Job Related Uncertainty in the age of Artificial Intelligence and Gig Economy

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Abstract

In this article, we explore the duality of the gig economy enabled by artificial intelligence (AI) in terms of volatility and the promise it offers. We focus primarily on underrepresented and disadvantaged groups of workers who have found a new home, thanks to the gig economy made possible by AI. We examine how their uncertainty is perceived in the existing literature. We then reveal the lack of attention to this group of workers, whose exclusion from the traditional labour market was not problematic in the first place, and who are now portrayed as suffering from poor AI regulation. As such, we expose the hypocrisy of how the development of an AI-enabled gig economy exacerbates job insecurity, but often overlooks the potential of the gig economy to open up opportunities for atypical workers. One problem we have identified is the overrepresentation of atypical workers in the industry. *We show that an AI-powered gig economy that does not introduce uncertainty is possible if the sector is effectively regulated.* We offer a short roadmap with multi-layered regulatory measures to combat the instability of the artificial gig economy.

Key Words- Artificial Intelligence, Volatility, GIG Economy, Diversity, and Internet Technology.

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Introduction:

Technological changes have always changed social, economic and political structures and life. Technology has been used as a tool that serves the interests of various stakeholders in every context. There is an interaction between technological development and the socio-political context, which together produce unique results and significant impacts on different communities and opportunities for technological innovation (Schwartz and Thompson 1990; Pfaffenberger 1992). Internet technology was introduced in the United States during the Cold War in the early 1960s as a military research technology to compete with Russia's military infrastructure (Castells 2002). Since its introduction, Internet technology has evolved to permeate every aspect of international social, political and economic life. In the last four decades in particular, we have experienced such significant changes, partly due to the emergence and success of businesses enabled by Internet technology (Gomez-Uranga et al. 2014). Despite the extensive impact of Internet technology on

the social sphere, Internet technology has begun to significantly affect career, employment, and work domains over the last two decades (Webster and Ivanov 2020), and has an even stronger impact on these domains with the mass adoption of artificial intelligence (AI), which has supported the emergence and unprecedented growth of AI-driven industries. The gig economy driven by artificial intelligence has witnessed unprecedented growth in the last decade. This chapter discusses the gig economy as an economy enabled by technologies such as internet technology, artificial intelligence (AI) and digital platforms. The global Covid19 pandemic has seen both growth and excessive demand pressure in the digital economy (Pandey and Pal 2020). Some international companies and individuals who have invested in the digital economy have succeeded during this time. For example, Amazon has achieved great business growth and Amazon's Jeff Bezos has become the richest person in the world (Mergen and Ozbilgin 2021). However, the expansion of the digital economy has not been so profitable for all parties involved. Some commentators reflect on the unevenness of the impact of the Covid19 pandemic, suggesting that the only beneficiaries of the pandemic are the billionaires, while the poor have become poorer (Kelly 2020). In fact, the explosive expansion of the gig economy made possible by AI, a gig economy in which the work process is managed by artificial intelligence systems, has had uneven effects both internationally and among different groups of workers, especially in relation to the pandemic (Umar et al. al. 2020; Devakumar et al. 2020). We see the Covid19 pandemic as an important milestone for the growth and excitement of the digital economy, as national economies try to recover from the pandemic (Brewis and Ozbilgin 2013) by investing in technology-based gig economy platforms. This article considers both the dark side and the light side of the asymmetric effects that the rise of artificial intelligence and the gig economy have had on different groups of workers and communities. Previous studies have criticized the corrosive effects of Internet technologies and artificial intelligence on careers, working conditions and working conditions in many industries, and especially in the gig economy (Harari 2018; Frey and Osborne 2017). Most of the research to date on the interaction between technology and the socio-economic context considers the uncertainty experienced at the individual level. In this article, we take a structural perspective and argue that artificial intelligence only accentuates the conditions of uncertainty inherent in systems and structures, rather than being the original source of these problems. In particular, AI in a national situation with a strong welfare system that protects people from uncertainty would introduce less uncertainty than in a system without safety nets. However,

