Inequalities in Remote Gig Work During the COVID-19 Pandemic

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Remote gig work provided alternatives to in-person work during the COVID-19 pandemic, but digital inequality literature suggests that such opportunities are not equally available to all. Analyzing a survey of 1,551 U.S. adults in May 2020, we ask how sociodemographic factors and Internet skills relate to performing online work on a piece-rate basis before and during the pandemic. In our sample, the percentage of such workers increased by 16% after the outbreak of COVID-19. This inflow was more likely to be younger, Hispanic, and Asian, and less likely to be suburban residents than those who had already performed gig work previously. This suggests that these groups turned to gig platforms more than they did pre-pandemic, diversifying the pool of gig workers. Overall, however, younger, male, and digitally savvy respondents were more likely to perform remote gig work during the pandemic, suggesting that the gig economy mainly broadened the opportunities available to those from advantaged backgrounds. In line with digital skills literature, Internet savvy remains an obstacle to online labor market participation in the 21st century.

Keywords: participation inequality, digital inequality, gig economy, remote work, online labor, Internet skills, digital literacy, COVID-19, pandemic

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Similar to crises like the Great Recession, the COVID-19 pandemic led to increased unemployment: Between February and April 2020, unemployment rose from 3.5% to 14.7% in the United States (U.S. Bureau of Labor Statistics, 2022). However, unlike other crises, the COVID-19 pandemic was also marked by a need for physical distancing to minimize the spread of the virus, which resulted in widespread stay-at-home measures (*Financial Times*, 2022). The lack of opportunities for in-person contact, in turn, led to an increased reliance on online communication. Given the combination of heightened unemployment, the need to stay home, and an intensified move to computer-mediated communication, digitally mediated remote labor provided a set of potential opportunities for income generation. Especially for those unable to practice their professions from home and those laid off because of the pandemic, online labor offered a possible alternative to in-person forms of income generation that they could pursue from the safety of their home.

Seeking work on so-called gig economy platforms might have been appealing during the COVID-19 pandemic not only because of the ability to participate from one's home but also because of the flexibility gig platforms afford in terms of when and how to work (Gray & Suri, 2019). Gig work, broadly speaking, refers to labor facilitated by online platforms, which is compensated on a piece-rate basis. Receiving a financial reward for tasks or projects affords the worker, at least theoretically, a certain degree of flexibility (Scholz, 2016). This flexibility could be particularly valuable in the context of the COVID-19 pandemic since gig work enabled people to work during lockdowns. Besides, gig work affords more control over when and how to work. This might have been beneficial during the pandemic because physical distancing measures affected people's ability to maintain their pre-pandemic work routines. For example, when educational institutions went online or even closed temporarily, parents found themselves responsible not only for typical housework and job duties but also for their children's care and education (Hargittai, 2022).

Although some gig work, such as driving for Uber or running errands through TaskRabbit, has an in-person aspect, a large subset of gig work can be fully found, pursued, and completed online. The tasks or projects encompassed by online gig work range heavily in terms of time, technical skill required, and type of work. Examples include creative projects (e.g., copywriting, logo design, or website development), professional services (e.g., consulting or project management), or clerical work (e.g., data entry or photo tagging). In this study, we refer to such forms of employment using the terms "online gig work" and "remote gig work" interchangeably. The latter term emphasizes that the labor arrangement, at least theoretically, allows individuals to work whenever and wherever fits their schedules as long as they have the technology required to connect to the Internet. In the context of the COVID-19 pandemic, pursuing online—rather than in-person—gig work might have been particularly attractive to individuals who had a strong desire or need (e.g., because of being immunocompromised) to work from home.

Despite known flaws such as increased stress because of long work hours and uncertain job prospects (Gray & Suri, 2019; Scholz, 2016; Woodcock & Graham, 2020), gig work thus provides possibilities for income generation during troubled times. However, digital inequality literature suggests that such opportunities are not equally available to all (DiMaggio & Hargittai, 2001; Hargittai, 2021; Hassani, 2006; Helsper, 2021). Disparities in access to technologies and skills required to participate effectively and efficiently on the Internet allowed some—but not others—to capitalize on online labor opportunities during the pandemic. Some studies have found evidence of such disparities across various segments of the gig economy (Hargittai & Shaw, 2020; Hoang, Blank, & Quan-Haase, 2020; Shaw, Fiers, & Hargittai, 2022). In

contrast to existing work, this paper examines online participation in the context of the COVID-19 pandemic, a time when remote gig work provided viable employment opportunities when other sectors did not.

Based on a national survey of 1,551 U.S. adults administered in May 2020, we examine how sociodemographic factors and Internet skills relate to engagement in online work during the first two months of the COVID-19 pandemic. Subsequently, we consider the role that gig work played in respondents' income and how this might have changed as a result of the pandemic. Our results confirm that the sector of remote gig work grew over the first months of the pandemic, but that this expansion did not equally include everyone across sociodemographic groups. We find that digitally savvy people were more likely to pick up online tasks during the pandemic, suggesting their skills made them more equipped to handle the employment adversity of these times.

