Navigating the Gig Economy Landscape: Assessing Methodological Challenges through the Lens of Gigmetar™

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***Abstract**. This paper addresses the challenges associated with measuring the gig economy, recognizing the methodological hurdles in assessing platform work, and exploring potential solutions. Drawing on comparisons between various approaches to gauging the scale of online labour using substantial amounts of data, the paper examines the strengths and weaknesses of Gigmetar™, as a novel method already employed in evaluating the gig workforce in Serbia and Southeast Europe. In contrast to previous studies with limited sample sizes, Gigmetar™ employs extensive data analysis, capturing around 80% of the online workforce on the selected platform. This approach allows for a more comprehensive analysis of workers' characteristics and trends. The tool provides insights into gender distribution, income, and occupational profiles, facilitating biannual assessments. Furthermore, Gigmetar™ tracks the trends of gig workers and emphasizes the importance of accurate measurements for policymaking. While Gigmetar™ emerges as a promising method, ongoing challenges persist in adapting it to diverse platforms, keeping pace with the technology they employ, and extending its applicability to countries beyond the currently analyzed scope.*

***Keywords.** Gigmetar™, online platform work, gig workers*

1 Introduction

The global prevalence of gig workers is on a steady rise, as evidenced by the latest World Bank report (2023), which identifies a staggering 545 online platforms operating worldwide. These platforms engage workers and clients in 186 different countries, underscoring the extensive reach of the gig economy (World Bank, 2023). Notably, country-specific data illuminates the increasing local economic significance of platform-mediated work (Stephany et al.,2021). Of particular interest is the revelation that low- and middle-income countries collectively contribute 40 percent of the overall gig platform traffic (World Bank, 2023) This statistic emphasizes the imperative to comprehensively assess the gig workforce in these countries. A case in point is Serbia, which, according to the 2015 World Bank report (Kuek et al., 2015) has consistently ranked among the global leaders in the number of online gig workers for the past decade. This assertion is corroborated by additional sources (Payoneer, The Online Labour Index, 2020), affirming the sustained prominence of Serbia in the online gig economy. The convergence of evidence from various reputable sources lends credence to the enduring and substantial presence of gig workers in Serbia over the years. However, efforts to estimate the gig economy's size face hurdles due to the lack of a universally accepted definition and methodological challenges (Kuhn & Galloway, 2019). Literature typically distinguishes between two main types of digital labour platforms: 'online web-based' platforms, which offer services like writing and programming, and 'location-based platforms,' such as delivery and ride-hailing apps that involve tasks at specific physical locations. The evolving landscape

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of labour markets calls for more effective approaches to measure platform work within the overarching framework designed for precarious and casual employment. The primary differentiator in this context is the technological intermediation involved. Mehta (2020) emphasizes the importance of prioritizing data collection on gig workers for labour market statistics. This, as Mehta contends, is crucial for making informed policy decisions in the future. Such decisions are instrumental in establishing conducive working conditions for gig workers, ultimately fostering a scenario of decent work (Mehta, 2020, p. 10). Furthermore, state-level data has acquired critical importance, particularly as individual countries contend with legislating the gig economy and digital workforce (Schultz, 2020). A comprehensive understanding of these dynamics is imperative for policymakers, encompassing considerations for both the well-being of workers and effective tax administration (Garin et al., 2023). Several researchers have significantly contributed to investigating the size of the gig workforce in Serbia (Kuek et al., 2015; The Online Labour Index, 2020; Anđelković et al., 2020; Colovic et al., 2021). In the absence of state statistics, this data has illuminated policy approaches, leading to the Serbian government's decision in 2023 to provide improved tax solutions for online gig workers compared to their previous conditions. However, subsequent endeavors to devise appropriate frameworks for regulating the labour status of digital workers in Serbia have encountered obstacles, partly attributable to persistent methodological challenges in assessing the scope and nature of digital work. Consequently, platform (digital) workers remain inconspicuous to policymakers, leaving them in a precarious position concerning their labour and social rights.