James and Whelan (2021) argue that even in a welfare state, the use and ethical applications of technology must be controlled by accountability structures. Artificial intelligence is not the only cause of uncertainty in the digital economy. This reflects the current uncertainty in the traditional work environment. In a less regulated context, AI technology can highlight inherent insecurity, exploitation and discriminatory practices. Therefore, platforms based on AI technology used in the gig economy do not have positive or negative results in themselves, but have both positive and negative consequences and lead to multiple results depending on the systems in which they are embedded. We recognize that a one-way approach to the effects of AI leads to the polarization of debates about its impact across ideological divides, between advocates of technology-enabled business (Verhoef et. al, 2021) and those who wish to do so. The fight against precarious work due to the development of technology. . We argue that uncertainty is only partly a prerequisite for platforms based on AI technologies, but it is also a consequence of the international, national, social, organizational regulation of AI technologies and the socio-political options and institutional arrangements available for their various effects. Change due to technology has opened up new job and career opportunities, but has made many jobs and forms of work obsolete. However, many warehouses of companies such as Amazon are now fully automated with the help of artificial intelligence and robots, causing job losses for the same group of workers. As a result, by 2030, automation powered by AI will replace more than 20 million workers who traditionally performed sorting, lifting and storage tasks with robots in an international context (Cellan-Jones, 2019). By overcoming the duality of AI-enabled gig economy outcomes, we propose an effective regulation to counter uncertainty in the field.

In the introduction, this article first frames the dual nature of the consequences of the gig economy in terms of the inclusion of atypical workers on the one hand, and the increase in fragility on the other. We offer a contextual view of the gig economy, diversity and uncertainty, providing conceptualizations and empirical evidence of the interaction between the gig economy, diversity and uncertainty in their specific geographical and historical contexts. We focus mainly on how atypical workers are drawn into the gig economy in large numbers and their inclusion has become a cost for them, which on the one hand reduces the impact of their exclusion on economic participation and continues to maintain their precarious position in working life and market on the other hand. The section on theoretical frameworks focuses on the role of regulation in combating uncertainty and promoting inclusion. In the case study, we explore the interaction between the AI-

enabled gig economy and logistics, particularly in the transportation and delivery of goods, services and food. This issue is explored in developed economies with a strong safety net against uncertainty and in countries with limited action against uncertainty. We provide an action plan in which we propose a multi-level framework for better regulation of the AI-enabled gig economy to promote inclusion and combat uncertainty.

The background of artificial intelligence enabled gig economy, diversity and uncertainty: a circumstantial view.

In this paper, we mobilize three concepts: artificial intelligence enables the gig economy, diversity and uncertainty. Here we present their definitions and present our view from a contextual perspective in examining the relationship between these three concepts. The competitive economy, also known as the platform economy and the sharing economy, was defined by the UK Business, Energy and Industrial Strategy Report (Lepanjuuri et. al, 2018, p. 9) as "the engagement of work for money by individuals or businesses through digital platforms that actively facilitate service providers and customer coordination in short and task In this article, we focus in particular on the gig economy made possible by artificial intelligence. In the context of the AI-enabled gig economy, we examine two specific outcomes: uncertainty and atypical worker engagement. Insecurity and uncertainty are defined as the general insecurity an individual experiences in life, work, profession and pay. Campbell and Price (2016) defined precarious work as work that exposes workers to high levels of uncertainty and uncertainty as a group of workers who experience entrenched forms of insecurity. Atypical workers are those who come from traditionally disenfranchised, discriminated, marginalized and underrepresented groups, such as women, ethnic minorities, the disabled, LGBT groups, religious and political minorities, younger or older workers (Alter, 2018; Samdanis and Ozbilgin 2020). There are also typical and prototypical workers, the former being individuals from relatively privileged backgrounds, such as white, middle-class men. Prototypical employees are those who are ideally suited for their jobs. For example, upper-class white men are often considered ideal candidates for leadership positions. The inclusion of atypical workers has been a particular achievement of the gig economy, and their continued vulnerability remains a concern for gig economy regulations.

