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# Informal Work and Official Employment Statistics: What's Missing?

Anat Bracha and Mary A. Burke

## Abstract:

Using eight consecutive waves of the Survey of Informal Work Participation (SIWP) spanning 2015 through 2022, we investigate informal “gig” work participation in the United States—broadly defined to include online and offline activities—and its implications for the measurement of employment. Our results suggest that employment rates among US household heads were consistently understated in the Current Population Survey (CPS). Under conservative estimates, we find that the employment-to-population ratio would have been 0.25 to 1.1 percentage points higher over the 2015–2022 period and as much as 5.1 percentage points higher under more generous estimates. Along the intensive margin, we find evidence that a significant number of informal work hours are missing from official employment surveys, partly because employed individuals do not fully report their informal hours. Comparing informal workers who are classified as employed by the CPS with those who are arguably misclassified as nonemployed, we find that the latter are, on average, older, less educated, and less likely to cite income as a motivation for gig work, and an elevated share are disabled. The data also indicate that certain types of income-earning activities, such as renting and selling, are less likely to be perceived as “work.” These results suggest ways to improve official surveys to better capture those employed in gig work and obtain a fuller picture of the labor market.

**JEL Classifications:** J21, J22, J46, J48, E26

**Keywords:** Gig work, informal work, labor market, Current Population Survey, employment

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This paper presents preliminary analysis and results intended to stimulate discussion and critical comment. The views expressed herein are those of the authors and do not indicate concurrence by the Federal Reserve Bank of Boston, the principals of the Board of Governors, or the Federal Reserve System.

This paper, which may be revised, is available on the website of the Federal Reserve Bank of Boston at <https://www.bostonfed.org/publications/research-department-working-paper.aspx>.

## 1. Introduction

Previous research suggests that independent work, including informal, or “gig,” work may not be fully captured in official employment statistics, and even if captured, such work might be mischaracterized as payroll employment. For example, Bracha and Burke (2021) estimate that in 2015, the employment rate would have been 4 percentage points higher if it had included the labor-intensive informal workers not counted as employed by the Current Population Survey (CPS). In related research, Abraham et al. (2023) find that, after they correct for the miscoding of independent contractors as payroll workers, the share of workers in independent contracting arrangements on their main job nearly doubles. These findings raise concerns that official statistics not only distort the level of employment but also miss important developments in worker well-being, as independent work lacks benefits such as guaranteed minimum wages, subsidized health insurance, and other perks of traditional employment. At least certain types of gig work have become substantially more prevalent since the Great Recession,<sup>1</sup> prompting the question of whether official employment surveys have become increasingly inaccurate over time.

In 2019, the Federal Reserve announced a new monetary policy framework that defines maximum employment as a “broad-based and inclusive goal assessed through a wide range of indicators.”<sup>2</sup> In this spirit, Fed policymakers have recently placed increased emphasis on unemployment rates that are disaggregated along dimensions such as race/ethnicity, wage quartile, age, and gender. They also have given increased attention to movements in the employment-to-population ratio, a measure that captures changes in the labor force participation rate in addition to unemployment rate changes. At the same time, researchers have proposed new, intensive-margin measures of labor underutilization, such as the gap between desired work hours and actual hours regardless of labor force participation status (Faberman et

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<sup>1</sup> See, for example, Noam Scheiber, “[Growth in the ‘Gig Economy’ Fuels Work Force Anxieties](#),” *New York Times*, July 12 2015; and Reuters staff,

“[Growth of ‘Gig’ Economy May Change U.S. Labor Market: Fed’s Brainard](#),” *Reuters*, November 17, 2016.

Academic-work examples include Katz and Krueger (2019), Garin et al. (2022), and Kacher and Weiler (2017).

<sup>2</sup> Lael Brainard. 2021. “How Should We Think about Full Employment in the Federal Reserve’s Dual Mandate?” Speech delivered at Harvard University to students in Principle of Economics class, February 24.

<https://www.federalreserve.gov/newsevents/speech/brainard20210224a.htm>.

al. 2020; Blanchflower and Levin 2015). The impetus among policymakers to seek better and more inclusive employment indicators lends further urgency to concerns about the effectiveness of official employment surveys in capturing the state of the labor market.

Using eight consecutive waves of the Survey of Informal Work Participation (SIWP) spanning 2015 through 2022, this paper investigates gig work participation in the United States—broadly defined to include online platform work as well as offline activities—and its implications for the measurement of employment. Our survey data suggest that employment rates among US household heads based on the CPS were consistently understated from 2015 through 2022 due to the misclassification of a subset of informal workers as either unemployed or not in the labor force. Furthermore, we can estimate the amount of missing work along the intensive margin in 2019 and 2021, and we find that aggregate hours of work (as full-time equivalents, or FTEs) in the CPS would have been 1.4 percent and 1.1 percent higher, respectively, if informal work hours had been fully captured. The intensive-margin estimates of missing gig work include activity among those who would be classified as nonemployed by the CPS as well as gig work activity among those who would be classified as employed and yet fail to report gig work hours in responding to CPS-style questions. These findings are robust across a range of methods.

The employment rate revisions are economically significant even when we use very restrictive criteria; under more generous criteria, the upward revisions may be substantial—as much as 8 percent of the baseline employment rate or more than 5 percentage points in absolute terms. Although the estimated amount of missing work varies from year to year, we observe no systematic time trend in the employment rate revisions. In addition, the decline in the employment rate in 2020 (stemming from pandemic-related disruptions) remains about the same whether it is measured by official employment rates or our adjusted rates that account for missing gig work. Consistent with these observations, we find that informal hours (measured in FTEs) represent a relatively stable share of CPS-observed work hours from 2015 through 2022. That is, the data indicate that informal work hours increase with total work hours, at least in the given, eight-year time frame.

Our rich survey data allow us to gain insight into why the CPS fails to capture some of this gig work. Overall, the average gig worker tends to be younger than those with no informal engagement, more likely to identify as female, and more likely to have only part-time employment and to hold multiple jobs. However, gig workers who are “misclassified” in the CPS—labeled as either unemployed or not in the labor force despite having engaged in gig work recently—are different. They tend to be older, in many cases describing themselves as retired, and have an elevated disability rate.<sup>3</sup> The misclassified gig workers are also more likely to report engaging in gig work as a hobby rather than to earn extra income. When examining gig workers who *are* counted as employed yet fail to report informal work hours in the CPS, we find that they disproportionately engage in online tasks and less labor-intensive activities and are younger and wealthier compared with gig workers who do report their informal work hours in the CPS. Informal work is also less likely to be captured among individuals who work relatively few such hours and have relatively low earnings from gig work. Broadly speaking, these patterns indicate that people fail to report informal work because they do not think of it as work since it typically does not constitute their main source of earnings and may not entail much labor, or because they do not think of themselves as employed since, for example, they have retired from their career job or are no longer able to perform that job due to a disability.

Our survey is rare in that it probes for a broad range of informal work activities while also trying to replicate the employment status that someone would be assigned under the CPS. It also is unique in fielding a survey with these dual probes consistently over time with a broadly representative sample. Two other studies have similar features in terms of probing separately for traditional employment status and informal work activity, but one of these (Abraham and Amaya 2019) is limited to a convenience sample of MTurk users, and another (Abraham et al. 2023) focuses on the miscoding of independent work as payroll employment and is based on a single-year survey. Both studies find that official employment rates would have been higher if

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<sup>3</sup> Abramowitz (2020) studies self-employment among older workers and finds that those engaged in “independent” roles, as opposed to those in business-ownership roles, are more likely to identify as retired. Because gig work would qualify as independent self-employment, our findings agree with those of Abramowitz.

independent work were fully captured, and the upward revisions they estimate are generally within the range of our own estimates.

A variety of related research inquires into the size of the gig economy, defined in a variety of ways, and the extent to which official employment surveys and/or administrative data are able to capture such work and to characterize it accurately. For example, Abraham et al. (2013) suggest that nonstandard work arrangements may contribute to, and help to explain, discrepancies between employment statistics based on surveys of households as opposed to those based on surveys of employers. Abraham et al. (2023) argue that the CPS underestimates self-employment in part because when answering standard employment survey questions, many independent contractors report that they work for an employer. Abramowitz (2021) finds evidence that even tax-based employment rates in independent work may be too low in the case of older workers. Nonetheless, Garin et al. (2022) use tax data to show that, aside from a steep rise in online-platform gig work since 2012 (predominantly ridesharing), the prevalence of independent work more broadly appears roughly stable since 2000.

The higher employment rates and greater number of work hours that result from including informal work might suggest that the labor market contained less slack over the 2015–2022 period than is indicated in official statistics. On the other hand, gig work participation may point to a hidden labor supply that could be tapped by traditional employers. Many gig workers in our survey reveal a preference for working additional hours on top of either a part-time or even a full-time job, and often for very low pay. Among gig workers who also held a more formal job, on average, 50 percent reported that their gig work paid less than half of what they earned in their payroll job. Among that same group, 80 percent (averaged across surveys) said they were at least somewhat likely to drop their informal work in exchange for more hours at their formal job, provided the wage rate were at least as high as that of their gig work—and a substantial share reported they would make such a switch even for lower pay.<sup>4</sup> Furthermore, the substantial amount of gig-work participation we observe among those who would be classified as not in the labor force aligns with other recent findings that there is hidden labor market slack among labor

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<sup>4</sup> In fact, the idea that gig work may constitute a form of slack goes back at least as far as Shishko and Rostker's (1976) "moonlighting" model. We also acknowledge Faberman et al. (2020) for highlighting this interpretation.

force nonparticipants (Faberman et al. 2020; Blanchflower and Levin 2015; Bell and Blanchflower 2018).

These findings could also imply that the benchmark level of full employment should be revised upward when taking gig work participation into account. That is, our results indicate that potential hours—as well as potential GDP—were probably higher in recent years compared with official employment estimates. If so, this would also undermine the suggestion that the labor market was tighter than previously thought.<sup>5</sup> Although the implications of gig work for the measurement of labor market slack are therefore nuanced and debatable, the fact that nontrivial amounts of gig work are missing from official surveys means that failing to monitor gig work activity results in an incomplete picture of the health of the labor market.

Regarding welfare, the willingness to take on informal work, especially for those listing “extra income” as a motivation, suggests underlying hardship, in that workers may not be earning enough money in their formal jobs. Even though gig work usually offers flexibility and independence, it typically provides no minimum wage guarantee, and it lacks other benefits such as health insurance and unemployment insurance. Therefore, the extra employment and FTEs that are embodied in gig work should be treated as qualitatively different from payroll employment when assessing worker well-being.

In addition to offering an additional barometer for labor market health and worker well-being, our survey offers insight into how the CPS might be revised to better capture informal work participation and improve estimates of employment along both the extensive and intensive margins. For example, the CPS could add questions that explicitly prompt respondents to think about side jobs, even if they involve few hours, as well as questions about the role such work played in household finances. Similar work concerning the miscoding of gig workers as payroll employees in the CPS echoes these suggestions (Abraham et al. 2023).

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<sup>5</sup> Bell and Blanchflower (2018) argue that in the wake of the Great Recession and at least through 2018, the UK labor market contained significantly more slack—in the form of workers wanting more hours—than official indicators suggested. The authors also estimate that the UK’s non-accelerating inflation rate of unemployment (NAIRU) should be adjusted downward.

The paper proceeds as follows. Section 2 describes the SIWP. Section 3 presents sample characteristics. The results are discussed in Section 4, and robustness checks are described in Section 5. Section 6 discusses potential reasons the CPS may not fully capture informal work, and Section 7 concludes. An appendix contains information about the external validity of our survey and more details about the robustness checks.

## 2. Survey Description

The findings in this paper draw on eight separate waves of the SIWP conducted each December from 2015 through 2022. The survey is administered as a special module within the Federal Reserve Bank of New York’s Survey of Consumer Expectations (SCE), a monthly, internet-based survey of US household heads recruited from the sample of respondents to the Consumer Confidence Survey (CCS).<sup>6</sup> Participants in the SIWP for a given year are recruited from the participants in the December SCE of the same year.<sup>7</sup> The response rate to the SIWP by SCE participants (averaged over the eight survey waves from 2015 through 2022) was slightly below 85 percent before the imposition of any sample restrictions; after sample restrictions (described below), the analysis sample captures 80.4 percent of the SCE sample on average across the 2015–2022 waves. As shown in Table 1, the December 2020 survey suffered an atypically low response rate of 72.4 percent for the preliminary sample (and 69.6 percent for the cleaned analysis sample), most likely owing to pandemic-related disruptions. In presenting results that reflect averages across survey waves, we feature only those that are consistent across survey waves, and therefore none is driven by unusual outcomes in 2020. Data patterns that are inconsistent across survey waves are noted in the discussion below. Sample representativeness and weighting methods are discussed in Section 3.

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<sup>6</sup> The Consumer Confidence Survey (CCS) is a mail survey conducted by the Conference Board that covers the universe of US Postal Service addresses. SCE participants are recruited from the CCS sample following a stratified random sampling approach, with strata based on income, gender, age, race/ethnicity, and census division. Participants are informed that an internet connection is required for participation. As in the CPS, a *household head* is defined as the person in the household who owns, is buying, or rents the home. For a complete description of recruitment and sampling procedures for the SCE, see Armantier et al. (2017).

