistical Yearbook and provincial panel data from 2008–2018, concluded that the development of digital industries enhances the remuneration of flexible workers^[12].

2.2 Negative impacts

However, digitalization also has negative effects on the income of flexible workers. Berg argued that low income is a common problem in platform work, primarily due to a high ratio of unpaid to paid work and limited job availability^[13]. Regarding income inequality, many scholars have noted that the digital economy tends to widen income gaps. Wood et al., based on semi-structured interviews with 107 workers, found significant income disparities among low-skilled gig workers^[14]. Wu et al. suggested that in underdeveloped regions, only high-skilled workers benefit from digitalization, while low-skilled workers face replacement and unemployment risks, leading to decreased earnings^[15].

In sum, current research presents two contrasting perspectives on how the digital economy affects the income of flexible workers—some highlighting positive effects, others pointing to negative outcomes. More empirical investigation is needed to determine the true impact.

3 Labor protection

The expansion of the platform economy has eroded labor standards. Bertolini et al. evaluated ten platforms and found widespread deficiencies in health and safety protections and inadequate social security coverage^[16]. Cieslik et al., in their study of Nigeria's ride-hailing platforms, revealed that most drivers lack formal employment contracts, rendering them ineligible for protections against unfair dismissal, unemployment insurance, or pension benefits. Some workers did access health insurance, but only when meeting certain performance thresholds^[17]. Berg's study of Amazon Mechanical Turk and Crowdfunder workers in late 2015 found that approximately 40% of respondents who relied on platform work reported lacking employment-related social protections^[13]. Ding et al. further pointed out that many new occupational groups are excluded from social insurance due to gaps in labor laws and relevant policies^[18]. Friedman similarly observed that benefits such as unemployment insurance, workers' compensation, medical insurance, and pension plans are closely tied to traditional employment and are forfeited when workers exit these arrangements^[19].

Moreover, the rise of flexible employment under the digital economy has blurred employment relationships, complicating labor law enforcement. Rolf et al., through a study of the UK courier industry, concluded that platform-based service contracts often replace traditional employer–employee relationships, resulting in reduced protections^[20]. Nilsen et al., drawing on interviews and empirical data, found that digital platforms often engage in “regulatory escape” by exploiting regulatory gaps through algorithmic opacity and narrative reconstruction, thereby undermining protections related to income security, social benefits, and occupational health^[21].

On the other hand, Liu et al. demonstrated that digitalization enhances human capital, empowering flexible workers to protect their legal rights and strengthen employment security^[8]. Cieslik et al. also noted that some platforms offer access to financial services like insurance, credit, and cash transfers—benefits that are particularly valuable in areas with limited financial infrastructure^[17].

In summary, the negative impacts of digitalization on labor protection outweigh the positives. While scholars have identified many of the labor protection issues inherent in platform work, effective, transparent algorithmic governance frameworks remain to be developed.

4 Work intensity

Algorithmic management on platforms has increased work intensity for gig workers. Bhimavarap et al., through research on ride-hailing drivers, couriers, and food delivery workers in Bangalore, India, found that algorithmic management led to more controlled and stressful working conditions^[22]. Wu et al. similarly pointed out that platforms often use algorithmic tools to monitor and control workers, increasing work demands and stress through task allocation and tracking^[23]. Park and Ryoo described platform algorithms as “highly opaque black boxes,” making it difficult for couriers to understand how they operate, thereby exposing them to algorithmic control^[24]. Their research also found that algorithmic pressure intensified stress among South Korean food delivery riders by linking remuneration closely to algorithmic evaluation^[24].

Digital platforms have also extended working hours for flexible workers. Xu and Guo, using data from four waves of the CFPS, found that Chinese flexible workers worked an average of 55.04 hours per week—exceeding the statutory 44 hours

—indicating generally high work intensity^[11]. Glavin et al. explained that algorithm-driven task distribution, monitoring, and evaluation on platforms create irregular and extended working hours, leading to a pervasive “always-on” work culture where workers must remain constantly available to secure assignments^[25].