Background

Digital Inequality

Digital inequality research is concerned with questions related to who participates on the Internet and how opportunities online are more available to some than others (e.g., Fiers, 2023; Hargittai, 2021). Originally focused on Internet access connection as the primary barrier to participation in the online realm, scholarship has since examined Internet usage along an extensive set of dimensions (see Hargittai & Jennrich, 2016; Scheerder, van Deursen, & van Dijk, 2017 for overviews of the research). Not only has prior literature studied various aspects of material access (e.g., available devices and appliances; van Deursen & van Dijk, 2018), but it has also extensively examined online behaviors, such as platform adoption (e.g., Haight, Quan-Haase, & Corbett, 2014; Hargittai & Litt, 2011) and content contribution (e.g., Fiers, Shaw, & Hargittai, 2021; Schradie, 2015). Broadly speaking, digital inequality scholarship has found that access to and usage of technologies is distributed across existing lines of socioeconomic stratification, causing, for example, those with higher levels of education to participate online more (e.g., Büchi & Vogler, 2017; Shaw & Hargittai, 2018). Currently, 7% of U.S. adults do not use the Internet at all (Perrin & Atske, 2021). Thus, although most Americans are online, gaps in Internet and technology adoption continue to exist across dimensions such as income, race, and metropolitan status (Pew Research Center, 2021).

In explaining differentiated patterns of online participation, digital skills appear to play a central role, as such skills enable some to participate online more easily and extensively than others (Hargittai & Walejko, 2008; Scheerder et al., 2017). Digital skills is an umbrella term for the knowledge and the abilities required to operate the web effectively, which encompasses a wide range of technical but also social, creative, and critical thinking skills (Hargittai & Micheli, 2019; van Laar, van Deursen, van Dijk, & de Haan, 2020). Given the breadth of the knowledge and competencies relevant to participation online, digital inequality scholars have operationalized digital skills in various ways. For example, they have focused on specific skills (e.g., downloading a file or sending an e-mail), divided skills into types (van Deursen & van Dijk, 2010), and constructed a general measure of digital skills by asking people to rate their understanding of a collection of Internet-related terms (e.g., Hargittai, 2005). Regardless of measurement, prior literature has repeatedly found digital skills to be a resource not available equally to all (e.g., Correa, Valenzuela, & Pavez, 2022; Shaw & Hargittai, 2018; van Deursen & van Dijk, 2015) as well as a significant predictor for various forms of online participation (e.g.,

Bastien, Koop, Small, Giasson, & Jansen, 2020). In other words, digital skills empower digitally savvy individuals to participate more extensively online and thus access the benefits of such participation.

Digital Inequality in Online Labor

Although digital inequality has matured as a research area over the last two decades (Hargittai, 2021), participation inequality remains scarcely studied in the realm of online labor and the gig economy (see Fiers, 2023 for an overview). Instead, prior literature primarily focuses on working conditions in the gig economy, both in terms of the economy's potential and its pitfalls (e.g., Gray & Suri, 2019; Schor, 2020; Woodcock & Graham, 2020). Such studies examine the experiences and perspectives of people once they have already become online contractors. In contrast, few studies examine who does and does not enter the online labor market in the first place (Hargittai & Shaw, 2020; Hoang et al., 2020; Shaw et al., 2022 being notable exceptions). In one of these studies, Hoang and colleagues (2020) analyze survey data about a national sample of U.S. adults to examine participation in the gig economy, covering various types of gig work. By comparing backgrounds and experiences of those who pursue employment in the gig economy with those who do not, the researchers find that gender, age, education, and income explain participation in the gig economy. Specifically, gig workers are more likely to be male, younger, well-educated, and wealthier compared with their counterparts. When isolating labor-exchange platforms that facilitate physical work (e.g., rideshare driving, delivery, and online piecework) from online selling platforms, only age and being in the South seems to matter for who engages in such efforts. Those who pursue employment opportunities through labor-exchange platforms tend to be younger and located in the Southern United States.

The finding that gig workers on labor-exchange platforms tend to be younger is consistent across prior literature (Hargittai & Shaw, 2020; Shaw et al., 2022). In addition, analyzing a national sample of U.S. adults, Shaw and colleagues (2022) find education and digital skills to predict participation on Amazon Machinal Turk (AMT) and TaskRabbit, which are two platforms that facilitate remote and in-person work, respectively. Specifically, they find that gig workers on these two platforms tend to be younger, more highly educated, and more skilled Internet users. Similarly, in comparing a sample of contractors on the microtask platform AMT to a U.S. national sample, Hargittai and Shaw (2020) find that the two samples differ in terms of age, education, income, metropolitan status, race, and digital skills. Respondents in the sample of AMT contractors are more likely to be younger, higher educated, lower-income, located in rural areas, Asian— not African American or Hispanic—and more digitally savvy than those in the sample of U.S. adults generally. In conclusion, although prior research has led to contradictory findings on some variables, it primarily shows that people who engage in gig work come from more advantaged backgrounds. In particular, the findings that online pieceworkers are younger, higher educated, and more skilled Internet users than other U.S. adults is consistent across the limited prior research that examines digital inequality in the gig economy (Hargittai & Shaw, 2020; Hoang et al., 2020; Shaw et al., 2022).

