Workers in the digital platform economy

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Abstract: Information technologies have introduced essential changes in the daily life of individuals. Due to digitization, new forms of employment are emerging, of which work on digital platforms stands out. There has been a vigorous discussion surrounding digital platforms in recent years, primarily because of their growing importance within the digital ecosystem. However, despite numerous researchers' shared interests in the work of digital platforms, existing sources and metrics to measure digital platform employment are still limited. Hence, this research aims to contribute to this gap and address the state-of-the-art research on reviewing what measurement initiatives on digital platform employment have been undertaken. Additionally, this research sheds light on digital platform workers according to age, gender, level of education, and type of service category offered in the new digital economy, indicating existing differences. Valuable insights from this research will contribute to policymakers, businesses, and researchers to create a sustainable future for workers in the digital platform economy.

Keywords: Digital platforms, Digital platform workers, Digital technologies

1 Introduction

As the Fourth Industrial Revolution gained momentum, rapid digitalization significantly changed the size, types, and task content of the available jobs and work organizations in the traditional labour market. The shift from industrial factory floor set-up to the digital application-based economy also challenged the existing labour practices and employment relationships. Over the past few years, the sharing

economy has also gained significant attention in the literature due to its exponential growth and notable impact on various aspects of the social and economic system (Merino-Saum, 2023). Sharing economy platforms have become increasingly popular, particularly during the COVID-19 pandemic (Chen et al., 2022; Belhadi et al., 2023). The platform economy refers to digitally enabled activities facilitated by digital platforms in business, politics, and social interactions (Derave et al., 2021).

The platform economy is broadly defined and overlaps with other phenomena such as collaborative economy, sharing economy, gig economy, freelance economy, peer economy, on-demand economy, collaborative commons, access economy, crowd economy, and digital economy (Ranjbari et al., 2018). However, this discussion often suffers from inconsistencies in the use of terminology and confusion in the categorization of different platform types. Therefore, it is important to be cautious. A broader approach might overestimate the impact of these new business models while not being able to differentiate them from traditional models. On the other hand, a narrower approach would limit the scope of our understanding (Sasikumar & Sersia, 2020).

The platform economy is a new way of organizing work and employment and creating value. Workers in the digital platform economy play a significant and transformative role in the modern economic landscape. Their importance extends across various dimensions, influencing businesses, consumers, and the overall work structure. While the digital platform economy brings about positive changes, it also raises important questions about workers' rights, job security, and the need for effective regulations to ensure fair and ethical practices. Balancing the benefits and challenges is crucial for creating a sustainable and inclusive digital work environment. In this light, this paper focuses on the platform economy and the employment of workers pursuing work on these platforms. As policy-makers, governments, and organizations increasingly turn to the gig economy and digital labour as an economic development strategy to create jobs where they are needed, it is crucial to understand better how the role of employees impacts this trend. The paper analyzes previous empirical studies and available results from the Eurostat database. Obtained results contribute to filling the gaps regarding the state-of-the-art in the research on digital platforms and employment. In that light, the remainder of this paper is divided into five sections. After the introduction, section two refers to the definition of the platform economy. After that, the characteristics of the digital platforms economy were highlighted, the applied methodology was presented, the discussion of the results was presented, and then in the last section, the most important conclusions, limitations of the study and future directions of development were presented.

2 Literature Review

Digital platforms are robust drivers of economic activity, as they can significantly reduce the costs of exchange and interaction. The emergence of these platforms has led to a considerable amount of academic research and has brought about significant changes in business models across various industries. The recent surge in the popularity of digital platforms has led to a widespread "land grab" where companies compete to be the first mover to secure a new territory, exploit network effects, and raise barriers to entry. However, despite the enthusiasm surrounding digital platforms, their success is not guaranteed. This is especially true for collaborative sharing platforms driven by peer-to-peer interactions (Akbar and Tracogna, 2022).

The sharing economy refers to a set of business practices that involve the temporary use of underutilized assets for free or a fee (Botsman, 2013). These practices have been around for a long time. Still, they are notable for three reasons: the widespread use of digital platforms and devices, a growing interest in sustainable consumption, and a shift towards personal interaction and community engagement, particularly in urban areas (Osztovits et al., 2015).