<sup>7</sup> Respondents can stay on the SCE panel for no longer than 12 months, and we do not observe any cases in which the same individual completed any two consecutive waves of the SIWP. Therefore, our samples are treated as independent, repeat cross sections.



The SIWP consists of three blocks of questions: (1) general questions related to household size, home ownership status, employment status and employment situation (not modeled on the CPS), amount of liquid savings, and several other items; (2) questions that elicit informal work activity, including typical monthly hours and earnings from gig work (described in detail below); and (3) selected questions mirroring those in the CPS that are used to determine each individual's employment status according to the criteria used by the US Bureau of Labor Statistics (BLS).<sup>8</sup> Basic demographic information, such as age, race, education, census region, and household income, is merged from the main SCE modules, as all SIWP respondents also completed one or more monthly SCE surveys.

## 2.1. Elicitation of informal work activity

Conceptually, we think of gig work as any paid work with the following characteristics: It (1) monetizes the value of workers' possessions and/or monetizes their time and skills, (2) is typically paid for on a per-task or per-job basis, (3) allows the worker to choose when and how much to work, (4) does not involve a long-term contract, and (5) does not provide benefits such as health insurance, unemployment insurance, or pension contributions.<sup>9</sup> Our survey is designed to elicit information about participation in specific activities that are likely to satisfy the previously described criteria by asking about the amount of time spent in such activities.

Specifically, each respondent was asked about current engagement in "paid informal work or side jobs."<sup>10</sup> For each item on a list of specific activities, respondents were asked, "Are you currently engaged in this activity?" and they were required to answer either "yes" or "no" in each case. Respondents were also given the opportunity to write in other informal work activities not included on the list. The complete text of the question and the list of activities—which include

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<sup>8</sup> In 2015, the questions about gig-economy activity were asked before the CPS-style questions; in all subsequent survey years, the order of these two blocks of questions was randomized. Based on the 2016–2022 surveys, we do not observe any systematic effect of question order on outcomes in either direction. The complete text of the CPS-style employment elicitation is shown in Exhibit B1 of the appendix.

<sup>9</sup> Note that this concept of gig work does not require that the work be mediated by a website or a mobile application.

<sup>10</sup> The dictionary definition of a *side job* (not provided in our survey) is "a job undertaken in addition to one's main occupation, as a supplementary source of income" (see [https://en.oxforddictionaries.com/definition/side\\_job](https://en.oxforddictionaries.com/definition/side_job)). That is, the term refers to a paid activity. However, even if a survey respondent did not think of a side job as a paid activity, the follow-up questions in the right-hand column of Figure 1 ask about hours of work doing the specific activity for pay, and our definition of a gig worker takes that information into account, as explained later.

work mediated by mobile platforms as well as activities that do not require the use of such platforms—is depicted in Figure 1 (left column). A respondent who indicated that they were currently engaged in at least one type of informal work was asked—separately for each item selected from the list—to quantify their typical hours and earnings per month in the given activity. For each selected activity, we also asked whether websites and/or mobile platforms were used to perform and/or find such work. Figure 1 (right columns) shows an example of this group of follow-up questions for the case of babysitting.

We use the term *current engagement* to accommodate the intermittent nature of much informal work. For example, an Uber driver who took a break from driving in the previous week or even month and is planning to resume driving soon is likely to consider the work to be ongoing. By contrast, an instrument that elicits information about only those activities undertaken in the preceding week (similar to the CPS) is likely to miss a high proportion of informal workers.<sup>11</sup> Furthermore, the overwhelming majority of the individuals classified as gig workers in our six most recent surveys—about 92 percent on average—reported having engaged in such work within the preceding 30 days, and more than 72 percent said they had done gig work in the preceding 14 days.<sup>12</sup> We use information on the recency of participation in our revisions to employment status, as discussed in Section 4.

## 2.2. External validity

Comparing our survey’s estimates of informal work participation rates (and related outcomes) with other sources of data on independent work allows us to assess the external validity of the SIWP’s methods. As detailed in Appendix Section A1, we compare measures of gig work based on our survey with comparable estimates from a similar survey (such as the Federal Reserve Board’s (2023) Survey of Household Economics and Decisionmaking, or SHED) and from a study

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<sup>11</sup> In the CPS, individuals who indicate that they did not work for pay in the preceding week are then asked whether they had a job in the preceding week and, if so, to specify the reason for their recent absence from the job. However, our results suggest that gig workers are less likely to respond that they had a job in the previous week compared with people with formal jobs, provided the gig workers do not also have a formal job. Other research corroborates this point (Abraham and Amaya 2019).

<sup>12</sup> The 92 percent figure represents the average percentage of responses (across the 2017–2022 surveys) involving 30 days or fewer and similarly for the 72 percent reporting gig work in the preceding 14 days. See Appendix Exhibit B3 for the complete text of the SIWP question used to elicit this information.

based on US tax data (Garin et al. 2022). We find that the estimates of gig work participation based on the SIWP are generally within a close range of the external measures, especially when the concepts of gig work in the external data are most similar to those in the SIWP.

### 3. Methods

#### 3.1 Sample selection and representativeness

To construct the baseline analysis sample, we remove individuals with missing values for any of the following variables: age, gender, race, educational attainment, household income, census region, marital status, homeownership status, BLS employment status, self-employment status, or economic expectations (for unemployment, inflation, stock prices, and own household financial situation).<sup>13</sup> We also remove respondents younger than 21 years of age, as well as those reporting annual individual income in excess of \$600,000, reporting total monthly informal work earnings (excluding survey earnings) in excess of \$8,000 and/or reporting total monthly informal work hours (excluding survey hours) in excess of 140.<sup>14</sup> Combining all eight survey waves, the analysis sample consists of 8,139 (unweighted) respondents. Analysis sample sizes by year are shown in Table 1 (fourth column).

The preliminary SCE-SIWP sample for a given year (prior to the above exclusions) is furnished with a set of weights that targets the composition of the previous year's American Community Survey (ACS; for household heads only) along the dimensions of age, income, education, and census region.<sup>15</sup> When we apply these weights to the preliminary sample and the analysis sample in each year, sample characteristics match most targets very closely in most years. Averaged across all eight survey waves, the deviations from the ACS benchmarks are minimal, as seen in

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<sup>13</sup> The economic expectations variables are merged from the main SCE modules.

<sup>14</sup> We made these restrictions to remove outlying values of the given variables and for consistency with earlier methods (Bracha and Burke 2018, 2021). They result in the omission of 439 observations across the 2015–2022 period. These sample restrictions are relaxed in robustness exercises described in Section 5 and in Appendix Section A2.

<sup>15</sup> Weights are constructed by Nielsen. Comparisons with the ACS are lagged by one year owing to the fact that ACS data for the same year were not available as of the time when each sample's weights were constructed.<sup>16</sup> When calculating statistics that are averaged across survey waves, we calculate the weighted average of the given outcome within each of the eight survey years using weights that are specific to that survey and then take the simple (unweighted) average of the resulting eight values.

Table 2.<sup>16</sup> As minor exceptions, the table shows that the analysis sample, on average, has an income distribution that is somewhat more concentrated in the middle two categories (and slightly less concentrated in the highest and lowest categories) compared with the ACS, and it has somewhat greater representation of the most educated group (and less of the least educated group) compared with the ACS. Because these deviations from ACS benchmarks are modest, we expect that any influence on the results of interest will be accordingly small. Section 5 assesses the robustness of our results to potential shortcomings in the representativeness of our samples.

### 3.2 Defining informal work participation

Based on responses to the informal work probes described above, a respondent is deemed an informal worker (or a “participant”), provided they indicated that they were currently engaged in at least one activity from the list (or wrote in an activity) other than responding to surveys for pay, *and* provided they reported a strictly positive number of “typical hours” per month for at least one of the activities they said they engaged in. Survey work is excluded because, otherwise, all SIWP respondents could be considered gig workers. More narrowly, we define a *labor-intensive informal worker* as someone who reported being currently engaged in at least one task other than surveys, renting, or selling, and who reported non-zero typical monthly hours in one such task.

Monthly informal work hours (and, separately, earnings) are elicited on a task-by-task basis using the probes shown in Figure 1 (right column). For each qualifying informal worker, total monthly hours represent the sum across tasks of their typical monthly hours per task, excluding survey hours. Labor-intensive hours represent the corresponding sum across labor-intensive tasks only—that is, excluding hours in surveys, renting, or selling tasks. Monthly earnings—whether non-survey earnings or labor-intensive earnings—are defined analogously to hours.

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<sup>16</sup> When calculating statistics that are averaged across survey waves, we calculate the weighted average of the given outcome within each of the eight survey years using weights that are specific to that survey and then take the simple (unweighted) average of the resulting eight values.

SIWP respondents were categorized as “online” gig workers if they engaged in any task that typically requires the use of a platform or that takes place online,<sup>17</sup> or if they indicated that they had used the internet or a platform in the course of performing any type of informal work they otherwise engaged in. Informal workers who do not classify as online gig workers are described as “exclusively offline” gig workers.

As defined above, the “informal workers” (used interchangeably with “gig workers” or “independent workers”) in our survey are likely to overlap with a variety of different categories applied in related studies, including the self-employed, multiple-job holders, independent contractors, online-platform workers, temporary-help workers, freelancers, and “off-the-books” workers.

### **3.3 Estimating FTEs of gig work**

To get a sense of the aggregate economic significance of informal work, we estimate the total number of full-time equivalents (FTEs) of informal work among US household heads as of each survey. To do so, we calculate the average number of (non-survey) informal work hours per month across the complete SIWP analysis sample for a given year, regardless of whether monthly informal work hours are zero (non-participants) or positive (among participants), and multiply by the number of US household heads as indicated in the CPS for the corresponding December. To convert this total into FTEs, we divide it by the FTE benchmark of 160 hours per month, which equates to roughly 37 hours per week at 4.35 weeks per month. Because the BLS threshold for full-time work is 35 hours per week, this benchmark results in a conservative estimate of the number of FTEs.

### **3.4 Defining employment status according to the BLS criteria**

As noted, we field a facsimile of the set of questions included in the CPS to elicit an individual’s employment status under the BLS criteria (see Exhibit B1 of the appendix for the complete text of these questions). To summarize, an individual is deemed “employed” if they indicated having

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<sup>17</sup> The set of online tasks, as they appear in our survey, consists of the following: “Selling goods on eBay, Craigslist, or similar websites,” “Getting paid to complete tasks online,” “Posting videos, blog posts, or other content online,” and “Driving for a ridesharing service like Uber, Lyft, or Sidecar.”

“worked for pay or profit” in the preceding week or if they indicated that they “had a job” in the preceding week, even if they were on some type of leave from the job. Those who did not meet either of those criteria were classified as “unemployed” if they indicated that they were available for work in the preceding week and reported active job search efforts. Individuals were deemed not in the labor force if they did not qualify as either “employed” or “unemployed.” Those classified as employed were asked about their usual weekly hours (across all jobs) and were classified as full-time workers if their usual hours totaled 35 or more, and part-time otherwise.<sup>18</sup>

## 4. Results

### 4.1 Informal work outcomes

Figure 2 shows participation rates by year for both our more inclusive measure of informal work and the labor-intensive measure.<sup>19</sup> The participation rates, respectively, were highest in 2015 and lowest in 2020, when labor-intensive participation in particular was especially low relative to other years. The point estimates in each series exhibit a rough downward trend over the 2015–2022 period, even though the values fluctuate from year to year rather than declining steadily. The adjacent-year changes in a given measure are not statistically significant, except for the decline in the labor-intensive participation rate in 2020 from the previous year. Across all eight survey waves, the average of the broad participation rate is estimated at roughly 26 percent, and the average labor-intensive rate is about 15 percent.

Also combined across surveys, informal workers performed an average of 18 hours per month of informal work (not including surveys), earning an average of \$449 dollars per month. Labor-intensive gig workers reported 23 hours per month on average (for labor-intensive tasks) and earnings of \$374 per month (all values are rounded to the nearest whole number). As depicted in Figure 3 (left panel), we observe fluctuations in hours across surveys that are qualitatively similar to those for the participation rates, but the swings in hours are more pronounced. Notably, labor-intensive hours were lowest in 2016 rather than in 2020, as might have been

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<sup>18</sup> The complete text of the included subset of CPS-based questions is provided in the appendix.

<sup>19</sup> The confidence intervals should not be used to compare rates within the same survey year, as the overall participation rate and the labor-intensive participation rate are not independent of each other for the same year. By construction, the labor-intensive rate is always equal to or strictly less than the broader rate.

expected based on the participation rates. Earnings (also shown in Figure 3, right panel) are fairly stable across surveys, especially in relation to fluctuations in hours. Within each survey, the (conditional) average hours are higher when we consider just the labor-intensive tasks, whereas average earnings are lower when they are restricted to such tasks; those comparisons are consistent with the fact that the renting and selling tasks may be highly remunerative—by monetizing valuable assets—and yet require smaller time commitments.