2 An overview of previous attempts to measure the size of the gig economy

In the absence of official statistics, many researchers relied on non-official surveys (Ludec et al., 2019; Piasna & Drahokoupil, 2019) and experimental studies (Pesole et al., 2018; Urzi Brancati et al., 2020; Brawley Newlin, 2023) to estimate the size of online gig work. Many independent and ad hoc surveys offer an extensive array of questions, indicating some level of reliability, which can be repurposed and further validated by other researchers in different countries (Pesole et al., 2018). However, the success and accuracy of such approaches usually depend on three critical steps: defining concepts, formulating questions, and selecting respondents (Piasna, 2020). Additional attempts focused on administrative data to assess the number of gig workers, as administrative data can overcome the problem of small sample size, reduce the burden on data providers, and reduce the cost of data collection. For instance, some estimates of the scope of the gig economy in the USA are based on tax data (Collins et al., 2019; Garin et al., 2022). Van Slageren et al. (2023) use data on transactions conducted by 5,535 gig providers to identify the level of the gig economy in 26 different European countries. However, even these methods often include limited administrative data that fail to capture the relevant gig population. For example, Gussek & Wiesche (2023) and Gussek et al. (2023) focused only on IT freelancers, without considering other professions present in the gig market. Also, administrative data were not collected for statistical purposes and may have problems with timeliness, relevance, and accuracy (O'Farrell & Montagnier, 2019). Understanding trends in the gig economy poses a challenge as household surveys and administrative data present divergent pictures. The former usually reveals limited evidence of the growth in self-employment associated with a surge in gig activity, while the latter tends to indicate substantial growth trends (Abraham et al., 2018). National statistical offices have been hesitant to include direct questions on platform work in traditional labour force surveys, citing a small target population, an anticipated low response rate, and a lack of agreed-upon definitions and operationalization of platform work. Another challenge faced by labour force surveys is the assignment of employed persons to sectoral and occupational classes without clear guidelines on where to position platform work. This hinders the full integration of platform work into existing statistical frameworks. Besides surveys and administrative data collection, recent approaches also rely on collecting available digital footprints on online platforms. One of the most renowned indicators of this kind is the Online Labour Index 2020 (OLI 2020), an indicator of both the demand and supply of online digital labour (Kässi & Lehdonvirta, 2018). Initially represented as an iLabour Project of the Oxford Internet Institute and later established as a collaboration between the International Labour Organisation and the Oxford Internet Institute, it is one of the very few tracks online digital labour market, on an international level. It measures the scope of the global online digital labour market by tracking the number of projects and tasks posted on the five largest English-language online labour platforms, and since 2020, six non-English language platforms;

three in Spanish and three in Russian. Comprehensive data allows OLI 2020 to estimate both the demand and supply of online digital labour across countries, occupations, and gender.