The gig economy is a broad term that includes artists, writers, professional service workers, IT workers and drivers, couriers, among others. As a result, there is considerable demographic diversity among gig economy workers, even if the gig economy has allowed entry to a greater number of workers who were previously discouraged, excluded or excluded from participation in the economy. Depending on which segment of the gig economy the study is based on, the implications of the gig economy for that group will be affected. For example, Petriglieri et al. (2019) studied artists, IT workers and writers, while Kamasak et al (2020) studied Uber drivers in their case study, who are predominantly Muslim from a working-class background in the UK. The issues raised in these studies reveal different views of the gig economy along lines of ethnicity, religion, and especially class. We therefore warn readers against choosing a sample based on socio-demographic profiles, because the results of studies on the effects of the gig economy are very context-dependent. The competitive economy has both positive and negative effects at the individual, organizational and system level in terms of uncertainty and atypical employee involvement. The multifaceted effects of the gig economy vary depending on the gig economy, the time frame and the context. In the following, we introduce the interaction of gig economy, uncertainty and diversity from a multilevel contextual perspective based on the relational model of Syed and Ozbilgin (2009): at the micro level, we examine the effects of gig economy on individual actors. At the intermediate level, we explore the role of organizations in how the gig economy relates to uncertainty and diversity. Macro-level discussions focus on the national and international context that governs the gigeconomy interface in terms of uncertainty and diversity.

The context of the micro-individual

The dark and bright sides of the gig economy were discussed mainly at the individual level. The subject of discussion is the costs and benefits of the gig economy in the working life of an individual. Researchers have different opinions and there is no consensus on the effects. Indeed, most discussions are conceptual, and empirical research on gig economy workers in national contexts is limited. According to a report by the Article-14.com, there are around 7.7 million gig workers in the India. Most of these workers work as couriers, drivers and food delivery people. Gig workers are often classified into two distinct groups: gig only and gig plus. Only gig workers have no work other than the economic work of their gigs. They do not have a part-time or full-time organization. Although gig plus workers are full or part-time in organizations and use the gig

economy to earn extra income and develop their skills (Prudential, 2017). A US study of 1,491 gig workers, 721 of whom are only gigs, found that gig workers work fewer hours than other workers (about 25 hours per week) (Prudential 2017). As a result, labor-only workers earn less than full-time workers (about 40 hours per week). The median annual salary for gig workers was $36,500, compared to $62,700 for full-time workers in 2016. Gig-only workers had less access to employer-based benefits such as different insurance policies. Gig-only workers had an average age of 47 and were less satisfied than full-time workers; However, they had less intention to change jobs and switch to full-time work. The report revealed that gig workers wanted to control their work and not give up work flexibility. They had to regulate their working conditions to improve them. The report further highlighted that the main motivation for gig workers over 56 was financial; however, 36-55-year-old giants wanted to change jobs in the future. While the self-employed often have autonomy over their work, content and conditions (Pichault and McKeown, 2019), the lack of spaces and benefits associated with traditional work environments in the gig economy causes emotional stress and loss of autonomy among workers. Petriglieri et al. al (2019) argues that workers experience both anxiety and satisfaction when working in the gig economy. They develop strategies to deal with these forms of cognitive dissonance by rationalizing their choices or making alternative arrangements. Workers in the gig economy need routines, places, social connections and meaning for their work as they evaluate the costs and benefits of their situation. Overall, the micro-individual context of gig economy workers suggests that the gig economy offers different experiences and opportunities for workers. Depending on the specific circumstances, the background and needs of the workers, the gig economy has different effects.