Estimating the aggregate number of FTEs of informal work per month among US household heads by survey year, we observe fluctuations in FTEs over time that reflect changes in informal work along both the extensive margin and the intensive margin (see Figure 4). Overall, the numbers of FTEs and labor-intensive FTEs were both highest in 2015 and lowest in either 2016 (overall) or 2020 (labor-intensive), whereas online FTEs were highest in 2017 (followed closely by 2020) and lowest in 2016. Consistent with evidence from tax data (Garin et al. 2023), online gig work FTEs surged in 2020 from 2019, even as FTEs of gig work in general declined.<sup>20</sup> Averaging across survey years, we obtain an average of roughly 3.7 million FTEs, of which 2.7 million involved labor-intensive work and 1.2 million reflect work that involved the use of mobile platforms or the internet.

Figure 5 shows the yearly estimates of gig work FTEs (equivalent to the “all gig work” FTEs from Figure 4) as a share of yearly estimates of aggregate FTEs among US household heads. The figure shows analogous shares for labor-intensive gig-work FTEs and online FTEs. The FTE estimates from the CPS intend to capture all work reported by household heads in the Current Population Survey-Integrated Public Use Microdata Series (CPS-IPUMS), as described further in the notes for Figure 5. On average, from 2015 through 2022, overall gig work FTEs represented 4.5 percent of total measured FTEs among household heads, labor-intensive FTEs came to about 3.3 percent, and online FTEs about 1.5 percent. Excluding 2015, the gig work FTE shares (for any of the three categories of gig work) stay within a fairly narrow range, suggesting that gig work FTEs move

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<sup>20</sup> Using tax data, Garin et al. (2023) observe a steep increase in platform-based gig work (similar to our concept of online gig work) during the pandemic (starting in 2020) that was driven in large part by new entrants working for delivery platforms. However, they find that a broader tax-based measure of gig work (similar to our measure of all gig work) not restricted to platforms was significantly lower in 2020 compared with 2019.

more or less directly with overall FTEs. These calculations were made without any consideration of whether the gig work FTEs were actually counted in the aggregate FTEs estimated from the CPS, an issue that will be addressed in the discussion below.

#### 4.3 How many gig workers are misclassified as nonemployed by the CPS?

Our survey is relatively rare in probing for informal work activity while also trying to replicate the employment status that someone would be assigned under the CPS. We use these dual elicitation to potentially revise an individual's "official" employment status—that is, their status based only on their responses to the CPS-style questions—in light of their responses to the questions about informal work activity. Specifically, we identify individuals who are classified as either unemployed or not in the labor force (NILF) based on their answers to the CPS-style questions and then consider whether they could arguably be classified as *employed* based on their informal work activities.

To stay as close to the BLS criteria as possible, in the first case, we reclassify an (unemployed or NILF) informal worker as employed, provided they indicated engaging in informal work within the preceding 14 days. This type of calculation is based on the survey question referenced above (asking when they most recently participated), which was fielded in the 2017–2022 period. For all other survey respondents, employment status is based on their responses to the CPS-style questions only. The revised or adjusted employment rate is then simply the initial rate (based on CPS-style questions only) plus the increase in the rate that results from reclassifying some (unemployed or NILF) informal workers as employed. The calculation can be expressed as follows:

$$EMP. RATE_{Rti} = \frac{E_{CPS,t}}{SIWP_t} + \frac{R_{ti}}{SIWP_t}. \quad (1)$$

In equation (1),  $EMP. RATE_{Rti}$  (as a fraction) denotes the revised employment rate within a given SIWP survey year  $t$  and for a given reclassification approach  $i$ . The term  $E_{CPS,t}$  denotes the number of SIWP respondents in year  $t$  who are classified as employed based on the CPS-style questions, and  $SIWP_t$  refers to the analysis sample size for year  $t$ , such that  $\frac{E_{CPS,t}}{SIWP_t}$  represents the sample's employment rate in year  $t$  based on the CPS-style questions only. The term  $R_{ti}$



represents the number of SIWP respondents in year  $t$  who are reclassified as employed in the given year under the given approach  $i$ . In the first approach,  $R_{t1}$  refers to the number of informal workers who reported last engaging in informal work within the preceding 14 days and who were initially classified as either unemployed or not in the labor force. (Alternative reclassification criteria are described later.) The absolute increase in the employment rate under the revision is directly captured by the term  $\frac{R_{ti}}{SIWP_t}$ , and the relative increase in the employment rate can be expressed as  $[(E_{CPS,t} + R_{ti})/(E_{CPS,t}) - 1]$ . By construction, the increases are greater than or equal to zero. Furthermore, a given employment rate revision will be statistically significant (greater than zero), either in percentage point or percentage terms, if—and only if—the proportion  $\frac{R_{ti}}{SIWP_t}$  is significantly greater than zero.<sup>21</sup>

In Figure 6, the upper line in the left panel shows the absolute *percentage point* increase in the employment rate (expressed as a percentage of 100 rather than as a fraction)<sup>22</sup> under the reclassification exercise just described, and the upper line in the right panel shows the *percentage* increase in the employment rate in a given year under the same strategy. The absolute increases range from 3.2 to 5.4 percentage points, and the relative increases range from 5.3 percent to just over 8 percent. Note that the employment rate revisions, whether in absolute or relative terms, are greatest in 2017, generally declining through 2021, and then roughly equal from 2021 through 2022. The upward revisions are smaller in 2022 (compared with 2017) largely because there were fewer informal workers in 2022 compared with 2017, and among gig workers in 2022 (versus 2017), a smaller share was initially classified as nonemployed; furthermore, among informal workers classified as nonemployed, a smaller share reported having engaged in gig work recently in 2022 (61 percent) compared with 2017 (71 percent).

The question in the 2017–2022 surveys eliciting the timing of most recent informal work engagement did not explicitly ask respondents to exclude survey work. Because our survey

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<sup>22</sup> The absolute revision in percentage points is just the absolute revision amount multiplied by 100, and similarly for the relative increase as a percentage of the baseline value. The employment rates calculated in our sample are akin to the employment-to-population ratios published by the BLS, as they represent the number of employed individuals (per BLS criteria) as a share of all SIWP respondents, all of whom can be considered of working age and presumably non-institutionalized.

overrepresents survey takers, the employment rate revisions just described might overstate the increase in employment that we would obtain in a group with fewer survey takers. To mitigate this potential bias, we can exclude those who specifically responded “yes” to the line item of “completing surveys” in the informal work probe shown in Figure 1 when reclassifying informal workers as employed. The motivation for this exclusion is that people who checked “yes” to that item are probably more likely to have done survey work (if not exclusively) in the preceding 14 days. However, eliminating these types as candidates for reclassification is likely to exclude some or even many people who also did non-survey activities in the preceding 14 days,<sup>23</sup> and therefore revisions under this exclusion are very conservative. Nevertheless, we report the results under this conservative exclusion—illustrated in the lower lines of the left and right panels of Figure 6—and regard them as a lower bound. We find that, at the very least, the increases in the employment rate are 0.25 to 1.1 percentage points (left panel), or 0.4 to 1.7 percent (right panel).<sup>24</sup>

To understand the economic significance of the employment rate revisions, consider that in December 2017, roughly 77.5 million household heads aged 21 and older were employed (per the BLS household employment numbers), for an employment-to-population ratio of 61.25 in that group. Even a conservative upward revision of 0.25 percentage point, holding the population fixed, would mean an additional 316,000 employed workers, and the generous revision estimate of 5.5 percentage points for that year would add nearly 7 million adults to the ranks of the employed.<sup>25</sup>

For further context, the estimated employment rate revisions (whether conservative or generous) are in the range of observed business cycle movements in employment-to-population ratios in the United States. For instance, the steepest annualized rate of decline in the

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<sup>23</sup> On average across surveys, 79 percent of individuals classified as informal workers checked “yes” to the line item of responding to surveys. Among all SIWP respondents and across surveys, an average of 65 percent checked “yes” for that item.

<sup>24</sup> Regarding statistical confidence, in 2017 and in 2018, the lower bound of the confidence interval on the conservative estimates is close to zero, but in all other years, the conservative estimates are statistically significant, and the lower bound of the more generous estimates is never less than 2 percentage points.

<sup>25</sup> These calculations are restricted to household heads. Assuming that the employment rate would be revised upward similarly if the entire population were considered, the revisions would come to 600,000 and 13.2 million additional employed workers, respectively.

employment-to-population ratio (among US adults aged 20 and older) during the Great Recession was 2.8 percent (sustained in 2009), and during the relatively mild recession of 2001, the maximum rate of decline (based on a single quarter) was 1.2 percent.

Figure 7 shows the baseline employment rates in our sample over the 2017–2022 period—which are based only on responses to the CPS-style questions—together with the revised employment rates using either the conservative revision approach or the more generous approach.<sup>26</sup> When we consider either the more conservative or the more generous revisions, the employment rates that incorporate “missing” informal workers are higher than the baseline rates, but the pattern in employment, in particular the employment decline in 2020 relative to 2019, is similar whether one examines the baseline or revised rates.<sup>27</sup>

#### **4.4 Missing informal work along the intensive margin**

The employment rate revisions described above provide estimates of how many additional workers might be considered employed if their gig-work participation were fully captured by the CPS. Regarding missing gig work along the intensive margin, we can use SIWP data to estimate how many hours (or FTEs) of gig work were not counted in the CPS that arguably should have been. To stay as close to the employment criteria used by the BLS as possible, and given the information available in our survey, we posit that the gig work hours of those who said they engaged in the preceding 14 days should be counted in the CPS. Therefore, gig work conducted within that time frame that was not included in responses to the SIWP’s CPS-style questions can be considered mistakenly missing from the CPS. Accordingly, two types of SIWP respondents contribute to our estimates of missing gig work FTEs: those who, based on their answers to the CPS-style questions, are classified as nonemployed but said they engaged in gig work in the preceding 14 days, and those who, based on their answers to the CPS-style questions, are classified as employed but said they engaged in gig work within the preceding 14 days and also

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<sup>26</sup> In Figure 7, the sample weights in each year have been adjusted so that the given sample’s baseline employment rate matches the corresponding rate among household heads in the CPS-IPUMS.

<sup>27</sup> Under either revision method, the employment level in 2022 remains somewhat below its 2019 level, suggesting a weaker post-pandemic employment recovery than is suggested by the baseline employment rates. However, we are reluctant to draw any generalizations about how fully accounting for informal work might alter the severity of business cycle fluctuations, as the pandemic recession included many unique characteristics.

said they did not include their gig work when responding to the CPS-style questions.<sup>28</sup> Gig workers who last engaged in gig work more than 14 days earlier, regardless of their official employment status, do not contribute missing gig work hours because their work took place too far in the past for inclusion in the CPS under current standards. Gig workers classified as employed who said they did include their gig work in responding to the CPS-style questions also do not contribute missing hours, as their gig hours would have been counted.

Figure 8 illustrates our estimates of the aggregate FTEs of gig work embodied in those classified by the CPS-style questions as employed and nonemployed, separately, by survey year, regardless of whether the FTEs are considered missing from the CPS. As seen in the figure, the vast majority of the FTEs of informal work are done by those who would be classified as employed by the CPS, and the FTEs of informal work done by the nonemployed are relatively few—ranging from about 511,000 to 1.3 million over time. Among nonemployed gig workers, the missing FTEs (estimated for 2017 through 2022) consist of the gig work FTEs of those who said they did gig work in the preceding 14 days—the same group that was reclassified as employed in the first (more generous) employment revision described above. As seen in the figure, these missing FTEs in most years represent 50 percent or more of the total FTEs for nonemployed gig workers.<sup>29</sup> Among gig workers classified as employed by the CPS-style questions, the missing FTEs (estimated for 2019 and 2021) consist of the gig work FTEs of those who said they did gig work in the preceding 14 days but did not include their gig work when responding to the CPS-style questions. Those missing FTEs are estimated at roughly 22.5 percent (in 2019) and 20 percent (in 2021) of total gig work FTEs among employed gig workers. When the missing FTEs of nonemployed and employed workers are combined, the totals are modest but nontrivial at 1.22 million for 2019 and 960,000 for 2021. Those numbers represent 1.4 percent (2019) and 1.1 percent (2021), respectively, of aggregate FTEs of all work among household heads as observed

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<sup>28</sup> We have information about recency of gig work engagement for survey years 2017 through 2022 and information about inclusion of gig work in responding to the CPS-style questions in 2019 and 2021 only. Therefore, our estimates of missing FTEs of gig work are incomplete. These two survey questions are reproduced in full in Exhibits B3 and B4, respectively, of the appendix.

<sup>29</sup> In the more conservative reclassification approach, namely excluding all respondents who indicated being “currently engaged” in survey work, the missing number of FTEs for nonemployed gig workers is much smaller than what is shown in Figure 8, ranging from roughly 10,000 to roughly 240,000.

in the CPS itself. These estimates are represented in Figure 5 by the square symbols labeled “missing gig FTEs.”