3 Gigmetar™, an avenue for evaluating the gig economy

Serbian online gig workers have become a dynamic and increasingly influential force in the global freelance community. They are consistently recognized for their diverse skill sets, unwavering dedication, and competitively priced services. Offering a wide array of services spanning web development, graphic design, content creation, digital marketing, software development, and various other specialized domains, these individuals contribute significantly to the global freelance landscape. On the other hand, they have become a strong force in the domestic market, worthy of attention and analysis. In that regard, Gigmetar™ (Anđelković et al., 2020) appeared as a novel framework in 2019, aimed to inform both experts and the general public about the trends and characteristics and offer a more detailed analysis of the Serbian online workforce. It is an instrument specifically designed to monitor various dimensions of online platform workers, including their number, gender distribution, incomes, and occupational profiles. It systematically assesses the online gig population on Upwork, one of the most popular global digital platforms[1] in Serbia and its neighboring countries, namely Romania, Hungary, Croatia, Bosnia and Herzegovina, Montenegro, Albania, North Macedonia, and Bulgaria, collectively constituting the Southeast European region. In contrast to previous quantitative studies and surveys focusing on online labour markets, often constrained by limited sample sizes (Anđelković, et al., 2019), Gigmetar™ distinguishes itself through extensive data analysis. It encompasses approximately 80% of the total population of active online workers on the observed platform. The data is meticulously collected through web scraping of publicly accessible information from worker profiles on the platform. This instrument collects and processes various data about online workers such as gender, location (city, region), skills, primary occupation, additional occupations, hourly wage (wage demanded by the worker), total income, number of finished jobs, number of ongoing jobs, etc. Importantly, Gigmetar™ conducts biannual assessments to analyze the number and characteristics of workers. Following the latest established methodology[2], a total of six measurements have been carried out—two in each of the years 2021, 2022, and 2023. The created instrument enables diverse analyses, providing insights into various dimensions within the digital work domain. It allows the breakdown of digital labour by gender, the exploration of demanded hourly rates, and the allocation of workers among specific professions. Classification of gig workers into professions consists of six primary occupational groups as defined by OLI methodology (Kässi & Lehdonvirta, 2018). Those occupational groups are defined as follows: 1) professional services, 2) clerical and data entry, 3) creative and multimedia, 4) sales and marketing, 5) software and technology development, and 6) writing and translation. Occupation classification is based on self-reported skills provided by digital platform workers registered at the Upwork platform (Ivanovic et al., 2023) and collected by Gigmetar™. Additionally, (sub)methodologies have been developed within this instrument which provide insights into the structure by gender and profession, wage rates by gender and profession, and income levels earned by gender. Gigmetar™ proves versatile not only in offering a snapshot analysis of the national online labour market at a specific moment but also in facilitating cross-country comparisons of digital labour forces based on multiple characteristics. Additionally, it serves as an effective tool for monitoring the evolutionary trajectory of the digital labour market within a single country over time, as measurements and analyses are conducted periodically. This methodology enables a comprehensive and representative exploration of the digital workforce in the specified geographical scope. For example, in the case of Serbia, Gigmetar™ analyses the dimensions of the gig workforce in sub-national regions according to the Nomenclature of Territorial Units for Statistics (NUTS 2 level) classification. The analysis of gig workers at the sub-national level can be conducted in any other countries that apply the NUTS classification.

[1] The number of gig workers in Serbia and SEE region is also assessed on two more platforms – Freelancer and Guru but detailed analysis of gig population in these countries is based on data derived from Upwork.

[2] Prior to this, the data collection methodology underwent several modifications until the final data collection methodology was established using web scraping techniques.

4 Conclusion

To outline the advantages and disadvantages of the Gigmetar™, several conclusions should be drawn in line with comparison to the OLI 2020, as both collect and analyze a significant volume of data. First, Gigmetar™ derives data from the three most popular platforms in Serbia and the SEE region, namely Freelancer.com, Guru.com, and Upwork.com, with a special focus on the latter. OLI collects data from the five largest English-speaking platforms (three of those included in Gigmetar™ plus Amazon Mechanical Turk, and Peopleperhour.com) and was recently expanded to include a few Spanish- and Russian-language platforms. Second, OLI 2020 OLI collects data on a much larger sample of countries, measuring online work at scale. Gigmetar™ is still limited to the SEE region, as including only nine countries. It remains to be tested whether Gigmetar™ will maintain its robustness in assessing gig populations in other countries and platforms. Namely, it is important to note that this methodology has so far been successfully tested and applied only by exploiting the data from the Upwork platform. Although the focus on Upwork in Serbia and the SEE region is justified by its popularity and the substantial number of gig workers, this may not be the case in some other countries. Examining digital work in countries where Upwork is not the most dominant platform may provide incomplete insights, overlooking other platforms with a significant gig workforce. Third, OLI 2020 provides data across countries, occupations, and recently gender. On the other hand, Gigmetar™ can provide some additional insights. With considerable accuracy, it offers an overview of the gig work supply based on gender, occupations, requested wage rates, and total earnings. This instrument includes additional analyses of the market structure, including gender distribution across occupations, gender distribution based on wage rates and earnings, occupations based on wage rates and earnings, etc. In addition to national-level analysis, Gigmetar™ can analyze the regional structure of gig work within countries, including sub-national regions, districts, or cities. Undoubtedly, future research should focus on techniques that could be used to estimate the size of directly inaccessible populations or populations difficult to observe or monitor straightforwardly. A complete approach would require information from all platforms, considering an indicator of overlap, as workers are often registered on multiple platforms. However, the feasibility of this approach is questionable, as web scraping tools would need to be adapted to each platform's content and technical issues individually.

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