Medium organizational context

The organizational context of the gig economy at the intersection of uncertainty and diversity shows that there is little regulatory pressure on organizations. The global Covid-19 pandemic also created the conditions that forced the gig economy to expand. Food and grocery services have grown to accommodate increased demand for the service as shutdowns, curfews and quarantine orders have prevented public travel and forced large groups of customers to turn to the gig economy for essential supplies (Almeida et al. 2020). Although the dark side of the gig economy is strongly felt on uncertainty, some studies show that the impact of the pandemic led to an expansion of job opportunities in some cases (Polkowska 2021). Organizational research

conducted during the pandemic shows that the precarious conditions of labor economy workers have intensified because they lack the necessary institutional connections to access the arrangements provided by the state and institutions. In addition, their working conditions worsened from a health and safety perspective due to increased workload and demand during the pandemic, and because they were often essential client workers (Rani and Dhir, 2020). The comparative study of Jergi et al. (2021) on the UK, Denmark and Germany show that the pandemic created the conditions for large numbers of workers in the gig economy to create multiple jobs while demand increased, but both the supply of workers and the terms and conditions of each gig remained limited.

Yummy is a Swedish startup that aims to provide highly educated immigrant women with access to financial participation to provide home-cooked meals to their customers (Webster and Zhang, 2020). The results of the interviews with six highly educated immigrant women living in Sweden emphasized the importance of the gig economy in terms of interregional work. The study reveals how the gig economy offers entrepreneurial opportunities to new immigrants. Cooking and serving food at home is not a historically new concept, but the use of AI-based platforms offers opportunities for workers marginalized by traditional labor market structures. The case is not new and unique in the field of high technology, many platforms based on AI such as Amazon, Apple, Google and Facebook are founded by individuals and provide work and employment to first, second or third generation immigrants (CNBC, 2018) . The inter-organizational context of the gig economy shows that there is a strong interface between gig economy organizations and atypical work, both in terms of work and work opportunities, as well as emerging forms of precarity. Social changes are putting pressure on concert platforms. Uber recently announced that the company will provide minimum wage, holiday pay and pensions to its 70,000 UK drivers (BBC, 2021). Although this is a significant advance and may affect other platforms compared to traditional work environments, the risk of uncertainty remains.

Macro system Context

At the macro level, the gig economy is a source of uncertainty and inclusion for atypical workers in economic, political and social contexts. In particular, the interface between welfare systems, the democratic traditions of nation-states, technological development, gig economy structures and resources, and the way in which these are prioritized in each country, shapes how the gig economy

affects vulnerability and the inclusion of atypical workers. Examining the gig economy in the United States in the 1980s and 1990s, Davis and Hoyt (2020) provide evidence that traditionally disadvantaged groups such as women, minorities, and poor workers fared poorly in terms of health under a performance-based pay system and results of uncertainty. The study calls for better regulation of the performance-based pay system of the gig economy and suggests that atypical workers are more vulnerable in a national climate where social security remains weak.

In general, the unemployed or underemployed people use AI-based platforms to generate income, and these trends mitigate entrepreneurship (Burtch et. to, 2018). But since underemployment and unemployment are structural problems stemming from the socio-economic choices and regulatory arrangements of nation-states, it is possible to question the transition of unemployment and underemployment to the fragile gig economy as an underlying trend. systemic inequality and uncertainty. During the Covid19 pandemic, many companies in the gig economy generated large revenues as global and national crises forced them to expand their business operations to include essential services. For example, Getir from Turkey is a platform-based distribution company that serves household goods and products from local stores and its own stores. Getir received a funding round that valued the company at $850 million. Getir recently launched in central London after success in Turkey at the expense of worker insecurity (Financial Times, 2021). Getir offers a service that delivers in about 10 minutes (Getir, 2021). Getir and other Turkish delivery companies are now facing a national dispute over unsafe conditions, such as a 10-minute delivery time that puts drivers at risk of speeding and accidents, and that they employ drivers who have been involved in fatal traffic accidents, mostly due to overtime at work and speedy driving forced on them by natur eof their work. Driver deaths have increased tenfold during the Covid19 pandemic (Gazete Vatan 2021; New York Times 2021). While the staff uncertainty is not addressed, Getir has now opened a branch in London to expand its operations internationally, supporting business success in Turkey. Similarly, Mergen and Ozbilgin (2021) explain that in the case of Amazon and its extensive globalization project, the uncertainty that Amazon subordinates its workers in its value chain remains invisible.