In our analysis, we consider determinants of participation in the gig economy in the context of the COVID-19 pandemic, a health and economic crisis marked by the need for and benefit from having remote employment. In addition, we examine the role that gig work plays in people's income. Hoang and colleagues (2020) incorporate income-based needs as a key independent variable in their analyses, which is a binary

measure for whether respondents view gig work as an essential source of income or if they can live comfortably without it. They find that online tasks tend to function as a supplement or nonessential source of income. We build on the study by Hoang and colleagues (2020) by considering the role of digital skills and by examining participation in online piecework right before and during a time of crisis. Specifically, we explore how the economic importance of gig work might have changed over the first weeks of the COVID-19 pandemic, who became more dependent on online piecework as an essential source of income, and how differentiated Internet skills played a role in this.

Remote Gig Work Inequality During the Pandemic

In prior literature, different hypotheses exist about the impact that a crisis such as the COVID-19 pandemic may have on labor inequality, specifically in the digital realm. On one hand, the lack of other employment opportunities might have driven more people to try online labor, leading to a more diverse pool of online contractors during the pandemic than before. Since the breakout of COVID-19, various studies have demonstrated, for example, that women—mothers in particular—experienced disproportionate rates of unemployment, reductions in work hours, and shifts to work from home than men (Clark et al., 2021; Landivar, Ruppanner, Scarborough, & Collins, 2020; Reichelt, Makovi, & Sargsyan, 2021). This increased unemployment might have made women more likely to seek out online employment opportunities. Similarly, in their analysis of the sociodemographic backgrounds of Amazon Mechanical Turk (AMT) workers in the first months of the COVID-19 pandemic, Arechar and Rand (2021) find that the pool of workers on the platform became more diverse in terms of race, political affiliation, and prior experience with microwork. Our study builds on this by extending the analysis to a national sample, including both people who have completed online tasks and people who have not, which allows us to make inferences about factors impacting participation in this type of online labor during the COVID-19 pandemic.

In contrast, others have theorized that the risks and opportunities associated with the COVID-19 pandemic might follow existing lines of social inequality (e.g., Nguyen, Hargittai, & Marler, 2021; Robinson et al., 2020). In a theoretical piece that constructs risk profiles of populations who are at disproportionate risk during the COVID-19 pandemic, Robinson and colleagues (2020) suggest that gig workers might experience a higher risk of exposure to the virus, especially workers who perform digitally mediated labor such as delivery and ride-hailing. Similarly, emerging empirical work on Internet usage more generally suggests that physical distancing and the associated shift to digital communication may have led to the exacerbation of digital inequality (e.g., Nguyen et al., 2021; van Deursen, 2020). For example, drawing on survey data in the Netherlands, van Deursen (2020) finds that age and gender are salient determinants of Internet usage related to COVID-19. Specifically, older respondents were more likely to search for information about the virus, while younger respondents engaged more often in pandemic-related online communication. Male respondents were more likely to communicate with others on the Internet during the pandemic. In addition, the study finds that having access to the appropriate technologies and skills encompasses an important set of predictors for all Internet usage related to the pandemic.

Similarly, Nguyen and colleagues (2021) find that individuals with greater existing socioeconomic as well as digital privilege were more likely to increase their digital communication usage over the outbreak of the COVID-19 virus. They find that age, education, income, Internet skills and experiences all positively

relate to taking up a range of digital communication methods, including voice and video calls, e-mail, social media, and video games. In other words, prior studies suggest that the pandemic disproportionately affected those from already disadvantaged backgrounds when it comes to their online participation (e.g., Nguyen et al., 2021; van Deursen, 2020). We build on these prior studies by examining the role of the pandemic in online labor inequality, where such a poor-get-poorer dynamic might have a particularly direct effect on income during these troubled times. Specifically, thanks to the way the data were collected, we can distinguish between people who had already done gig work before COVID-19 and those who started it shortly after the onset of the pandemic. Furthermore, we advance prior research by considering how the role of online piecework in individuals' total income might have changed as unemployment numbers spiked across the United States. We thus ask the following research questions:

RQ1a: How do sociodemographic factors and Internet skills relate to participating in remote gig work during the COVID-19 pandemic?

RQ1b: How do individuals who started pursuing remote gig work opportunities during the pandemic differ from those who picked up such work pre-pandemic?

RQ2:   Among gig workers, how do sociodemographic factors and Internet skills relate to considering gig work a main source of income (vs. not), both (a) before; and (b) during the pandemic?