Evans's (2016) research aimed to provide the first-ever comprehensive global survey of platform companies, and they found that most of today's platforms are digital, capturing, transmitting, and monetizing data, including personal data and taking advantage of pervasive internet connectivity. The sharing economy is defined by Schor and Fitzmaurice (2015) as the peer-to-peer sharing of underutilized goods and services that prioritizes accessibility and utilization over ownership. According to Stephany (2015), the sharing economy is built on the value of making underutilized assets accessible online to a community, thereby reducing the need for ownership. Online sharing platforms have revolutionized traditional business models by allowing buyers and sellers to interact and trade innovatively (Kim & Jin, 2020; Belhadi et al., 2023). After studying different definitions, the OECD (2019) modified and created a definition for platforms that accurately focuses on online platforms' capabilities. The definition states that an online platform is a digital service that facilitates interactions between two or more distinct but interdependent sets of users, whether firms or individuals, who interact through the service via the Internet.

The digital platforms economy is marked by several distinct characteristics that shape its landscape and influence the way businesses operate (Funta, 2019; Vasyltsiv et al., 2020; Hesse et al., 2020; Hasler et al., 2022; Lafuente et al., 2022). These features relate to interconnectivity, network effects, data-driven decision-making, dynamic ecosystems, platform monetization, rapid innovation, and disruption. Digital platforms have become successful by connecting people, businesses, and devices worldwide. They provide communication, collaboration, and transaction facilities through the Internet, bringing down geographical barriers and creating a highly interconnected world. These platforms often exhibit network effects, meaning the more users join, the more valuable the platform becomes

(Hasler et al., 2022). This creates a self-reinforcing cycle that attracts more participants and fosters a dynamic and growing ecosystem. Also, the digital platforms economy is characterized by creating ecosystems that unite diverse services, products, and users (Hein et al., 2020). These ecosystems often involve partnerships and collaborations, allowing platform providers to offer comprehensive solutions within a unified environment (Gawer, 2022). Digital platforms rely heavily on data analytics to make informed decisions. They collect and analyze vast amounts of data to understand user behaviour, preferences, and market trends. Platforms often act as aggregators, consolidating various services under one umbrella (Mariani and Nambisan, 2021). This aggregation simplifies user experiences by providing a one-stop shop for multiple needs, such as e-commerce, social networking, and other services. Additionally, the digital platforms economy is considered a hub of innovation. Startups and established companies continually try to disrupt traditional industries by introducing novel business models, technologies, and services. Platforms employ various monetization models, including advertising, subscription services, transaction fees, and data monetization (Täuscher & Laudien, 2018). These models contribute to the financial sustainability of the platforms and influence how they interact with users and partners.

2.1 Workers on digital platforms

The digital transformation of labour markets has led to a new way of doing work, i.e. the emergence of digital platforms that facilitate the connection between workers and employers more efficiently than ever before (Manggali et al., 2023; Nur et al., 2023). Digital work is a significant phenomenon that connects the fields of digitization, work, and employment. It refers to paid remote work, where the employer may not be present or registered in the same country as the worker. According to labour market analysis, digital work is more prevalent in developing countries with a developed information technology (IT) industry (OECD, 2018). In the digital world, physical boundaries do not exist. Digital platforms allow clients to access a global workforce anytime, anywhere. Work platforms have been created as a business model on the wave of digital innovation, enabling clients to connect with skilled workers worldwide. Although these platforms often define themselves as mediators, they perform some of the functions of an employer. They prescribe work procedures, decide who can be engaged and under what conditions, and perform accounting functions. However, these platforms do not provide options for establishing an employment relationship.

Today, digital platforms have evolved into indispensable tools and foundations of the digital ecosystem (Ha et al., 2023). The rise of the digital platform economy has brought about significant changes in employment. Digital platform workers, freelancers, gig workers, and on-demand workers are an expanding segment of the global workforce (Nur et al., 2023). Cloud-based platforms and collaboration contributed to improved traditional jobs (Kenney and Zysman, 2019; Acs et al.,

2021). At the same time, new tech industry jobs are being created in countries that have successfully facilitated the growth of platform companies.