At the macro-system level, the uncertainty of the AI-enabled giga economy is almost hidden behind the stories of global and national organizations entering into commercial life and serving economic recovery. We therefore suggest that a responsible and inclusive supply chain covering

the entire workforce is needed (Koberg and Longoni, 2019). Competitive economies are studied primarily as winners and losers of technological innovation and corporate capture. Most research on gig economy and uncertainty comes from North America and Western Europe. Big tech companies have been at the forefront of the technical changes that have advanced the platform economy. GAFAM (Google, Amazon, Facebook, Apple and Microsoft) in the Global North and BATX (Baidu, Alibaba, Tencent, Xiaomi) in the Global South were audited for their work and work practices. This over-examination ignores the contributions and challenges of young technology companies and leaves them out of the academic and public policy picture. The dominant nature of such studies of the Global North has recently sparked renewed interest in studies of the Global South, suggesting a polarization of experience between developed and developing countries with industrial democracies, workers and welfare systems where the former can provide some protection for labor economy workers from uncertainty compared to the last group of countries. Without international regulation, the toxicity of the gig economy and its precarious effects may become more entrenched. The lack of institutional regulation leads to the normalization of uncertainty in the sector, because the sector lacks international and national normative pressure to move towards an inclusive, democratic and egalitarian practice.

The theorizing of Uncertainty and diversity in artificial intelligence made the gig economy possible.

Hardin's classic work, which he recently elaborated (1998), on the tragedy of the commons, emphasizes the importance of optimal regulation of the common good for the sustainability and longevity of the socio-economic and political system. Hardin argues that without regulation and complete freedom for everyone to use the common good solely on the basis of self-interest, the common good would soon be destroyed. Based on this idea, Jonsen et al. (2013) linked the tragedy of the commons to diversity management. The authors argue that the effective regulation of diversity requires the sustainability of the common good. Based on the theory of the tragedy of the commons, we propose a multi-level regulatory framework that can guide the agenda for better and optimal regulation of the common good, which in this case is the gig economy and its vast impact on the public good. We examine regulation at multiple levels: micro-detail, medium-institutional, and medium-national and international. At the individual level, we turn to social identity theory to explore both the identity effects of AI and the identity of atypical workers attracted to the gig