Methods

Data Collection

This study relies on survey data based on a national sample of 1,551 U.S. adults from May 4 to May 9, 2020, which was about six weeks after initial lockdown policies in most U.S. states. We designed the survey and commissioned the online research company Cint to administer it to a double opt-in national panel of Internet users. Using quotas for age, gender, education level, and region, we ensured a sample composition that resembles the U.S. Census with participants from all 50 U.S. states plus Washington, DC. Respondents were compensated financially for their participation.

Measures: Independent Variables

Sociodemographic Factors

The survey contained a set of sociodemographic measures. To assess age, we asked respondents' birth years, which we then subtracted from 2020. For household income, the survey provided 13 categories ranging from less than $10,000 to $200,000 or more. We recoded the income categories to midpoint values with $5,000 and $30,000 as the minimum and maximum values. For gender, we provided three options (i.e., male, female, other), which we recoded into a binary female (1) versus male (0) since no one selected "other." To measure metropolitan status, we asked, "How would you describe the type of community you live in?" and provided four options: a big city, the suburbs or outskirts of a big city, a town or small city, and a rural area. We recoded the responses into three dummy variables, combining respondents living in

big and small cities into the category "urban residents." We measured education level by asking respondents to report their highest obtained educational degrees from among six options, which we recoded into high school or less, some college, college or more. For race and ethnicity, we created five dummy variables corresponding to the attributes provided in the survey: White; Black or African American; Asian; a category combining American Indian or Alaska Native as well as Native Hawaiian or Pacific Islander; and Hispanic background.

Internet Skills

The survey included a validated measure for Internet skills (Hargittai & Hsieh, 2012), which asks about respondents' understanding of six Internet-related terms on a 1–5 point scale ranging from no understanding to full understanding (e.g., PDF, cache). We recoded the variable to one Internet skills score by averaging the scores (Cronbach's α = .90).

Measures: Dependent Variables

Engagement in Remote Gig Work

The survey asked respondents: "During the Coronavirus pandemic, have you completed tasks online for which you received payment on a piece-rate basis?" with three answer options: (1) "Yes, it is a new way for me to make money"; (2) "Yes, but it is not a new way for me to make money, I already did it before the pandemic"; and (3) "No, I have not done this." We used the term "coronavirus" because it was common at the time of data collection, as compared to, for example, the more specific term "COVID-19." After data collection, we recoded this measure into three separate binary outcome variables. The first combines answer options 1 and 2, reporting whether a respondent has engaged in any remote gig work (1 vs. 0 if not). The second outcome variable combines options 1 and 3, reporting whether a respondent had done online gig work before the start of the pandemic (1 vs. 0 if not). Last, we recoded the measure to report whether a respondent had picked up gig work during the pandemic (1 vs. 0 if not).

The Role of Remote Gig Work in Earnings

We included two questions in the survey to measure the role that online gig work played in respondents' earnings. One question asked, "Regarding your income immediately BEFORE the Coronavirus pandemic, what role did your online work play in your earnings?" Respondents could report that the online work had been their "main source of income" or that it had been "a supplement to [their] main source of income, which comes from other work." The survey question included an open-text response box as a third answer option. We then asked the same question with the same answer options for during the pandemic. In most cases, the open-text responses could easily be reclassified into the two other categories, as the answer clearly indicated whether the respondent viewed the income of the online tasks as a main earnings source or not. For example, responses included "just small extra cash"; "small supplement to pension"; or "just extra cash." Other responses could not be easily reclassified, leading us to drop them as missing values. These answers contained unrelated or unclear information (e.g., "Something to do when Im [*sic*] bored and have nothing else to do" or "I don't remember"). Ultimately, the original survey data included

167 open-text responses (i.e., the measures for before and during the pandemic combined), of which we recoded a total of 155 and dropped 12 as missing values. After recoding, we ended up with two binary variables for considering remote gig work a main source of income (1 vs. 0 if not), one for those who picked up the gig work before the pandemic and another for those who picked it up after its onset.

Sample

Table 1 contains descriptive statistics about the sample. Respondents range in age from 18 to 91 with a mean of 47. The income of respondents ranges from $5,000 to $300,000 with an average of $59,780.40. We log this variable in the analyses. Females are in a slight majority (55%). Just under a fifth (19%) of the sample live in rural areas. In terms of their highest obtained educational degrees, the sample skews toward less educated with 49% of respondents having obtained a high school degree or less, 17% having some college education, and 34% with at least a bachelor's degree. Just over two-thirds of respondents (69%) are White, followed by 13% Hispanic, 11% Black, 5% Asian, and 1% Native American or Pacific Islander. Internet skills ranged from 1 to 5 and averaged 3.2.

Table 1. Descriptive Statistics of the Sample.