Furthermore, many platforms have created opportunities for individuals to earn income by sharing their assets, skills, or time, resulting in a rise in the sharing economy (Poutanen et al., 2017). Digital workers predominantly offer their services in the IT sector, including software development and technology (Kenney & Zysman, 2019; Acs et al., 2021). They also provide services in various fields, such as writing and translation, creative and multimedia industry, sales and marketing, clerical services, and data entry. Additionally, they offer professional services in legal, financial, and consulting fields. The entire process of matching these services' global supply and demand occurs virtually and is agreed upon between the parties involved (Ivanović et al., 2023). In that light, this study specifically focuses on the "platform economy" and the employment of workers pursuing work on these platforms.

3 Data

This research used theoretical assumptions from scientific papers and secondary data from available databases. The terminology used in the reviewed papers is not standardized because there is no internationally agreed definition of digital platform work and employment. Therefore, the results processed in this research were taken from the Eurostat database and available reports, scientific papers and directives. Namely, within the first part of the research, this paper reviews attempts to measure digital platform employment through surveys by private and official statistical agencies. After that, in the second part of the study, an analysis of digital platform workers was performed according to gender employment statistics based on data from a Eurostat pilot survey.

4 Results

Considering that work on digital platforms is a relatively new way of organizing work, it is tough to measure the exact number of workers on digital platforms precisely. Therefore, this paper tries to cover some important previous studies that dealt with the number of workers on the platform. The European Union (EU) has roughly 500 operational digital platforms, with a presence in every European country. This sector's growth is evident, considering that between 2016 and 2020, revenues in the platform economy surged nearly fivefold, increasing from an estimated €3 billion to approximately €14 billion (European Council, 2023). Within the European Union, approximately 11% of the workforce reports offering services through a platform (Urzí Brancati et al., 2020; Morell, 2022). The Online Labour

Index (OLI) represents a tool to monitor trends in online labour and is standardized to the number of projects initiated in May 2016. This index indicates a 51 per cent rise between 2016 and 2021. More than 28 million individuals in the European Union work through one or multiple digital labour platforms. Projections indicate that in 2025, this number is anticipated to rise significantly to 43 million people (European Council, 2023).

In 2017, the first pilot survey was conducted, and 32 389 responses were received from 14 European countries. In 2018, a survey was conducted again where 38 022 responses were collected from internet users aged between 16 and 74 years old in 16 European countries. Some important conclusions that can be drawn from this research indicate the differences between "main platform workers" and "secondary platform workers". The term "main platform workers" refers to individuals who work for more than 20 hours a week by providing services via digital platforms or earn at least 50% of their income doing so. On average, this group represents 1.4% of the respondents in the countries surveyed in 2018, which is a decrease of 0.9 percentage points compared to 2017. On the other hand, "secondary platform workers" are those who provide services via digital platforms for more than ten hours a week and earn between 25% and 50% of their income from platform work. In 2018, this group accounted for an estimated 4.1% of the respondents in the surveyed countries, which is an increase of 0.5 percentage points compared to 2017 (Urzí Brancati et al., 2020). These studies are particularly important because they largely served to define the proposal for a Directive of the European Parliament and of the Council on improving working conditions in platform work (COM(2021) 762).

Furthermore, Morell (2022) attempted to highlight gender differences, but there is a lack of gender-disaggregated quantitative data on platform work, making deeper analysis difficult. The EU Gender Equality Strategy 2020-2025 highlights the importance of integrating a gender perspective in the digital economy to achieve gender equality. However, digital policy has not given enough attention to equality issues despite some efforts to promote equal digital access and skills, such as encouraging girls and women to participate in ICT education (Ravanera, 2019).