economy. Social identity theory (Tajfel 2010) indicates that individuals are drawn to groups with which they identify. For atypical workers excluded from traditional forms of work, the gig economy provided a home where they could maintain their social identity and seek an escape route from discrimination (Kamasak et al. 2019). It also includes individual responsibility, which takes into account the uncertainty of workers. For example, people are advised not to order too small meals during rush hour to avoid killing of drivers. But at the individual level, AI technology is often viewed in a moral vacuum due to its supposedly objective structure. For example, Smith et al. al's (2021) study shows that Australian consumers were less aware of the working conditions of gig workers in the food delivery sector and had less intention to improve the conditions of those gig workers. Further research on AI and digital platforms suggests that their development and implementation are fraught with traditional forms of public neglect, bias based on gender, ethnicity, sexual orientation and other categories. One of the methodological concerns we have when dealing with uncertainty and gig workers at the micro level is the representativeness of the research subjects. We find that white, middle-class academics often lead the conversation of the vulnerability of gig workers of diverse backgrounds to academics. We caution that socio demographic differences between researcher and subject may be blind to other experiences. One manifestation of such blindness is when academics who study uncertainty criticize uncertainty and call for gig economy companies to protest based on it, but forget that the gig economy, despite its exploitative potential, continues to offer non-standard workers the opportunity to work which is prohibited for them by traditional industries. Such a blanket rejection of the gig economy would only cut out opportunity to work even if lowly paid precarious work for atypical workers who would otherwise be marginalized, underemployed and unemployed in a discriminatory labour market. The gig economy exploits the untapped talent of atypical workers. Thus, when discussing the possibilities of exploiting the gig economy, one must also acknowledge the problematic nature of the repulsive and discriminatory approaches of the traditional labour market, which eliminate atypical workers out of workforce. At the mid-organizational level, organizational/sectoral regulation is necessary if uncertainty is to be handled and employee participation is to be achieved. Research on diversity and inclusion suggests that voluntarism does not produce effective results (Ozbilgin and Slutskaja 2017), because organizations need the normative pressure of social movements (Ozbilgin and Erbil 2021) and the coercive pressure of the law (Tatli et al. 2012) to hold most of their interventions and practices accountable. The liability of gig economies is largely

at the mercy of national regulations. Therefore, as we noted above, countries with strong regulation against uncertainty and exclusion are more likely to regulate their giant economy based on the effects of uncertainty. However, we warn that the structures of equality and inclusion and the struggle against uncertainty may not be solved by excessive formalization of such issues, as is often thought it will overshadow experiences of discrimination. Authors such as Healy and Pekerak 2020 argue that organizations will go a long way to address the fragility of the gig economy by adopting advanced approaches developed for effective human resource management. At the macro-national and international level, the discussion about the possible regulation of the gig economy is expanding (Novitz, 2020). These discussions focus on how existing universal international labour standards, core principles and decent work rights can be applied to gig workers. Current opportunities for international regulation and accountability of the gig economy are however quite weak at the UN, and other international organizations offer limited voluntary encouragement for the industry to adopt democratic, progressive and sustainable approaches. Although decent work is one of the goals of sustainable development, little has been discussed about how to involve gig workers in decent working conditions.

A Roadmap for Better regulation of AI enabled gig economy

The gig economy enabled by artificial intelligence has three distinct values. These include openness to industry entry, competition with traditional industries, and flexibility in work-life practices. The first value is openness, and presumably regardless of location and socio-demographic background, every member of the platform is free to join with a low barrier to entry. While this openness can allow people from non-standard backgrounds to join the gig economy, the individual worker is often commoditized and reduced to numbers. Anwar and Graham (2020) explain that in the case of African countries, discourses of openness do not actually benefit individual laborers, but corporate goals that constantly produce cheaply financed and poorly paid and processed work. Second, the gig economy is built on the value of internal and external competition. In this context, competition is a burden that lies primarily on the seller or the carrier. For example, a service promised with a fixed delivery time or a refund option affects both the seller and the shippers, but not the platform. In principle, the competition does not directly affect the service provider in daily operations, but only to a certain extent in the form of financial benefits. Graham and Anwar (2019) explain that African labor economy workers are left to keep an eye for