	Percent	Mean	SD	N
Age (18–91)		47.1	17.0	1551
Income ($5,000–300,000)		59,780.4	50,899.9	1548
Female	55.1			1551
Metropolitan status				
Rural	18.6			1550
Suburban	37.0			1550
Urban	44.5			1550
Education				
HS or less	49.1			1551
Some college	16.5			1551
BA or more	34.4			1551
Race and ethnicity				
White	69.4			1551
Black	10.9			1548
Hispanic	13.1			1548
Asian	5.1			1548
Native American	1.5			1551
Internet skills (1–5)		3.2	1.2	1546

Analysis

We first discuss respondents' experiences with remote gig work and its role in people's incomes (Table 2). Subsequently, we calculate bivariate analyses and then regression results relevant to the research

questions. To answer research question 1a, we first compare the sociodemographic factors and Internet skills of those who did versus those who did not engage in remote gig work during the COVID-19 pandemic (Table 3). Then, we fit logistic regression models for pursuing remote gig work during the pandemic (Table 4). To examine the role of the pandemic in gig workers' propensity to take on gig work during COVID-19, (i.e., RQ1b), we fit the dependent variable of having picked up gig work during the pandemic on sociodemographics and Internet skills restricted to the subset of remote gig workers (Table 4).

In response to the second research question, we first compare the sociodemographic factors and Internet skills of gig workers who consider their online work a main source of income with those who do not (Table 5). We report these bivariate statistics for both before and during the COVID-19 pandemic. Then, we fit logistic regression models for considering remote gig work a main form of income, both before and during the pandemic (Table 6).

Results

Descriptive Analyses

Table 2 provides the descriptive statistics for the dependent variables. Over a third (38%) of all respondents indicated having completed online tasks on a piece-rate basis. Of these respondents, 59% picked up remote gig work before the pandemic (i.e., 22% of all respondents) as compared to 41% who picked it up during the start of the pandemic (i.e., 16% of all respondents). Of the respondents that performed gig work online before the pandemic, about a fifth (19%) considered online tasks a main source of income. In contrast, during the pandemic, gig work performed on the Internet had become a main source of income for approximately a third (32%) of remote gig workers.

Table 2. Descriptive Statistics for Dependent Variables.

	Percent	*N*
Performed remote gig work	38.1	1551
Picked up before the pandemic	22.4	1551
Picked up during the pandemic	15.7	1551
Main source of income		
Before the pandemic	19.1	340
During the pandemic	31.5	578

The Role of the Pandemic in Becoming a Remote Gig Worker

Bivariate Analysis

Table 3 contains the results of the bivariate analysis of sociodemographic factors and Internet skills with who in the sample engages in remote gig work (i.e., completed online tasks on a piece-rate basis). Among those in the lowest age quartile (33 and under), about half (48.8%) had performed gig work online as compared to only 29.1% in the highest age quartile (62 and above). Approximately a third (32.8%) of

female respondents are gig workers, as compared to 44.8% of male respondents. Of those with a high school degree, 35.5% are gig workers compared to 40.3% of those with a college degree. Among respondents in the lowest quartile of Internet skills, 26.1% have engaged in online tasks compared to 41.4% of those most skilled in the sample. Of Hispanic respondents, 45.3% completed work online on a piece-rate basis compared to lower percentages of people in other ethnic and racial groups.

Table 3. Engagement in Remote Gig Work by Demographic Factors and Internet Skills.

	Percent	χ^2
Age LQ	48.8	22.8***
Age HQ	29.1	18.1***
Income LQ	37.9	0.0
Income HQ	39.7	0.8
Female	32.8	23.0***
Male	44.8	23.0***
Metropolitan status		
Rural	36.5	0.3
Suburban	37.3	0.2
Urban	39.3	0.8
Education		
HS or less	35.5	4.1*
Some college	41.4	1.3
BA or more	40.3	1.5
Race and ethnicity		
White	36.6	3.3
Black	38.7	0.0
Hispanic	45.3	4.9*
Asian	36.7	0.0
Native American	39.1	0.0
Internet skills LQ	26.1	28.2***
Internet skills HQ	41.4	2.2
Observations	1551	

Note. For coefficients, * $p < .05$. ** $p < .01$. *** $p < .001$.

Regression

Table 4 reports the results of regression analyses for the two dependent variables relevant in RQ1a and RQ1b: performing remote gig work (vs. not) and having picked the tasks up during the pandemic (vs. pre-pandemic). We regress each dichotomous outcome variable on the background measures and Internet skills, reporting coefficients as raw log-odds, and standard errors.

Regarding the model predicting engagement in online gig work, age, gender, and Internet skills are salient predictors for this outcome, where younger people, men, and those with higher Internet skills are more likely to do gig work. This is in line with the results of the bivariate analyses. The sociodemographic factors that predict the likelihood of having picked up gig work during (vs. before) the pandemic are age, metropolitan status, education, and race/ethnicity, such that being younger, living in an urban area as compared to the suburbs, being highly educated, and being Hispanic, as well as being Asian (as compared to being White), are all linked to a higher likelihood of having started gig work after the onset of the COVID-19 pandemic.

Table 4. Logistic Regression on Gig Work and Picked up Gig Work During the Pandemic.