The approach of measuring missing FTEs based only on the work of those who engaged in the preceding 14 days is conservative given the nature of gig work. This is because someone who says they are “currently engaged” is likely to resume the work moving forward, even if it takes place intermittently. This is reminiscent of a person who is temporarily not working—on vacation or sick leave—but has a job. Therefore, in terms of measuring ongoing labor supply, in the case of gig work, it might be necessary to expand the time frame within which work was conducted. We return to this point in Section 7, where we discuss possible revision to the CPS to better capture ongoing gig work.

#### **4.6 Alternative employment rate revision methods**

One might argue that everyone classified as an informal worker in our survey could be considered employed because these individuals said they were “currently engaged” in at least one type of paid informal work aside from completing surveys, even though being “currently engaged” does not necessarily mean that the individual did any informal work for pay in the preceding week. Because gig work tends to be more intermittent than traditional employment, someone who did not engage in gig work in the preceding week but planned to resume it in the coming days might be considered as having been on (unpaid) vacation or temporary leave, even if their responses to the CPS-style questions would have classified them as, say, not in the labor force. At the same time, one might want to exclude non-labor-intensive workers to avoid reclassifying as “employed” someone whose only income-earning activity consists, for instance, of renting their home on Airbnb or selling used clothing on eBay or Poshmark.<sup>30</sup> Incorporating these considerations, we conduct an employment rate revision that classifies all *labor-intensive* informal workers as employed regardless of their initial employment status and regardless of how recently they had engaged in such work. The revision approach has the advantage of

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<sup>30</sup> It is debatable whether the renting/selling-only types should be considered employed, even if they worked in the preceding week for pay. This group would include everyone from a retired lawyer who spends a few hours a week on Airbnb activities to a full-time jewelry designer selling on Etsy. All of these descriptions represent hypothetical cases, not actual survey respondents.

allowing us to use all survey years, whereas the direct information on recency of participation is unavailable for 2015 and 2016.<sup>31</sup>

As seen in the left panel of Figure 9, the percentage point increases in the employment rate under this approach range from 2.4 (in 2020) to 5.5 (in 2016), which imply percentage increases (not shown) that range from 3.7 to 8.5. These revisions are similar to, but more moderate than, the exercise (seen in the top lines of Figure 6) that required respondents to have done informal work in the preceding 14 days but did not exclude renting-selling workers.

Yet another approach to revising official employment status is based on an alternative employment elicitation in the SIWP. The survey includes a basic question asking participants to self-select their employment status from among several categories (the complete text of the question is provided in Exhibit B2 of the appendix). In this case, we reclassify as employed any informal worker who is classified as nonemployed based on their CPS responses and yet describes themselves as “employed” in responding to the direct employment elicitation in the SIWP.<sup>32</sup> Results in the right panel of Figure 9 show increases in the range of 0.5 percentage point (in 2022) to 2 percentage points (in 2015), equivalent to increases of 0.9 percent to 3.1 percent of the respective baseline employment rates. Note that with both of these alternative approaches, the estimated employment rate revisions fall generally between the more conservative and the more generous values from the original estimates (shown in the left panel of Figure 6).

## 5. Robustness

It is important to assess the robustness of the results discussed to our methodological choices, especially if different methods are similarly defensible or valid, and to concerns that our sample may not be perfectly representative along some dimensions. We address three concerns in particular: (1) the sensitivity of the gig work participation rate estimates to including a broader set of work activities, (2) the sensitivity of results to adjusting for the elevated employment rate

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<sup>31</sup> These estimates are also given for comparability with results from an earlier paper that we authored (Bracha and Burke 2021).

<sup>32</sup> There are SIWP respondents who are classified as either unemployed or not in the labor force based on their answers to the CPS-style questions who describe themselves as employed in the direct elicitation but who do not qualify as informal work participants. Such individuals are not reclassified as employed in this simulation.

in our sample, (3) and the sensitivity of results to relaxing the sample restrictions. Regarding the first concern, we find that informal work participation rates are moderately higher when we add individuals engaged in professional freelance work and (starting in 2020) app-based delivery work; nevertheless, the movements in the participation rates over time are qualitatively very similar to those depicted in Figure 2. Regarding the second and third concerns, we find that the original results—for the yearly participation rate estimates and the yearly revisions to the employment rate—are highly robust after either (a) reweighting the sample to correct for its elevated employment rate or (b) relaxing the restrictions used to select the original analysis sample. We note that in correcting for the sample’s elevated employment rate, we also correct for its slight demographic deviations from the ACS, as seen in Table 2. Complete details on these robustness checks and associated results are provided in Appendix Section A2.

## **6. Why Does the CPS Fail to Fully Capture Informal Work?**

Using the rich information on survey participants that is available, we can gain some insight into why someone engaged in informal work would be classified as nonemployed (either unemployed or not in labor force), and why someone might not report their informal hours fully when responding to CPS-style questions even if they are classified as employed. Before investigating the differences among gig workers with different official employment classifications, it is useful to describe the characteristics of gig workers in general in relation to nonparticipants, that is, individuals who do not engage in gig work.

*Characteristics of Gig Workers:* As shown in Table 3, informal workers (under the broad definition) are, on average, younger and more likely to be female than nonparticipants. They are also much more likely to be employed compared with other survey respondents—and to be part-time workers in particular—when these classifications are based on the survey’s CPS-style questions. Based on other (non-CPS) employment-related questions, gig workers are more likely than the average survey participant to report being self-employed and more likely to hold more

than one job. At the same time, household incomes, marriage rates, home ownership, and racial composition of gig workers are similar to those of nonparticipants.<sup>33</sup>

Even though the self-employment rate is elevated among gig workers, it does not appear that most are employed full-time in informal work activities, as only 11 percent indicated engaging in gig work for “primary income,”<sup>34</sup> and the average monthly earnings from gig work amounted to about 12.5 percent of their average monthly household income (based on converting annual household income to a monthly rate). Finally, even if self-employment is elevated among gig workers compared with nonparticipants, only a minority (16 percent) described themselves as self-employed.<sup>35</sup>

Regarding the motivation for engaging in gig work (all gig workers were asked to select all reasons that applied to them from a given list, and they could also write in reasons), the most frequently selected reason was “earning extra income,” indicated by 60 percent of labor-intensive workers and 64 percent of renting/selling-only types. Doing informal work “just for fun (as a hobby)” was the next most common reason for engagement, selected by 41 percent of labor-intensive workers and a slightly greater share (44 percent) of other gig workers.<sup>36</sup>

*Comparing Gig Workers by Employment Classifications:* To gain insight into why some gig workers are classified as not employed despite engaging in gig work recently, we compare three types of gig workers: (1) those who are classified as employed based on their answers to the CPS-style questions, (2) those classified as nonemployed per the CPS but who are reclassified as employed

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<sup>33</sup> Although Table 3 suggests that, on average across surveys, gig workers are more likely than nonparticipants to identify as Hispanic and that they are more likely to have a child in the household, those relationships are qualitatively inconsistent across survey waves.

<sup>34</sup> Individuals could select more than one motivation for engaging in gig work, as shown in the survey excerpt in Appendix Exhibit B5. Some of the 11 percent who said they engaged in gig work for “primary income” also said they did it to earn “secondary income.” The meaning of those motivations is up to the respondent. For example, engaging in gig work for “primary income” does not necessarily mean that gig work was the individual’s only source of employment.

<sup>35</sup> However, related research shows that some gig workers may perceive that they have an employer when in fact they are self-employed (Abraham et al. 2023), and therefore self-employment may be underreported by gig workers.

<sup>36</sup> See Exhibit B5 in the appendix for the full text of this SIWP survey question.



because they had done gig work in the preceding 14 days, and those classified as nonemployed per the CPS who are reclassified under that same criterion. Details are in Table 4.

First, there is a very large gap in *perceived* employment status between gig workers who are classified as employed and those who are not when perceived employment status is based on a single multiple-choice question in the SIWP: 92 percent of gig workers classified by the CPS as employed described themselves as “employed,” whereas only 15 percent of reclassified gig workers said the same, and an even smaller share of other nonemployed gig workers (who are not reclassified) saw themselves as employed. While these differences are not surprising, as they line up fairly well with the differences in official employment status, it is nonetheless notable that nontrivial shares of gig workers who are classified as nonemployed per the CPS described themselves as employed (12.6 percent) and that the reclassified gig workers were more likely to see themselves as employed (14 percent) compared with those who are not reclassified (11 percent).

Two other stark differences between CPS-employed and CPS-nonemployed gig workers—whether reclassified or not—concern age and retirement status. More than half of gig workers classified as nonemployed by the CPS (see Table 4, columns 2 and 3) were aged 60 and older, and more than 40 percent described themselves as retired. By contrast, only 20 percent of gig workers classified as employed by the CPS were older than 60 and only 8 percent were retired. Disability rates were also elevated among CPS-nonemployed gig workers, whether reclassified or not, at 18 to 19 percent, compared with only 1 percent among CPS-employed gig workers. Across the two types of CPS-nonemployed gig workers, we observe no difference in the share who are classified as unemployed by the CPS as opposed to not in the labor force—that share is about 9 percent for either group.

These comparisons suggest that some individuals did not report informal work when responding to the CPS because they did not believe such work constitutes employment. This is evidenced by the fact that even among those who had engaged in gig work recently (the reclassified gig workers), very few thought of themselves as employed. That self-perception is likely explained in part by the elevated retirement rates and disability rates among the reclassified gig workers, as

retired individuals had probably stepped off the career track, and disabled workers may have been prevented from doing their former jobs.<sup>37</sup> Nonetheless, the retirement and disability rates among the reclassified gig workers are not high enough to explain the fact that 86 percent did not describe themselves as employed in the SIWP’s direct employment-status question and none is classified as employed based on their answers to the CPS-style questions. The implication is that many non-retired and non-disabled gig workers, even if they said they had engaged in informal work recently, do not view gig work as “work,” “a job,” or “employment.”

Perhaps surprisingly, it does not appear that the type of informal work someone engages in—for example, whether it is labor-intensive or involves the internet or mobile platforms—is strongly predictive of whether they are classified as employed. This is evidenced by the fact that participation rates in the different types of work are similar across the three groups described in Table 4 (“employed” by CPS, “reclassified,” and those who remain “nonemployed”).

Reinforcing the notion that perceptions of gig work may drive whether someone is classified as employed, we find that nonemployed gig workers (regardless of reclassification status because the differences between the two types are not significant) are much less likely than employed gig workers to cite income-related reasons (combining either primary or secondary income) for doing gig work, as seen in Figure 10. Accordingly, nonemployed gig workers are more likely to say they engage as a hobby and are somewhat more likely to write in “other” as a reason for doing the work. Among those adding “other” reasons, many indicated that they were helping other people in some capacity, suggesting that they might think of the work as volunteering, even if they receive payment for it.

*Comparing Employed Gig Workers with Different Reporting Behavior:* Our survey also offers insight into the reasons why *employed* workers (based on their responses to the CPS-style questions) might not include their informal hours when responding to the CPS instrument. Table 5 compares the characteristics of gig workers—all of whom are classified as employed based on the CPS-style questions per the BLS criteria—depending on whether they said that they had

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<sup>37</sup>If they were collecting benefits, disabled individuals would be restricted from earning more than a minimal amount of money—another reason for not reporting informal work activity outside a specific probe.

included informal work activity when responding to the CPS-style questions. These comparisons reflect averages between 2019 and 2021, the two years in which we asked participants whether they included gig work in the CPS-style elicitations.<sup>38</sup> The numbers indicate that individuals who did not include their informal work activity were, on average, much more likely to be young (younger than 30 and less likely to be aged 60 or older), female, belong to the highest income bracket, or have a college degree. They had significantly lower informal work hours and earnings, were much less likely to be engaged in labor-intensive activities, and were more likely to report engaging in online gig work. They were also less likely to say they were self-employed and less likely to have engaged in gig work in the preceding 14 days.

One obvious reason for not including gig work hours in responding to the CPS-style questions is that the gig work might not have been done “last week,” as elicited in those questions. Indeed, those who did not include their gig work (the “omitters”) were significantly less likely to have engaged in gig work in the preceding 14 days compared with those who did include their gig work. That explanation is insufficient, however, as nearly 60 percent of the omitters said they had engaged in gig work in the preceding 14 days. Instead, other contrasts in Table 5 suggest that the omitters did not perceive their gig work activities as work, consistent with gig work not constituting their main job, delivering relatively low earnings, and/or not being labor-intensive. Because the omitters are more highly educated and in higher income brackets, their gig work—especially renting and selling activities—might contrast more with their career choices compared with less educated or lower-income workers. Because omitters are also less likely to describe themselves as self-employed—implying that they are more likely to have a salaried job as their main source of income—they could perceive a greater contrast between their main job and their gig work, which would diminish the latter’s importance. The associations with age and gender do not readily suggest any further insight, however.

## 7. Discussion and Conclusion

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<sup>38</sup> Because individuals in both columns qualified as employed per the CPS, those who said they did not include informal work in responding to the CPS-style probes must have qualified as “employed” based on something other than gig work; those who did include their gig work may or may not have also reported work from a standard payroll job.