The empirical studies published in previous years were upgraded with the results from the Eurostat database, which collected pilot data about employment on digital platforms in 2022. The survey reflected the current state of the platform workers in 17 European countries ages 15 and 64. The results presented in Table 1 show that 3% of respondents engaged in digital platform employment for at least one hour in the last year. Of that number, 80.1% of the respondents reported engaging in only one type of digital platform activity, while 19.9% reported working in two or more different categories of digital platform employment. A more detailed analysis shows that 15.5 % of respondents worked in two different categories, 3.3 % in three categories, and 1 % in four categories of digital platform employment or more.

Number of digital platform activity	Percentage (%)
1	80,1
2	15,5
3	3,3
4	0,6
5	0,2
6	0,1
7	0,0
8	0,1

Table 1.

Number of activities of digital platform

Figure 1 presents the results of the type of task or activity that workers performed on platforms, noting that respondents had the opportunity to circle several categories.

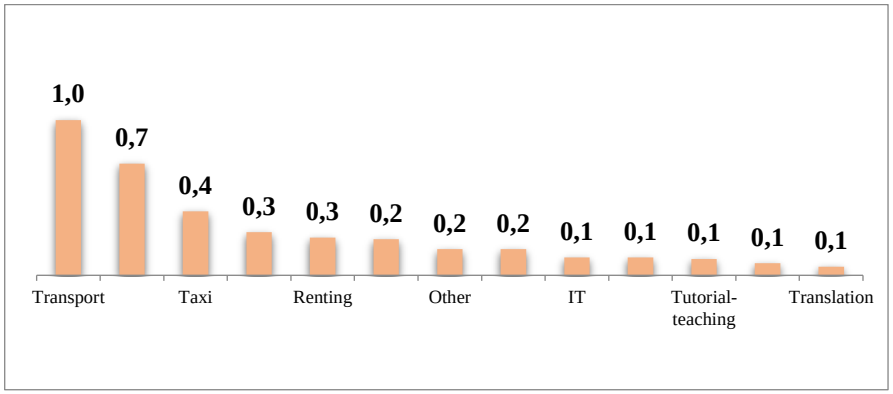

Figure 1

Digital platform workers for at least 1h in the last year by task or services category

1.0% of respondents work for at least one hour in transport services, which involves delivering food or other goods for pay or profit through an internet platform or app. The second most common job was selling goods, with 0.7% of workers engaged in the sale of goods that were collected, bought or produced. On the other hand, 0.1% of respondents were employed in IT, cleaning or handiwork, tutorial or teaching, child and elderly care and translation.