	Performed gig work		Picked up gig work during the pandemic	
	b	SE	b	SE
Age	−0.01***	0.003	−0.03***	0.01
Household income (log)	−0.03	0.1	0.03	0.1
Female	−0.4***	0.1	−0.3	0.2
Metropolitan status				
Rural	0.1	0.2	−0.3	0.3
Suburban	−0.1	0.1	−0.6**	0.2
Education				
Some college	0.2	0.2	0.003	0.3
Bachelor's degree or more	0.2	0.1	0.6*	0.2
Race and ethnicity				
Black	−0.1	0.2	0.5	0.3
Hispanic	0.2	0.2	0.7**	0.3
Asian	−0.2	0.3	1.3**	0.4
Native American	0.1	0.4	0.3	0.7
Internet skills	0.2***	0.05	−0.1	0.1
Constant	0.1	0.7	0.9	1.2
Observations	1539		585	
Log Likelihood	−988.0		−353.7	
AIC	2,002.0		733.5	

Note. For regression coefficients, * $p < .05$; ** $p < .01$; *** $p < .001$.

The Role of Remote Gig Work in Income Generation

Bivariate Analysis

Table 5 provides the bivariate analyses corresponding to the RQ2 about the relationship between sociodemographic factors and Internet skills, and considering remote gig work a main form of income. We

show results for the two points in time independently: before and during the pandemic. Among those who did gig work before the pandemic, 4.6% in the highest quartile of age (62 and over) considered remote gig work their main source of income, compared to 33.3% in the lowest quartile (33 and under). In contrast, during the pandemic, 11.1% of those in the highest quartile of age (62 and over) considered such work their main source of income, compared to 46.6% in the lowest quartile (33 and under). Of urban residents in the sample, 25% considered online gig work a main source of income before the pandemic and 36% during the pandemic compared to lower proportions in rural and suburban areas. There are no racial or ethnic differences before the pandemic, but after its onset, 28% of White respondents and 45% of Black respondents viewed the work as a main form of income, which is considerably different from other groups. Last, Internet skills appear to be salient. Of respondents in the lowest quartile of Internet skills, 19.8% considered remote gig work their main source of income during the first months of the pandemic, as compared to 39% of those in the highest quartile of Internet skills.

Table 5. Considering Remote Gig Work Main Source of Income by Demographics and Internet Skills.

	Before the pandemic		During the pandemic	
	Percent	χ^2	Percent	χ^2
Age LQ	33.3	13.4***	46.6	17.0***
Age HQ	4.6	14.7***	11.1	38.8***
Income LQ	19.7	0.0	34.2	0.4
Income HQ	15.5	1.1	33.8	0.4
Female	19.1	0.0	28.8	1.5
Male	19.1	0.0	33.9	1.5
Metropolitan status				
Rural	16.4	0.2	23.2	3.4
Suburban	14.8	2.2	28.8	1.0
Urban	24.6	4.0*	36.0	6.0*
Education				
HS or less	18.7	0.0	29.5	0.7
Some college	20.0	0.0	32.4	0.0
BA or more	19.3	0.0	33.5	0.5
Race and ethnicity				
White	17.6	1.1	27.5	7.8**
Black	19.4	0.0	44.6	5.2*
Hispanic	27.5	1.5	37.1	1.3
Asian	12.5	0.0	35.7	0.1
Native American	40.0	0.4	33.3	0.0
Internet skills LQ	13.3	2.0	19.8	9.3**
Internet skills HQ	24.7	2.1	39.1	6.1*
Observations	340		578	

Note. For coefficients, * *p* < .05. ** *p* < .01. *** *p* < .001.

Regression

We report regression results related to whether respondents view remote gig work as a main form of income in Table 6. Age negatively correlates with considering online gig work a main source of income, where older people are less likely to do so both before and during the pandemic. Before the COVID-19 pandemic, living in a suburban area decreased the likelihood of viewing online tasks on a piece-rate basis as a main earnings source, as compared to living an urban area. All other variables that appeared salient in bivariate analyses are not significant in the regression results.

Table 6. Logistic Regression on Considering Remote Gig Work Main Source of Income.

	Before the pandemic		During the pandemic	
	b	*SE*	*b*	*SE*
Age	−0.03***	0.01	−0.05***	0.01
Household income (log)	−0.1	0.2	−0.1	0.1
Female	0.1	0.3	−0.1	0.2
Metropolitan status				
Rural	−0.4	0.4	−0.4	0.3
Suburban	−0.7*	0.3	−0.3	0.2
Education				
Some college	0.2	0.4	0.1	0.3
Bachelor's degree or more	0.5	0.4	0.3	0.2
Race and ethnicity				
Black	−0.4	0.5	0.4	0.3
Hispanic	0.4	0.4	0.1	0.3
Asian	−0.6	1.1	−0.1	0.4
Native American	0.9	1.0	0.02	0.8
Internet skills	0.1	0.1	0.2	0.1
Constant	0.9	1.8	2.0	1.2
Observations	338		572	
Log Likelihood	−151.8		−318.1	
AIC	329.6		662.2	

Note. For regression coefficients, * $p < .05$; ** $p < .01$; *** $p < .001$.