Using eight consecutive surveys spanning 2015 through 2022, we investigate informal work participation in the United States—broadly defined to include online-platform work as well as offline activities—and its implications for the measurement of employment. Our survey data suggest that employment rates among US household heads in the CPS were consistently understated over that period due to the misclassification of some informal workers as either unemployed or not in the labor force. We find that under conservative (lower-bound) estimates, the employment-to-population ratio would have been 0.25 to 1.1 percentage points higher from 2015 through 2022 and 3.2 to 5.1 percentage points higher under more generous estimates. Previous research by Abraham and Amaya (2019) for an overlapping time period validates our estimates, finding that the US employment rate based on the CPS would have been 3 to 5 percentage points higher if informal work were fully captured. It appears that incorporating these revisions and including the missing informal work would not significantly change our perceptions of the depth of the employment downturn in 2020. We find that along the intensive margin, an economically significant number of informal work hours may be missing from official employment surveys in part because employed individuals do not fully report their informal hours when responding to the CPS and also because some gig workers do not appear as employed in the CPS despite having performed gig work very recently. Under conservative criteria whereby we consider only the gig hours of those who said they engaged in gig work in the preceding 14 days—even though by definition all gig workers indicated being “currently engaged” in gig work—we find that missing gig work amounts to roughly 1.1 million FTEs on average, representing 1.25 percent of aggregate FTEs.

Our results suggest strongly that informal work is not fully captured by the CPS because individuals engaged in gig work often do not think of it as a job or as work in a traditional sense. Such perceptions appear to arise for different reasons depending on individual circumstances. For example, among individuals who are classified as employed by the CPS, those who say they did not include gig work when responding to the CPS probes were less likely to be engaged in labor-intensive activities (and more likely to engage in activities such as renting or selling) compared with respondents who did include their gig work, suggesting that online and non-labor-intensive activities are less likely to be perceived as work. That these individuals engaged in such

activities as part-time side jobs on top of more traditional jobs most likely reinforces the sense that such activities do not count as work.

Among respondents who are classified as either not in the labor force or unemployed per the CPS yet had engaged in gig work recently (and therefore should arguably be classified as employed), the type of gig work (for example, labor-intensive or not) does not seem to be an important factor in their reporting behavior. Instead, a disproportionate share said they are retired, an elevated share reported being disabled, and a relatively low share cited income as a motivation for engaging in gig work (all shares are compared with those of gig workers who are classified as employed). Within this group, gig work may go unreported because retired individuals no longer see themselves as employed after stepping off a career track, and disabled people who face barriers to traditional employment also do not view themselves as employed. These patterns are worth noting because they suggest that official employment surveys may miss a growing share of work activity as the population ages and if disability rates continue to rise.

Aside from reasons related to retirement and disability, engaging in gig work as a hobby may also explain why it is not considered work. Some survey respondents indicated that engaging in their gig work was akin to volunteering, even though they earned money in the process. Another reason gig work escapes the CPS is that it tends to be conducted intermittently, such that many people had not engaged recently enough to be counted as employed per their answers to the CPS-style questions, and they may not consider a pause in gig work to be equivalent to sick leave or vacation from a standard job. Nonetheless, while the intermittent nature of gig work may explain why it is missing from the CPS for some individuals, in our analysis, a nontrivial amount of gig work still goes unreported to the CPS, even when we use the conservative criterion that the gig work must have been done in the preceding 14 days. In fact, more than 50 percent of those who did not include their gig work in responding to CPS-style questions said they had engaged in gig work in the preceding 14 days.

While the CPS does not distinguish between types of income-generating activities in asking about recent work, our findings raise important questions about whether informal work should be counted in official statistics. For instance, income from renting a room in one's apartment may

not capture true availability to take on a new job or more hours of work. However, labor-intensive informal work activities, such as driving for Uber or collecting groceries for Instacart, arguably should be counted. These are time-consuming activities that are similar to traditional jobs. Our results indicate that such labor-intensive informal work is not fully captured in official statistics, and they suggest ways to revise official employment surveys to better capture alternative work arrangements and obtain a fuller picture of the labor market. For instance, the CPS may want to clarify that any type of activity—no matter how small or whether one thinks of it as a “job”—should be included. Also, similarly to the SIWP, the CPS could include a question about “side jobs.” Finally, to capture a larger share of gig workers, it would be beneficial to expand the time frame of engagement in side jobs or nonstandard work by, for example, inquiring about work done in the preceding month rather than just the preceding week.

In light of the sizable participation rates in gig work observed in our survey and the fact that informal work appears to play a nontrivial role in household finances, failing to monitor gig work activity results in an incomplete picture of the health of the labor market. However, hidden gig work’s implications for the assessment of progress toward full employment may be nuanced. If gig work is viewed as equivalent to standard employment, the implication would be that official employment measures have tended to understate employment and overstate slack in recent years, in which case monetary policymakers should have been more concerned about inflation accelerating throughout that time period. Alternatively, the benchmark for full employment could simply be adjusted upward to account for unmeasured work, in which case inflation should not be a concern until employment rises close to (or beyond) the higher benchmark. The latter seems more appropriate, given that inflation was not accelerating in the 2015–2019 period despite the substantial amount of hidden informal work that we document for that time period.

There are reasons for thinking about gig work differently with respect to labor market slack, however, because it points to a hidden labor supply that could be tapped by traditional employers. Many gig workers in our survey reveal a preference to work additional hours on top of either a part-time or even a full-time job, and often for very low pay. Among gig workers who also held a more formal job, on average, 50 percent reported that their gig work paid less than half of what they earned in their payroll job. Among that same group, 80 percent (averaged

across surveys) said that they were at least somewhat likely to drop their informal work in exchange for more hours at their formal job, provided the wage rate were at least as high as that of their gig work—and a substantial share said they would make such a switch even for lower pay (see Exhibit B6 of the appendix for the full text of the relevant question). Earlier theories of moonlighting also portray labor supply to side jobs as indicative of slack (see, for example, Shishko and Rostker 1976). Similarly to recent research advancing intensive-margin measures of slack based on gaps between desired hours and actual hours (Faberman et al. 2020; Blanchflower and Levin 2015; Bell and Blanchflower 2018), our findings suggest that gig-work participation may be used as another potential indicator of slack, as “desired hours” may be less revealing of the marginal willingness to work than actual side-job engagement.

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## Appendix

### A1. External Validity

Since 2016, the Federal Reserve Board’s Survey of Household Economics and Decisionmaking (SHED) included questions about gig work participation that were based directly on those first fielded in the Survey of Informal Work Participation (SIWP). The SHED’s version of the SIWP’s gig work probe has been modified over time. It most closely resembled that of SIWP in the years 2018 through 2020.<sup>39</sup> Although not identical to the SIWP, the SHED nonetheless offers the closest external point of comparison for the SIWP’s estimates of informal work activity. As seen in Table A1, the SHED’s gig participation rates for the 2016–2020 period are uniformly higher than the SIWP’s rates by about 1 percentage point to just over 3 percentage points, and the changes from year to year have the same direction in both surveys. In 2021 and 2022, however, the SHED’s estimates are much lower than those of the SIWP and represent a steep decline from the SHED’s earlier estimates. These declines are most likely attributable at least partly to the SHED’s 2021 and 2022 informal work probe being less detailed than in earlier years. For example, the more recent surveys included fewer specific activities.

As a separate external validation exercise, we construct yearly self-employment rates from the SIWP that are designed to be roughly comparable with the tax-based estimates of self-employment described in Garin et al. (2022)<sup>40</sup> and with self-employment rates from the Current Population Survey (CPS). We note, however, that self-employment represents a concept that is different from informal work participation. The SIWP-based self-employment rates represent the share of survey respondents who describe themselves as “self-employed” in a direct elicitation in the SIWP, from among those classified as “employed” based on the CPS-style

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<sup>39</sup> For more information about the SHED, visit [https://www.federalreserve.gov/consumerscommunities/shed\\_data.htm](https://www.federalreserve.gov/consumerscommunities/shed_data.htm).

<sup>40</sup> We calculate SIWP self-employment as a share of those who are classified as employed based on their responses to the CPS-style questions. The extended SIWP workforce consists of those who either (a) indicate being employed based on a direct SIWP question, (b) are classified as employed using the CPS-style questions, or (c) earned at least \$600 per year in a single informal task, not including participating in surveys. By contrast, Garin et al. (2022) define the workforce as individuals who file taxes that report any earnings on either W-2, 1099, or Schedule SE forms. Our workforce tends to be smaller than that of Garin et al., as we measure employment at a point in time rather than as having been employed during any portion of a year.

questions in the SIWP. As seen in Figure A1, the SIWP rates are mostly very close to the tax-based rates for the years for which the latter are available. (The tax-based rate is the share of individuals reporting self-employment income on Form 1040 Schedule SE from among all individuals with labor income in the tax records; see Garin et al. 2022 for details.) The largest discrepancy is seen in 2016, when the SIWP estimate is slightly more than 1 percentage point higher than the tax-based estimate, but even in that case the confidence interval on the SIWP rate squarely includes the tax-based rate.<sup>41</sup> The figure also includes the self-employment rates from the CPS, measured as a share of employed household heads and including both incorporated and unincorporated self-employed. The SIWP's self-employment rates are within 1.4 percentage points of the CPS rates in five of the seven years in the figure, and the average signed difference between the SIWP self-employment rate and the CPS self-employment rate is very close to zero.<sup>42</sup> These results should alleviate concerns that the SIWP analysis sample overrepresents self-employed individuals based on the types of people who select into the survey. Because self-employment is correlated with gig work participation, fair representation of self-employment in the SIWP offers reassurance about the validity of our gig work participation rate estimates.<sup>43</sup>

As a further validation exercise, we provide estimates of a “1099-recipient” or “independent-contractor” rate and the ridesharing subset within it to compare informal work activity in our survey with the tax-based rates of independent contracting (that is, 1099 receipt) and “transportation-based platform work” furnished by Garin et al (2022). (The latter group consists mostly of rideshare drivers but also includes drivers for app-based delivery services.<sup>44</sup>) As a proxy

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<sup>41</sup> These values are based on inspection of Figure 4 in Garin et al. (2022).

<sup>42</sup> The tax-based rates are less comparable with the CPS rates than are the SIWP rates, as the tax-based rates are not restricted to household heads. The self-employment rates in the CPS among all employed adults (not restricted to household heads) are somewhat lower (in each year) than the CPS self-employment rates shown in the figure, and the tax-based rates are consistently higher than the unrestricted CPS rates.

<sup>43</sup> We note here that self-employment rates in our survey would be much higher if we were to classify all gig workers as self-employed (in the sense of having any self-employment earnings). Using that criterion, we find that the SIWP's self-employment rate would well exceed the tax-based rates, suggesting either that gig workers do not have sufficient net income from gig work to declare self-employment earnings on their taxes (on 1040 Schedule SE) or that they fail to report such income even when it is sufficient. The fact that most gig workers are not primarily self-employed and do not describe themselves as self-employed may play a role in their tax-filing behavior.

<sup>44</sup> Garin et al. (2022) define an “independent contractor” as an individual receiving a 1099-K or 1099-MISC information return, which must be provided by firms that pay the individual (as a non-employee) at least \$600 in a year. Owners of online platforms are also required to furnish 1099 forms to workers who earn at least \$20,000 or

for 1099 receipt in the SIWP, we identify participants who would have earned at least \$600 in a year in any single activity (excluding participating in surveys) and who therefore might have received a 1099 tax form from an employer.<sup>45</sup> Separately, we identify workers in our survey who earned at least \$600 from ridesharing in a year. To mimic the population frame in the Garin et al. (2022) study, we define an “extended workforce” as those who either (a) indicate being employed based on a direct SIWP question, (b) who are classified as employed using the CPS-style questions, or (c) earned at least \$600 per year in a single informal task, not including survey participation.<sup>46</sup>

The estimated independent-contractor rate from the SIWP, seen in the left panel of Figure A2, varies over time but shows an average of 16.5 percent for the 2015–2018 period (the period for which there are tax-based estimates), which is about 5 percentage points higher on average than the tax-based rates, which range from 10.1 percent in 2015 to 11.2 percent in 2018.<sup>47</sup> The fact that our simulated 1099 rate exceeds the tax-based rate is to be expected since not all people earning \$600 per year in a single activity earned that sum from a single employer and hence may not have received 1099 forms. The ridesharing rate from our survey climbs steadily from 2015 to 2018, from 0.1 percent to 0.9 percent (right panel of Figure A2). Similarly, Garin et al. (2022) find that the transportation-platform participation rate increased from virtually 0 percent in 2012 to 1 percent in 2018. The strong similarity between these two series lends further validity to our survey.

## A2. Robustness Checks

*Expanding the Scope of Activities Used to Define Informal Work Participation:* As explained earlier, we have thus far defined an informal work participant based on engagement in the tasks

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have at least 200 transactions on the platform in a year. Garin et al. (2022) find that, in practice, at least for a period of time, most large platforms reported all earnings regardless of these thresholds.

<sup>45</sup> Survey respondents report typical monthly earnings as well as the number of months (out of the last two years) in which they engaged in gig work. This information is used to estimate average yearly earnings by task for the preceding two years.

<sup>46</sup> Yearly gig work earnings per task were imputed based on reports of typical monthly earnings (per task) and months of participation (per task) in the preceding two years, as elicited in the questions shown in the right-hand column of Figure 1.