themselves and compete with each other. Third, flexibility is another value that should drive the gig economy. However, flexibility may not be as harmless as advertised. For whom do we need to ask for flexibility? The main focus is on the gig worker looking for extra income through freelance platforms, or the person who does their just-in-time delivery job for a few hours a day (Prudential, 2017). In reality, however, there is another side to the story. Companies use gig workers as temporary workers when the service provider acts as an employment agency, rather than just acting as a caterer or restaurateur. Temporary offices work the same way. Agencies are initially found to increase temporary employment but are found to exploit and reproduce structural vulnerability (Elcioglu, 2010). The gig economy should allow transparency, competition, easy access to the system, autonomy and flexibility, but it comes at a significant cost to workers due to uncertainty. The adverse outcomes for gig workers such as delivery workers highlighted versions of fragility inherited from existing structures of the industry. The uncertain conditions of temporary or temporary workers are reinforced by so-called delivery providers or independent platforms. A competitive economy creates structural long-term problems and barriers when it offers micro-level benefits and access to its workers. Below, we outline a roadmap for better regulation of the AI-enabled gig economy to counter its tendency to create uncertainty. The gig economy, made possible by artificial intelligence, is rapidly spreading around the world. The effects of the gig economy are multifaceted as it allows workers from traditionally marginalized backgrounds to participate in an economy where participation often comes with precarious conditions. We agreed that better regulation can help enhance the positive effects of the gig economy and combat the uncertainty it can cause. Regulation occurs in multi-level and multifaceted forms, ranging from self-regulation to organizational/sectorial, social, national and international regulation, each of which is intricately linked to other levels. We propose regulatory measures for the roadmap, as effective regulation of the gig economy has already shown positive signs of dealing with uncertainty in various contexts. We explore the regulation of AI self-regulation at the micro level of human rights, decent work, inclusion, industrial democracy and worker safety. As stated in the previous section, the gig economy is rapidly evolving with values such as openness, flexibility, autonomy and inclusion. However, we still need to question the real effects of these practices and add more humane values such as industrial democracy, worker safety, equality and the fight against uncertainty to develop the self-regulation of an AI-based gig economy. Artificial intelligence technology is criticized for destroying the traditional work environment, reducing job opportunities and requiring new skills

and knowledge. One of the most important points is that the scope and scale of existing national and international regulations do not meet the needs created by innovative disruptions based on AI. That is why it is important that the artificial intelligence technology driving the gig economy is rooted in humanistic values so that it can self-regulate its impact on workers. At the medium level, we suggest that the impact of the gig economy could be moderated by works councils, trade unions, organizational mechanisms and active identity groups. In Turkey, for example, with almost one driver/courier dying every day in online food delivery companies, workers have started forming unions to deal with precarious working conditions. They are now negotiating with employers to demand better working conditions, including longer rest periods and limiting the speed of delivery (Evrensel 2020). We are likely to see self-organizing mid-level initiatives to effectively regulate the gig economy and its likely toxic consequences.

At the macro level, we argue that labor market partners such as trade unions, international bodies, government and employers have a role to play in regulating the gig economy. In addition, sector-specific forums and interventions could help improve the terms and conditions of workers in the gig economy. For global companies that use vast networks of labor economy workers across national borders, we require regulatory action to curb exploitative practices that are particularly problematic in national contexts where regulation against job insecurity is weak. For example, international labour standards and principles have not been regulated to involve gig workers.

Conclusion:

The gig economy offers opportunities to hire non-standard workers, but often at the cost of their insecurity. In this paper, we explored the complexity of this duality and provided a contextualized account of the gig economy, diversity and uncertainty, illustrating how context shapes the duality of gig economy outcomes. Because they are often excluded, discriminated against and marginalized in traditional work sectors, atypical workers are attracted to the gig economy relatively easily and in large numbers. In the theoretical part, we looked at the role of welfare systems and legal regulation in combating uncertainty and promoting inclusion. Fundamentally, we argue that the study of gig economy, fragility and inclusion requires the study of welfare systems and regulatory systems, organizational practices and individual experiences. In particular, the traditions of national welfare systems and industrial democracy have a significant impact on the level of uncertainty that can be experienced in the gig economy. Future research could examine

the interaction of welfare systems, industrial democratic approaches and anti-precarity initiatives implemented in different countries and assess their differential effectiveness in engaging atypical workers. Most AI-based platforms are produced in developed countries and used internationally. Working on the same platforms but in different countries and contexts can create different work experiences and challenges for employees. Future research can focus on cross-cultural comparative analysis to explore the uncertainty and international diversity of the gig economy in this way.

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