Discussion

This study explores how digital inequality played out during the early days of the COVID-19 pandemic with respect to participation in the gig economy. Specifically, we examine sociodemographic factors and Internet skills as determinants for completion of online tasks on a piece-rate basis during the pandemic. Subsequently, we compare the sociodemographic background and digital skills of those who picked up such work during the outbreak of the COVID-19 virus with the original pool of gig workers (i.e., pre-pandemic). Based on U.S. national survey data, we find that approximately two-fifths of respondents

engaged in online gig work after the onset of the pandemic. The percentage went up from 22% before the pandemic to 38% in May 2020. Bivariate analyses reveal that the individuals who performed gig work online were more likely to be younger, male, highly educated, non-Hispanic, and digitally savvy. Subsequently, logistic regression confirms that age, gender, and Internet skills are salient predictors of having completed online tasks. In line with prior research on digital inequality in the realm of online labor (Hargittai & Shaw, 2020; Hoang et al., 2020; Shaw et al., 2022), these results suggest patterns of stratification across online work by U.S. Internet users.

The results further suggest that the COVID-19 pandemic boosted remote gig work, which we expected given the circumstances of the pandemic (i.e., increased unemployment and stay-at-home measures). In disaggregating those who started performing gig work on the Internet before versus during the pandemic, logistic regression analyses revealed that age, being Hispanic or Asian, and metropolitan status relate to having picked up remote gig work during the pandemic. Specifically, we find that individuals who turned to such work during the pandemic were more likely to be younger, Hispanic, or Asian, and less likely to be residents of suburban areas than those who had been performing gig work before May 2020. In line with Arechar and Rand's (2021) analysis of AMT workers, this suggests that the influx of online contractors was more diverse in terms of racial and ethnic background than the pool of remote gig workers before the pandemic. One explanation for this finding is that non-White individuals were more likely to be laid off during the COVID-19 pandemic in the United States (Dias, 2021), and therefore they were more likely to be forced to search for alternative sources of income. The results of this study suggest that remote gig work provided opportunities for such income generation. By similar logic, younger people might have faced higher rates of layoffs during this time, since the occupations that have high percentages of young adults (e.g., service occupations; U.S. Bureau of Labor Statistics, 2020) were likely impacted by the lockdowns more than other sectors (Gould & Kassa, 2021). As a result, younger people might have been more likely to pursue gig work during the pandemic than before.

Despite the influx of gig workers during the COVID-19 outbreak being more racially and ethnically diverse than gig workers before the pandemic, our findings indicate that overall, individuals who pursued gig work after the onset of the pandemic were more privileged than those who did not. In other words, during these troubled times, individuals who were able to obtain and capitalize on the labor opportunities that remote gig work provided tended to come from more advantaged backgrounds. Indeed, our results suggest that although the pandemic boosted online gig work overall, these opportunities were primarily accessible and available to younger, male, and digitally savvy individuals. Prior literature shows how the pandemic disproportionately affected already vulnerable, disadvantaged populations (Nguyen et al., 2021; van Deursen, 2020). The present results extend these studies by indicating that this has been the case for online work as well, particularly for individuals with lower Internet skills.

Advancing understanding of inequality in online labor opportunities in relation to the COVID-19 pandemic, this study examined the role that online work plays in contractors' overall income. As expected, the percentage of remote gig workers in the sample who consider online tasks a main source of income grew considerably, from 19% before to 32% during the pandemic. Logistic regression reveals that before the pandemic, age and metropolitan status are salient predictors for considering gig work a main source of income, where being older and living in suburban areas decrease the likelihood of viewing gig work as a

main income source. After the COVID-19 outbreak, the age relationship looks the same. This suggests that, independent of the pandemic, younger people are not only more likely to pursue opportunities encompassed by remote gig work, but they are also more likely to view it as a primary source of income.

Taken together, our findings suggest that, although the inflow of new gig workers after the onset of the pandemic diversified the overall pool of such workers, the gig economy did not provide opportunities to everyone equally. Specifically, a lack of Internet savvy remains an obstacle to participation in the labor market of the 21st century, making those with a more developed skill set more likely to pick up online gig work during troubled times. Digital inequality scholarship has repeatedly emphasized the importance of digital skills in participation in today's society (e.g., van Laar et al., 2020). Such skills empower individuals to participate online by providing not only the ability to operate digital technologies or platforms but also the awareness of what is possible on a given site or the Internet more generally (Hargittai & Micheli, 2019). To take advantage of the opportunities offered by gig economy platforms, an individual first has to know about the existence of such platforms and, subsequently, how to capitalize on such knowledge to generate income (Shaw et al., 2022). Our study contributes to this literature by demonstrating that Internet skills are valuable in the context of participation in the gig economy, allowing some but not others to participate.