<sup>47</sup> These statements are based on Table A1 in Garin et al. (2022).

listed in Figure 1. That list does not explicitly include professional freelance work, such as freelance editing or consulting, although respondents were free to write in such tasks in the “other” response option. Similarly, the task list did not include delivery work for platforms such as Instacart or Uber Eats. As a result, our participation rate estimates would not be fully comparable to those based on some other survey instruments or administrative data that by design would have more effectively captured freelance activity and/or app-based delivery activity.

The SIWP includes separate questions about current engagement in freelance activities and associated hours and earnings, and starting in 2020, questions about the delivery of groceries, restaurant food, and other items were added, with explicit reference to online and mobile delivery applications such as Instacart. To avoid double-counting, the survey asks respondents indicating engagement in freelance activities (or, separately, delivery work) whether they already included such activities when responding to the original informal work probes, such as in the free response field. Figure A3 illustrates the implications for our participation rate estimates of including freelance work and delivery work when defining informal work participation. Specifically, we expand the set of informal participants to include those who indicated engaging in freelancing (with positive typical hours) and who had not already been flagged as gig workers based on the initial task list. Starting in 2020 and using similar methods, we show a separate line that also adds delivery workers.

Not surprisingly, the rates that include freelancers are uniformly higher than the baseline rates, and by nontrivial margins. The movements over time in the rates that include freelancing (or both freelancing and delivery) are qualitatively very similar, although the decline in participation from 2019 to the three later years (2020 through 2022) appears less pronounced in the series that includes just freelancing. When delivery work is also included, the slowdown after 2019 again appears even less pronounced, especially for 2021 and 2022, as delivery activity appears to add little to the participation rate in 2020. Incorporating freelancers into the estimates of the employment rate revisions—which is possible for the years 2017 through 2021—results in only minor upward adjustments: The percentage point revisions would be 0.2 to 0.5 percentage point

higher if they incorporated freelancers who indicated doing freelancing in the preceding 14 days and were not previously counted as employed under the CPS-style questions.

*Adjusting for Elevated Employment Rate in Sample:* Analyzing employment characteristics in the SIWP analysis sample based on CPS-style questions, we find that the sample (in each wave) exhibits elevated employment rates—either the overall rate or the part-time employment rate—compared with the corresponding rate among US household heads observed in the CPS. Table A2 shows the average results of those comparisons over the 2015–2022 period.<sup>48</sup> Because sample members who are classified as employed (prior to any revisions), as opposed to either unemployed or not in the labor force, are more likely to report engaging in informal work, the above estimates of informal work participation and the extent of missing employment could be biased upward.

To address this potential bias, we construct alternative weights for the analysis sample in each year so that its overall employment rate, as well as its part-time employment rate, match the corresponding rates among household heads in the CPS for the relevant month (December of each year). By construction, these “employment weights” also ensure that the sample’s demographic characteristics (including education, age, and income composition) match very closely those of household heads observed in the US Census Bureau’s American Community Survey (ACS) from the previous year. Therefore, this analysis also addresses concerns related to any previous lack of representativeness along the dimensions of education and income. Using these employment weights, we recalculate the yearly participation rates in informal work (initially shown in Figure 2) and the employment rate revisions from Figure 6. Figure A4 (left panel) shows that this recalculation results in a generally small and not statistically significant adjustment.<sup>49</sup>

*Relaxing Sample Restrictions:* Our sample restrictions were designed to eliminate suspect responses to some of the questions related to gig work—such as large numbers of monthly

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<sup>48</sup> Specifically, from the CPS, we use the nonseasonally adjusted values for December of each year, restricted to household heads aged 21 and older, and apply the CPS’s person weights.

<sup>49</sup> These alternative weights were also used in Figure 7 so that baseline employment rates would match those for US household heads over the 2015–2022 period.

hours—and to create a consistent sample for analyzing a variety of survey responses (thus the exclusion of individuals with missing values for a variety of survey questions). The methods are also consistent with those used in our earlier papers (Bracha and Burke 2018, 2021) and therefore enable comparisons of the more recent survey data with results from earlier survey waves. However, the informal hours restriction selectively removes informal workers from the sample and influences the distribution of gig work hours. To assess the sensitivity of results to this sample restriction as well as some others, we construct an expanded sample that retains individuals reporting as many as 260 monthly hours of (non-survey) gig work rather than only as many as 140 monthly hours. The expanded sample also retains individuals with missing values for any of the following: age, marital status, educational attainment, unemployment expectations, inflation expectations, and stock price expectations. These changes add 266 individuals to the sample (for the 2015–2022 period). When we recalculate participation rates by year using the expanded sample, the adjusted results are very close to the original estimates, as seen in the right-hand panel of Figure A4.

*Sensitivity of Employment Rate Revisions to Alternative Weighting and Relaxed Sample Restrictions:* We also conduct a sensitivity analysis of the original employment rate revisions to the use of the employment weights (just described) and (separately) to the use of the expanded sample (also just described). For each of those two modifications, we again estimate percentage point (and percentage) revisions to the baseline employment rate (by year) under the two original criteria: (1) reporting gig work in the preceding 14 days and (2) reporting gig work in the preceding days but not reporting current engagement in survey work explicitly. As seen in Figure A5, the estimates using the employment weights and the expanded sample are nearly identical (when applying a given set of reclassification criteria). More importantly, the estimates in Figure A5 are quantitatively very close to the corresponding values in Figure 6. If anything, these alternative estimates suggest slightly larger upward revisions to the employment rate in some years rather than significantly lower revisions.

Table 1: Response Rates to SIWP from the SCE

	SCE Respondents	SIWP Preliminary Sample		SIWP Analysis Sample	
		Respondents	Response Rate	Respondents	Response Rate
2015	1,201	1,058	88.1	985	82.0
2016	1,359	1,151	84.7	1,085	79.8
2017	1,273	1,129	88.7	1,084	85.2
2018	1,268	1,072	84.5	1,027	81.0
2019	1,262	1,028	81.5	972	77.0
2020	1,337	968	72.4	930	69.6
2021	1,283	1,081	84.3	1,014	79.0
2022	1,158	1,091	94.2	1,042	90.0
Totals	10,141	8,578	84.8	8,139	80.4

*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The SIWP preliminary sample excludes only those individuals who were not assigned a weight by Nielsen. The SIWP analysis sample excludes individuals based on the criteria described in Section 3.1 of this paper.

Figure 1: Elicitations of Gig Work Participation, Hours, and Earnings

For each of the informal paid activities or side jobs listed in the table below, please respond to the following question:

*Please provide a response for each row listed below.*

	Are you <b>currently</b> engaged in this activity?	
	Yes	No
Babysitting	<input type="radio"/>	<input type="radio"/>
House sitting	<input type="radio"/>	<input type="radio"/>
Dog walking	<input type="radio"/>	<input type="radio"/>
Yard or lawn care (i.e., mowing, weeding, etc.)	<input type="radio"/>	<input type="radio"/>
Housecleaning	<input type="radio"/>	<input type="radio"/>
House painting	<input type="radio"/>	<input type="radio"/>
Eldercare services	<input type="radio"/>	<input type="radio"/>
Providing services to other people (for example picking up their dry cleaning, helping people move houses, running errands, booking travel, or other personal assistance)	<input type="radio"/>	<input type="radio"/>
Selling goods at consignment shops	<input type="radio"/>	<input type="radio"/>
Selling goods on eBay, craigslist, or similar websites	<input type="radio"/>	<input type="radio"/>
Renting out property such as your car, your place of residence, or other items you own	<input type="radio"/>	<input type="radio"/>
Driving for a ride sharing service like Uber, Lyft, or Sidecar	<input type="radio"/>	<input type="radio"/>
Responding to surveys, including phone surveys, online surveys, and in-person surveys	<input type="radio"/>	<input type="radio"/>
Getting paid to complete tasks online through websites such as Amazon Mechanical Turk, Fiverr, or similar sites (examples of such tasks include, but are not limited to, editing documents, reviewing resumes, writing songs, creating graphic designs, rating pictures, etc.)	<input type="radio"/>	<input type="radio"/>
Posting videos, blog posts, or other content online, such as on YouTube, and receiving pay (including ad revenues or commissions) as a result	<input type="radio"/>	<input type="radio"/>
Other informal paid activity or side jobs (please specify) <input type="text"/>	<input type="radio"/>	<input type="radio"/>

You reported that you have engaged in the following informal paid activity:

**Babysitting**

Considering the past two years or 24 months, in how many months did you engage in this activity **for pay**?

*Please enter numbers in the box(es) below.*

months out of 24

The following questions refer to a typical month (within the past two years) in which you engaged in this activity.

In a typical month in which you engaged in this activity **for pay**, how much time do/did you spend on this activity? If less than one hour, report only in minutes.

*Please enter numbers in the box(es) below.*

hours and

minutes per month

In a typical month in which you do/did this activity, how much money do/did you typically earn doing this activity?

*Please enter a number in the box below.*

dollars per month

Do/did you use websites and/or mobile platforms in the course of doing this work, and/or finding such work?

*Please select only one.*

☐ Yes

☐ No



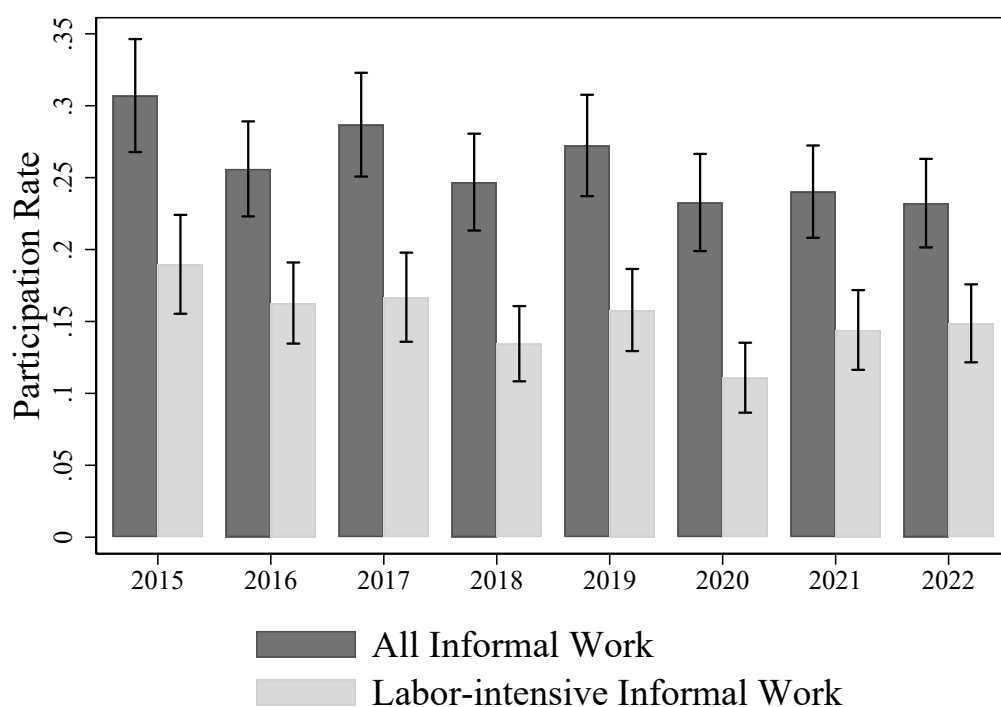
Table 2: SIWP Average Demographic Characteristics, Compared with ACS Averages

	ACS (2014–2021)	SIWP Preliminary Sample (2015–2022)	SIWP Analysis Sample (2015–2022)
Household Income			
Less than \$30,000	0.24	0.24	0.23
\$30,000 to \$49,999	0.17	0.18	0.18
\$50,000 to \$99,000	0.30	0.31	0.32
More Than \$100,000	0.29	0.27	0.27
Age Group			
18 to 29	0.10	0.11	0.10
30 to 39	0.17	0.17	0.17
40 to 49	0.18	0.18	0.18
50 to 59	0.20	0.20	0.20
60 and Older	0.36	0.34	0.35
Education			
Up to HS Grad	0.34	0.33	0.32
Some College	0.30	0.32	0.32
College Grad or Higher	0.35	0.35	0.36
Census Region			
Northeast	0.18	0.18	0.18
Midwest	0.22	0.22	0.22
South	0.38	0.38	0.37
West	0.22	0.22	0.22
Sample Size	9,692,468	8,578	8,139

*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York, and American Community Survey 2014–2021, US Census Bureau.

*Notes:* SIWP values are calculated by taking the weighted average of a given characteristic separately for each survey year (2015–2022) and then taking the unweighted average of those results. The SIWP weights for each survey year are furnished by Nielsen and are designed to match the preceding year’s ACS in terms of age, household income, education, and census region composition. ACS values are calculated similarly to SIWP values but using values from 2014–2021 rather than 2015–2022. ACS estimates use ACS household weights and are based on household heads aged 21 and older. The SIWP preliminary sample excludes only those not assigned a weight by Nielsen. The SIWP analysis sample excludes individuals based on the criteria described in Section 3.1 of this paper.