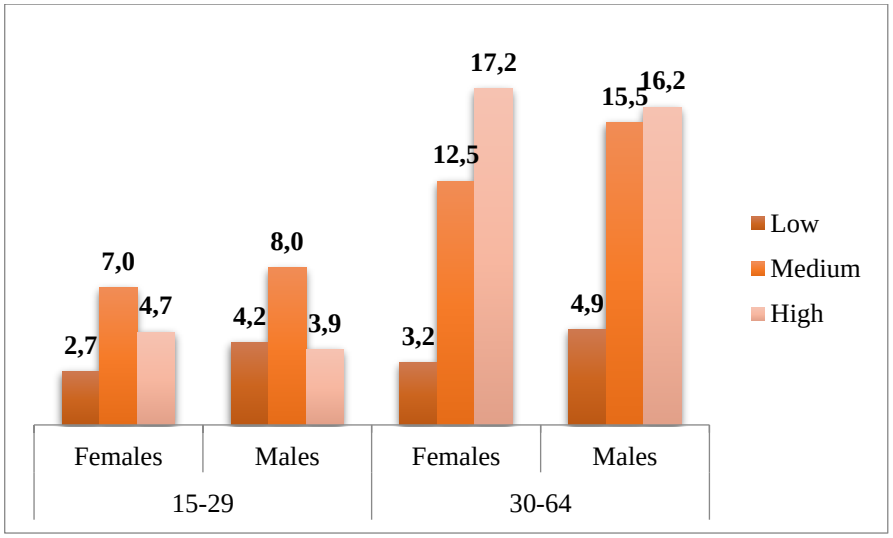

Figure 2
Digital platform workers by age, sex and level of education

The data in Figure 2 shows the distribution of respondents according to their age, gender, and education level. The study analyzed digital platform workers, who were divided into two groups: young workers aged 15-29 (30.5%) and older workers aged 30-64 (69.5%). Among the young workers, 14.4% of women and 16.1% of men were engaged in the digital platform economy. It was observed that 7% of women with a medium level of education and 8% of men with the same level of education were part of this workforce. Among the older respondents, 32.9% were female, and 36.6% were male. Of the females, 17.2% had a high level of education, while 16.2% of males had the same level of education.

Further analysis of the working hours of workers on digital platforms is presented in Figure 3. The largest number of respondents, 33.5%, were engaged between 1 and 9 hours on digital platforms, followed by less than 1 hour, 21.7%. An interesting fact is that even with a higher number of hours, many workers were engaged. For example, between 30 and 79 hours was 12.1% of engaged workers.

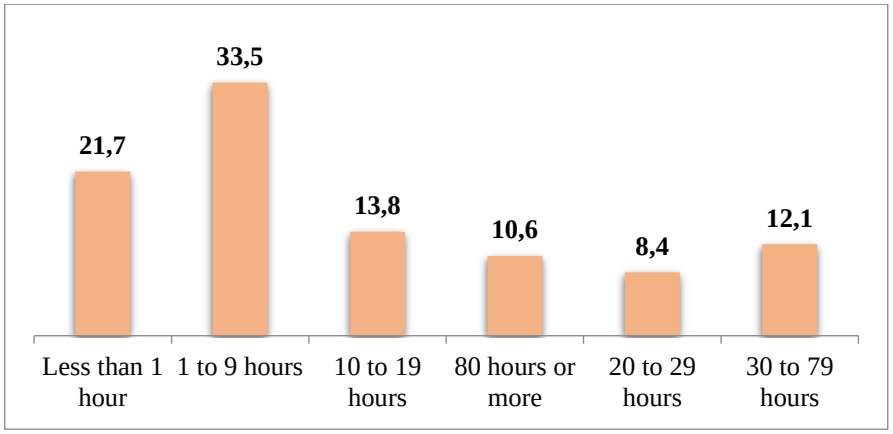

Figure 3
Working hours by people aged 15-64 who have worked in the last month

Conclusions

The sharing economy has emerged as a powerful force in the global economic landscape, impacting traditional economic and industrial models. Despite being in its early stages, the sharing economy can potentially significantly transform how people live and work. Information technologies, which have contributed significantly to the development of the digital economy, have intensified the need to establish acceptable standards for digital workers in the context of employment relationships. While platform work only represents a small percentage of the working force in European countries, it has become a central topic in research and policy discussions concerning the role of these platforms in the labour market. Therefore, this paper aims to present evidence from available empirical research in Europe, as well as results obtained from the Eurostat database.

Current results indicate that only a small proportion (around 3%) of the workers in the countries included in the research participate in platform work. However, the insights from this study show that digital platform work is slowly increasing and tends to continue growing, which has also been supported by the European Council (2023).

The significance of this study is reflected in its theoretical and practical contribution. This research highlights the importance of identifying initiated initiatives to define the total number of workers on digital economy platforms, which can be of great importance to policymakers and decision-makers in the European economies, individually and at the European level. Also, this study fulfilled the research goal by more deeply exploring the demographical differences of workers on digital platforms. This research sheds light on the worker position in the new digital economy, indicating differences among digital platform workers according to age, gender, level of education, and type of service category. These

understandings can serve as a basis for creating policies to improve working conditions and protect workers' rights, taking in mind that the European Union is developing a new directive intended to enhance the working conditions of individuals engaged in digital platform work, all while safeguarding the opportunities and advantages introduced by the platform economy.

However, this study has also some limitations. From the analyzed studies, one can see the inconsistency in the research related to the number of analyzed countries and the defined parameters. In order to generalize the results obtained, firstly, future research should specify unique measuring instruments and conduct research at the level of all European countries.

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