As the COVID-19 pandemic led to skyrocketing unemployment rates in the United States (U.S. Bureau of Labor Statistics, 2022), having more advanced Internet skills better equipped some individuals in the first six weeks of the pandemic to adapt to the adversity of the pandemic. Given the speed at which people were laid off, less digitally savvy individuals did not have the time to build up this skill set. As a result, the gig economy did not provide opportunities available to those without resources, but rather, it created more opportunities and thus favorable circumstances for those already more privileged. Future work on the topic should thus continue to regard Internet skills as an important determinant for digitally mediated labor outcomes and explore what types of digital skills are essential to participation. A deeper understanding of these skills and the mechanisms by which they enable participation and success in the gig economy could inform digital literacy classes and other efforts aimed at combating unequal opportunities in the online labor market.

Like all studies, this one also has limitations. Because of the construction of the survey question, the data set does not account for people who engaged in gig work before, but not after the onset of the pandemic. Similarly, in the current study, we report on how sociodemographic factors and digital skills relate to considering gig work a main source of income before and during the pandemic independently. Ideally, the question phrasing and data collected would have allowed us to investigate whether these relationships are statistically significantly different from each other.

Future research could also improve on our measures of gig work by using more precise language in survey questions. For example, completion of online tasks could be disaggregated into different types of tasks performed on a piece-rate basis. Our measure included tasks regardless of the training or skill level it required (e.g., data entry, consulting, design). Using such an inclusive measure limits our ability to interpret the results. Additionally, the data do not include, for example, any details about the average dollar amount respondents earned for their tasks. Similarly, considering remote gig work as a main source of income versus not doing so might not capture the complexity of all potential understandings one may have of gig work as an income source, as is evidenced by some of the open-ended comments we received in response

to that question. Future research might further explore in what circumstances gig workers view their engagement with gig platforms a main versus supplemental source of income.

Including the option of an open-text answer proved important to capturing people's experiences, many of which we could easily recode to our predefined categories of either considering remote gig work a main income source or not. Providing more options such as a slider, however, would allow for a more comprehensive understanding of the role that online piecework plays in people's incomes. Our data collection happened in a country where the increase in unemployment was especially pronounced during COVID-19 because of the lack of worker protections. Given that the labor context is different in other nations, it is hard to say to what extent the results generalize beyond the U.S. case. Despite these limitations, it was important to capture the in-the-moment experiences of Americans during initial lockdowns to get a snapshot of online gig work in the first months of the pandemic.

Beyond the context of the COVID-19 pandemic, future research may examine the specific role of the platforms that provide gig work in lowering, maintaining, or exacerbating barriers to the labor market. Interesting possible questions relate to how platforms, through their design and algorithms, could make the work more or less accessible to some people compared to others.

Conclusion

In this study, we examine who participates in the gig economy, specifically in remote gig work, and how participation patterns changed during the outbreak of the COVID-19 pandemic. Drawing on survey data from May 2020, we find that younger people, men, and those more digitally skilled are more likely to complete online tasks on a piece-rate basis than others. Our findings suggest that online gig work became substantially more popular over the course of just a few weeks: Participation among the sample jumped from 22% to 38%. This influx of gig workers was more likely to be younger, Hispanic, Asian, and less likely to reside in suburban areas as compared to the pool of gig workers before the pandemic. This suggests that gig workers during the pandemic were more likely to be Hispanic or Asian than gig workers pre-pandemic, which might be a function of the high rate of layoffs among non-Whites (Dias, 2021).

When comparing the individuals who performed gig work during the pandemic with those who did not, we find that the gig economy primarily provided opportunities to those already privileged. In other words, individuals who capitalized on the existence of remote gig work after the onset of the pandemic predominantly came from more advantaged backgrounds. Logistic regression showed that those who pursued gig work tended to be younger, male, and more digitally savvy than those who did not. The gig economy thus provided solace to some, but not to others, during these troubled times.

Subsequently, we examine the role that remote gig work plays in respondents' total income. As expected, given the circumstances of the U.S. labor market during the outbreak of the COVID-19 pandemic, we find that the percentage of online contractors who consider this work a main source of income increased over the pandemic from 19% to 32%. Logistic regression indicated that younger individuals were more likely to regard online gig work as their main source of income both before and during the pandemic. Before the

onset of the pandemic, residing in a suburban area linked to a lower likelihood of considering gig work a main source of income.

Overall, the results suggest that although the gig economy provided opportunities for income generation after the onset of the COVID-19 pandemic, the option to take on remote work on gig economy platforms was not available to all equally. In particular, digital skills constitute an important predictor for performing remote gig work during the pandemic. This implies that, in accord with prior literature, Internet skills are a decisive barrier in one's ability to partake in online and digitally mediated work. Future research should focus attention on digital skills and what specific skills are beneficial to participating while pursuing work in the gig economy. Developing digital skills constitutes an important step in the democratization of digitally mediated labor opportunities.

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