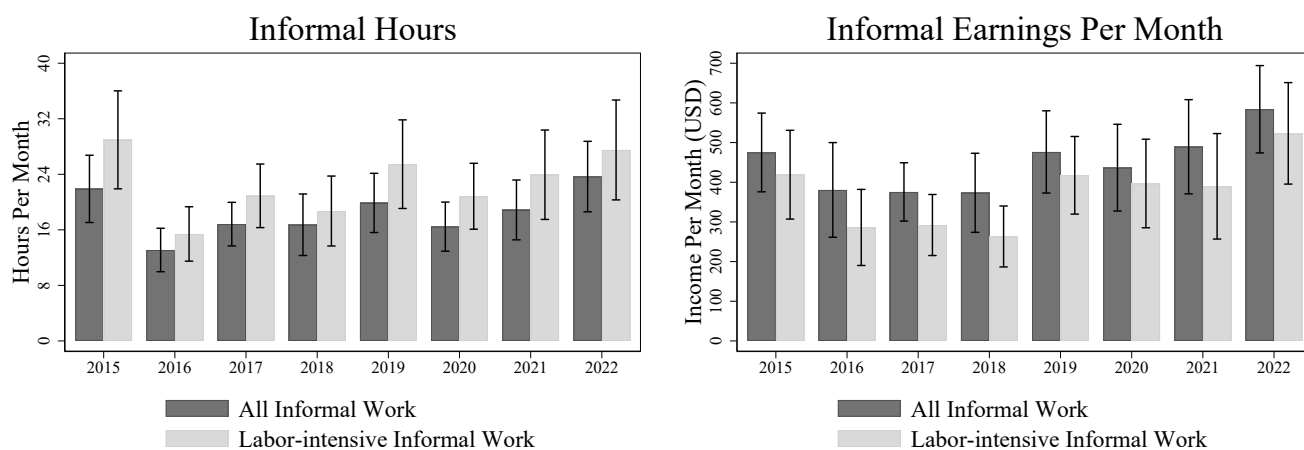
Figure 2: Informal Work Participation Rates, 2015–2022



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The black line through each bar shows the 95 percent confidence interval of the estimated proportion. The all informal work participation rate is defined as the weighted share of the analysis sample reporting current participation and positive paid hours performing any non-survey informal work task. The labor-intensive informal work participation rate is similarly defined, excluding also gig work involving the rental or sale of one's own property.

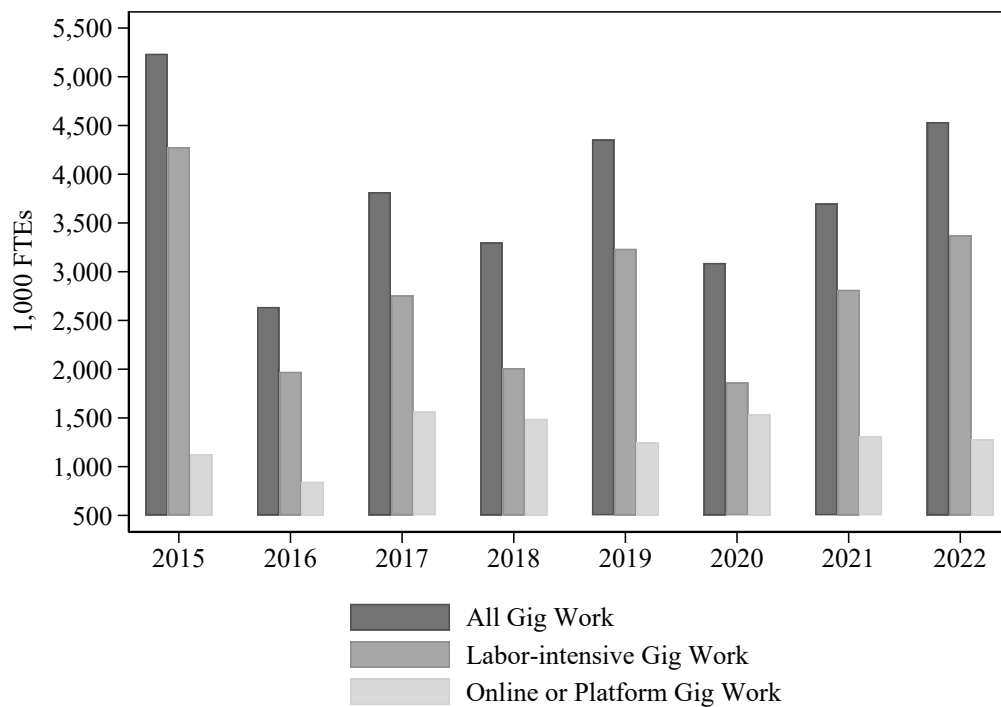
Figure 3: Average Informal Work Hours and Earnings, Conditional on Participation



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The black line through each bar shows the 95 percent confidence interval of the estimated mean. All informal work hours and earnings pertain to non-survey gig work tasks. Labor-intensive work hours and earnings pertain to non-survey gig work tasks with the exceptions of the rental or sale of one’s own property.

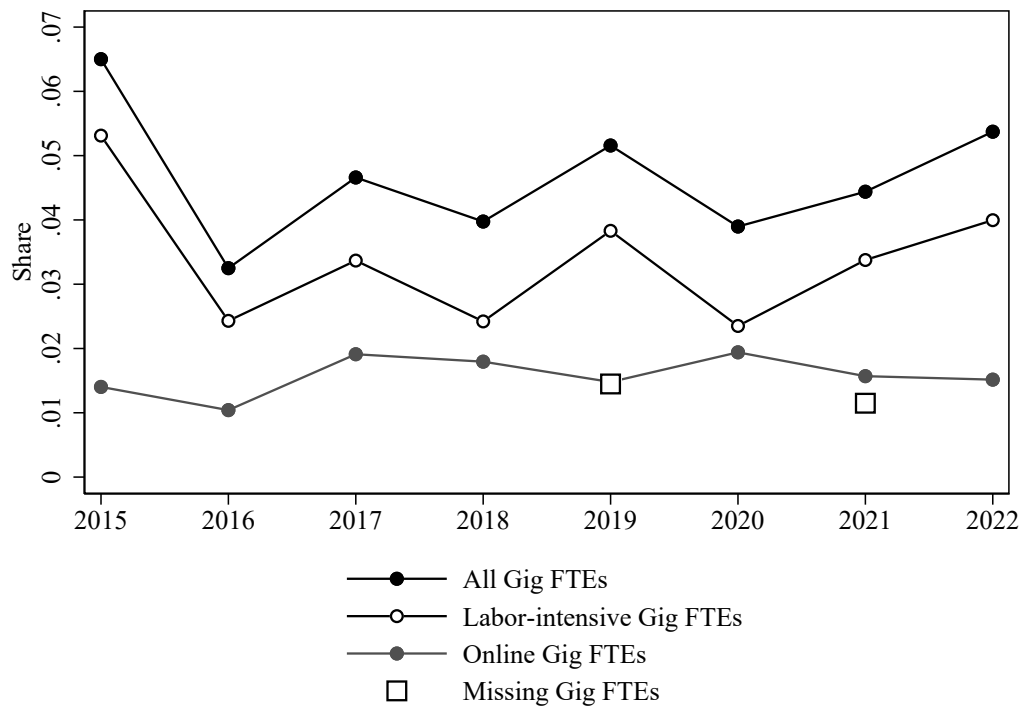
Figure 4: Estimates of Aggregate Full-time Equivalents (FTEs) of Gig Work



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York, US Census Bureau Current Population Survey, and Haver Analytics.

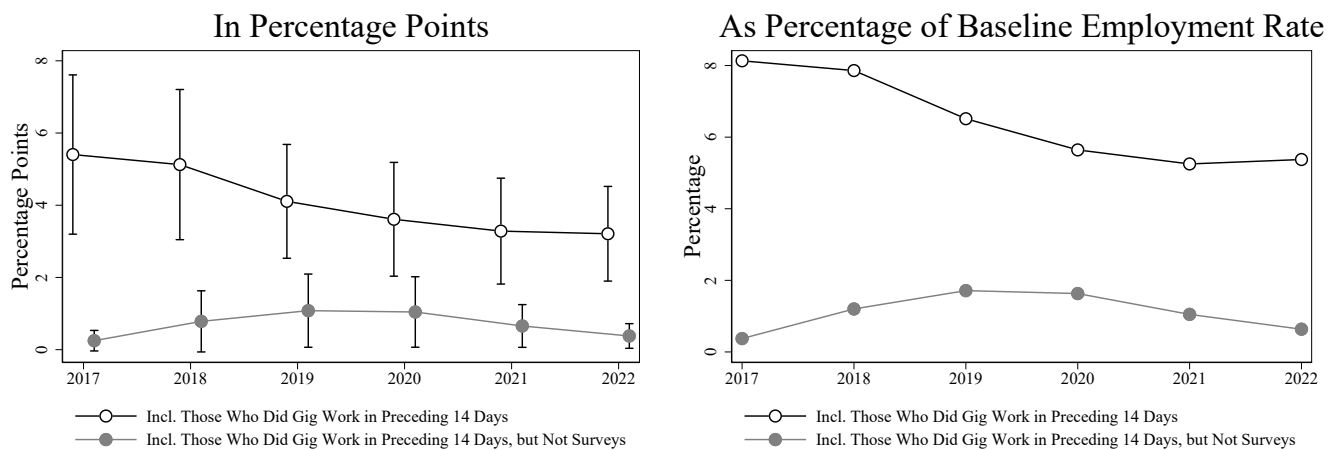
*Notes:* Each bar shows the estimated aggregate FTEs of gig work of a given type, based on outcomes in the SIWP and projected onto the US household-head population. FTEs of all gig work for a given year are calculated by taking the weighted average of monthly (non-survey) gig work hours over all members of that year’s analysis sample (using zeros for those with no gig work participation), multiplying by the number of US household heads aged 21 in the December CPS for the same year, and dividing by 160 hours (our measure of one FTE-month). Labor-intensive FTEs are calculated similarly but exclude hours of gig work involving the rental and/or sale of one’s own property. Online gig work FTEs are calculated similarly but include only hours of ridesharing, posting content online, selling goods online, completing online tasks, and/or any other gig work conducted using apps or websites.

Figure 5: Gig Work FTEs as Share of Total FTEs



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York, Current Population Survey, US Census Bureau, and IPUMS-CPS, University of Minnesota. *Notes:* Each series represents gig work FTEs of a given type (see Figure 4 notes) as a share of aggregate FTEs of all work among US household heads. The FTEs of all work are estimated from the CPS-IPUMS by taking the weighted sum of preceding-week hours among household heads aged 21 and older and dividing by 36.78 hours (our measure of one FTE-week). “Missing” FTEs refers to FTEs of gig work that are not counted in the CPS and arguably should have been. See Figure 8 notes for details on the estimation of missing FTEs.

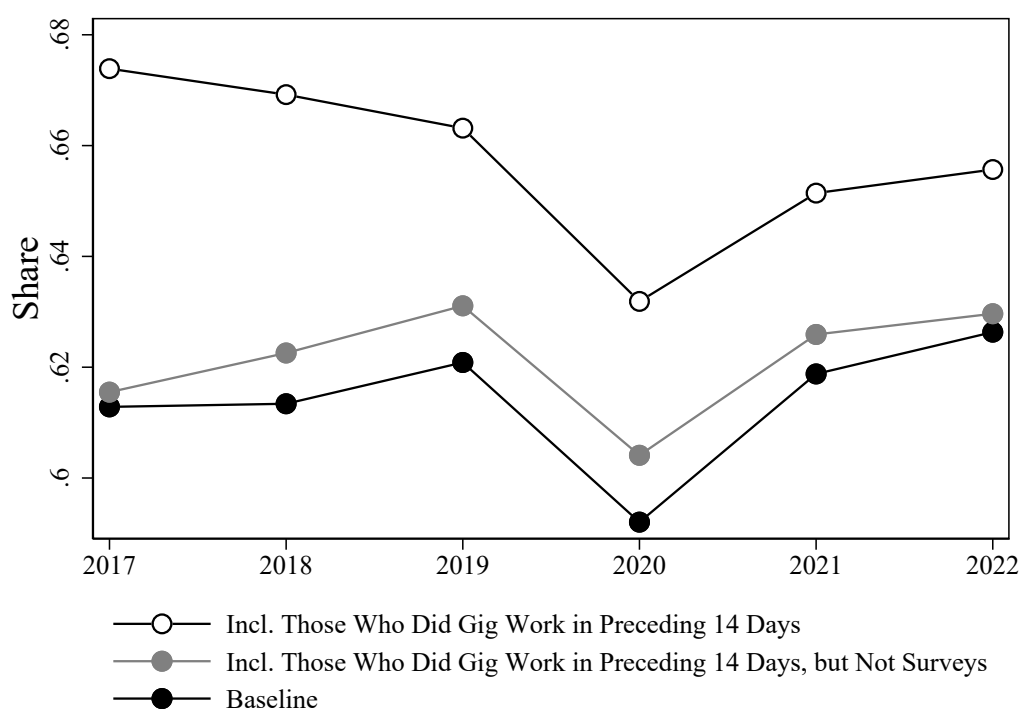
Figure 6: Employment Rate Revisions, Adding Individuals Doing Gig Work in Preceding 14 Days



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The brackets around each point estimate in the left panel show the 95 percent confidence interval of the estimated value. The percentage point revisions (left panel) represent the raw difference between the revised employment rate percentage for a given year and the sample’s baseline employment rate percentage for the same year. The percentage revisions (right panel) represent that same difference expressed as a percentage of the sample’s baseline employment rate. The baseline employment rate refers to the percentage of SIWP respondents in the given year who are classified as employed based on the CPS-style questions. In the first revision exercise, informal workers not classified as employed based on the CPS-style questions are reclassified as employed if they indicated having done gig work in the preceding 14 days. In the second (conservative) revision exercise, to reduce the chances of reclassifying gig workers as employed primarily on the basis of survey work, gig workers are reclassified as employed based on the original criterion, provided they did not also say they were “currently engaged” in completing surveys for pay.