Competition on digital platforms further exacerbates work intensity. Serafica and Oren’s research on laws and measures surrounding online and platform-based work in the Philippines revealed that workers often engage in excessive labor, sometimes working 70–80 hours per week. This is primarily due to bidding systems where workers lower their rates, shorten delivery times, and sacrifice rest periods to secure tasks^[26]. D’Cruz and Noronha’s study of freelancers on Upwork confirmed that visibility of competitive bids among workers led to intensified labor and longer hours^[27].

In conclusion, substantial research indicates that digital platforms significantly increase work intensity among flexible workers. This is mainly due to competitive algorithmic structures and heightened managerial control, against which workers—often lacking collective bargaining power—can hardly resist. Future research should delve deeper into how algorithms intensify labor and explore potential policies to protect workers from excessive demands.

5 Work flexibility

The digital economy has enhanced work flexibility for flexible workers, allowing them to choose their work location, tasks, and hours more freely while expanding employment opportunities through platforms. Xu and Guo emphasized that while job stability remains low, flexible workers enjoy substantial autonomy over the content and timing of their work^[11]. Digital tools and platforms facilitate remote work, allowing people to work from anywhere and thus increasing spatial and temporal flexibility^[28]. In addition to choosing when, what, and where to work, laborers can engage with multiple platforms simultaneously, thereby diversifying income sources^[29]. Berg’s research on crowdworkers showed that one of the main features of platform-based microwork is flexibility in location and time. Such flexibility enables workers to work from home, which is especially beneficial for those caring for family members or living with disabilities or chronic illnesses^[13]. Similarly, Purcell and Garcia noted that digital platforms have opened up flexible employment options for caregivers, students, and individuals with health issues^[30].

However, some scholars have challenged the supposed flexibility of digital platform work as a form of “pseudo-flexibility.” Wood et al. argued that although remote gig workers may technically choose their work location, in practice they often have no choice but to work from home, which can lead to isolation and a lack of social interaction^[14]. Other researchers pointed out that the always-connected nature of digital tools may blur the boundary between work and personal life. This can foster an “always-on” culture, where workers feel unable to disconnect even during personal time, thus increasing psychological stress^[31].

To summarize, research on the impact of digital platforms on work flexibility presents both recognition and critique. In essence, digital economy – driven work flexibility is a double-edged sword: it can promote labor participation and inclusive employment but may also conceal intensifying work demands and surveillance. Future studies should investigate to what extent workers truly have control over their schedules, tasks, and locations, and further examine the fine line between freedom and control.

6 Conclusion and research outlook

In the context of a flourishing digital economy, flexible employment has become a critical component of the labor market. The issue of employment quality has gained increasing scholarly attention. This paper systematically reviewed existing studies across four dimensions—labor income, labor protection, work intensity, and work flexibility—to reveal the multifaceted impact of the digital economy on the quality of flexible work. Overall, digital development has transformed how flexible workers operate and, to some extent, improved employment quality. However, platform-based algorithmic management has also strengthened control over workers, leading to longer hours, greater intensity, inadequate labor protections, and income instability. Diverging scholarly views on specific issues underscore the complexity and multi-dimensional nature of the digital economy’s impact on flexible work.

Future research should explore the underlying causes of these divergent perspectives and investigate the comprehensive impacts of digitalization. Particular attention could be paid to how platform algorithms function as mechanisms of labor control, and to assessing their influence on work rhythms, wage distribution, and performance evaluation. Additionally, more empirical work is needed to evaluate the effectiveness of institutional designs and policy interventions aimed at protecting labor rights while encouraging innovation in the platform economy. Integrating micro-level mechanism analysis with macro-level policy studies may offer theoretical and practical support for building a more equitable and sustainable digital labor ecosystem.

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