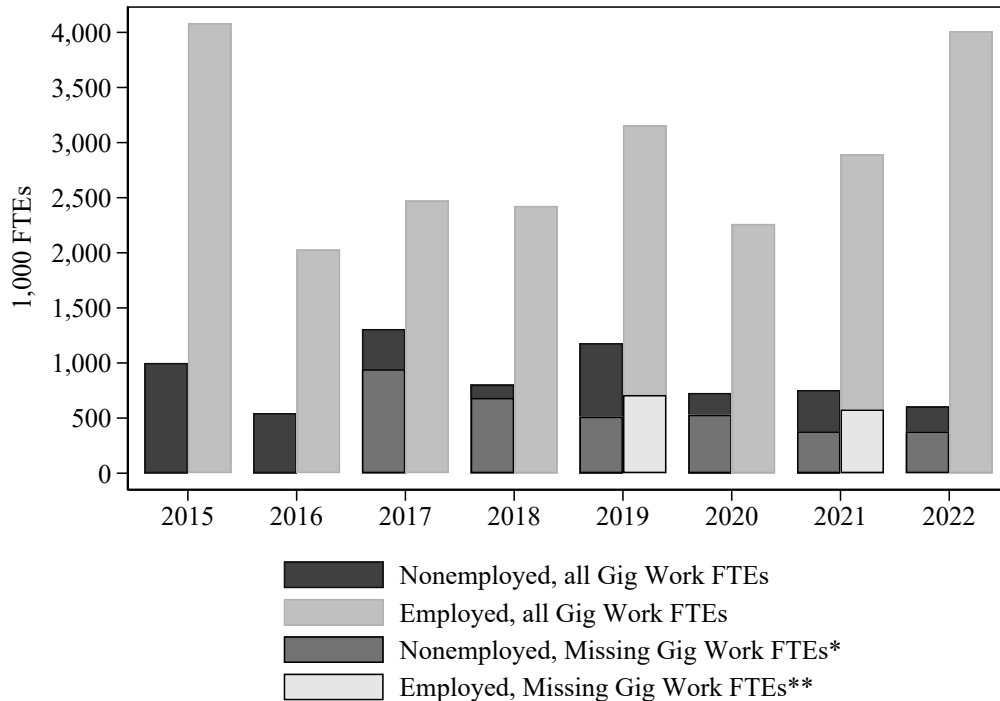
Figure 7: Employment Rates before and after Revisions



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The baseline employment rate refers to the percentage of SIWP respondents in the given year who are classified as employed based on the CPS-style questions. In the first revision exercise, informal workers not originally classified as employed based on the CPS-style questions are reclassified as employed if they indicated having done gig work in the preceding 14 days. In the second revision exercise, to reduce the chances of reclassifying gig workers as employed primarily on the basis of survey work, gig workers are reclassified as employed based on the original criterion, provided they did not also say they were “currently engaged” in completing surveys for pay. In this figure, the samples have been reweighted so that the baseline employment rate in each year matches the (non-seasonally adjusted) rate observed among household heads aged 21 and older in the CPS-IPUMS for December of the given year and so that the sample’s selected demographic characteristics match those in the previous year’s ACS.

Figure 8: Gig Work FTEs by Employment Status, and Estimates of “Missing” FTEs



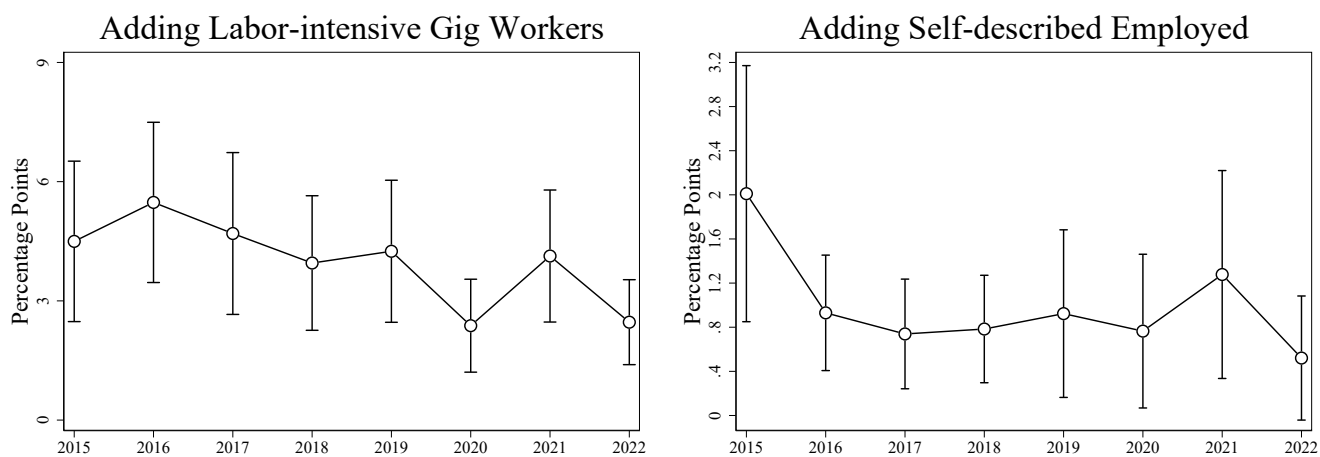
*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* Each bar shows the estimated aggregate FTEs of gig work among individuals of a given type, based on outcomes in the SIWP and projected onto the relevant subset of the US population. Employment classifications are based only on responses to CPS-style questions. FTEs among nonemployed individuals are calculated as the weighted average of non-survey gig work hours (using zeros for non-gig workers) among SIWP respondents classified as nonemployed (either unemployed or not in labor force), multiplied by the number of nonemployed household heads aged 21 and older in the CPS-IPUMS as of December of the given year, and divided by 160 hours (one FTE-month). FTEs among employed individuals are calculated analogously. “Missing” FTEs refers to FTEs of gig work that would not have been counted in the actual CPS and arguably should have been. Accordingly, the missing FTEs among the nonemployed reflect only the gig hours of nonemployed gig workers who said they did gig work in the preceding 14 days, with hours set to zero for everyone else. (The gig-work hours of other nonemployed gig workers would not have been counted in the CPS, but justifiably so based on the timing of such work.) The missing FTEs among the employed reflect only the gig-work hours of employed gig workers who said they omitted their gig-work hours in responding to the CPS-style questions and also did gig work in the preceding 14 days. For employed gig workers who did include their gig work when responding to the CPS-style questions, gig-work hours would have been counted in the actual CPS and are therefore not missing.

\*Consistent information about the recency of gig work engagement is not available before 2017.

\*\*Information about whether gig hours were included or not in responses to CPS-style questions is available only for 2019 and 2021.

Figure 9: Alternative Employment Rate Revisions



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The brackets around each point estimate show the 95 percent confidence interval of the estimated value. The percentage point revisions in a given panel represent the raw difference between the revised employment rate for a given year and the sample’s baseline employment rate for the same year. The baseline employment rate refers to the percentage of SIWP respondents in the given year who are classified as employed based on the CPS-style questions. In the left panel revision, gig workers not classified as employed based on the CPS-style questions are reclassified as employed if they indicated current engagement in labor-intensive gig work. In the right panel revision, gig workers not classified as employed based on the CPS-style questions are reclassified as employed if they describe themselves as “employed” in a separate SIWP multiple-choice question.



Table 3: Descriptive Statistics, Gig Workers and Non-Gig Workers

	Gig Workers	Non-Gig Workers
Under Age 30	0.13	0.09
Aged 30–39	0.20	0.16
Aged 40–49	0.19	0.18
Aged 50–59	0.19	0.20
60 or Older	0.29	0.37
Less than \$30,000	0.23	0.23
\$30,000 to \$49,999	0.20	0.17
\$50,000 to \$99,999	0.32	0.32
More than \$100,000	0.25	0.28
Up to HS Grad	0.30	0.33
Some College	0.32	0.32
College Grad or Higher	0.38	0.35
Non-Hispanic White	0.77	0.76
Black	0.07	0.08
Asian	0.03	0.02
Other/Multiracial	0.13	0.13
Hispanic	0.10	0.08
Female	0.55	0.48
Retired	0.17	0.26
Disabled	0.06	0.07
Married	0.63	0.63
Child in Household	0.41	0.35
Owns Home	0.70	0.71
Employed, Full Time	0.51	0.49
Employed, Part Time	0.22	0.11
Unemployed (among those in labor force)	0.04	0.03
Not in Labor Force	0.23	0.38
Multiple Jobs	0.23	0.08
Self-employed	0.16	0.08
Main Job Weekly Hours (among Employed)	36	40
Main Job Hourly Pay (among Employed)	27	30
Informal Hours (monthly)	18	0
Informal Earnings (monthly)	449	0
Sample Size	2,181	5,958

*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* All values are calculated by taking the weighted average of a given characteristic (within the relevant group) separately for each survey year (2015–2022) and then taking the unweighted average of those results. Due to missing values, the respective sample sizes for selected rows may be smaller than the number shown at the bottom of the relevant column.

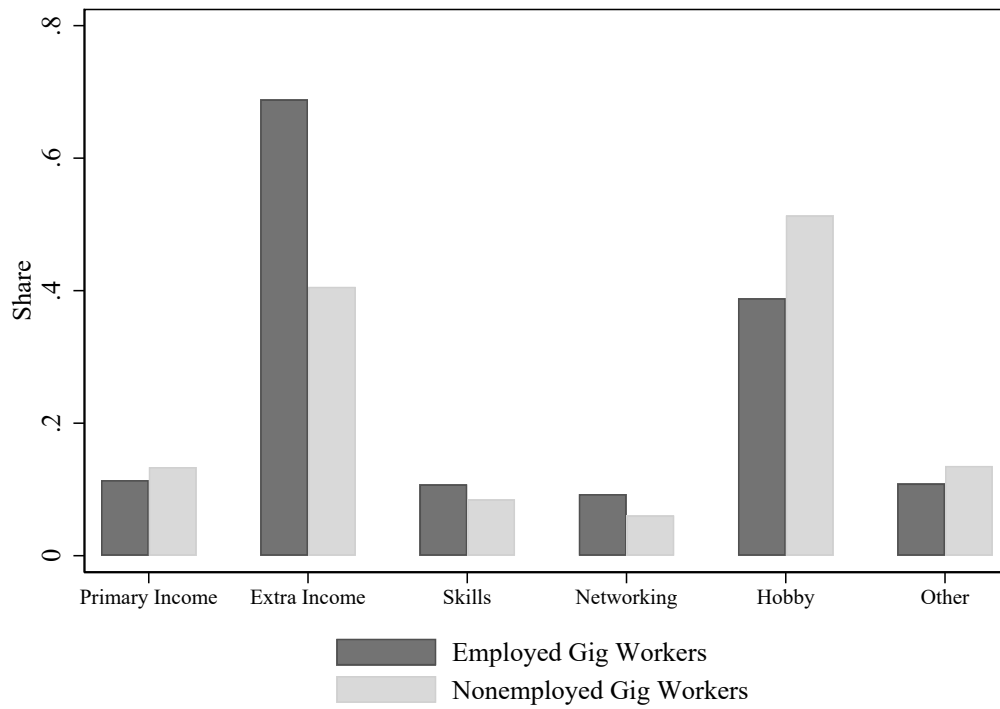
Table 4: Gig Worker Demographics by CPS Employment Status and Reclassification Status

	Employed	Reclassified as Employed	Nonemployed
Under Age 30	0.14	0.07	0.06
Aged 30–39	0.23	0.17	0.07
Aged 40–49	0.22	0.08	0.09
Aged 50–59	0.21	0.15	0.19
60 or Older	0.20	0.53	0.59
Less than \$30,000	0.17	0.34	0.34
\$30,000 to \$49,999	0.20	0.23	0.16
\$50,000 to \$99,999	0.33	0.25	0.33
More than \$100,000	0.30	0.17	0.18
Up to HS Grad	0.24	0.44	0.37
Some College	0.33	0.33	0.39
College Grad or Higher	0.44	0.23	0.24
Non-Hispanic White	0.78	0.78	0.80
Black	0.07	0.07	0.06
Asian	0.03	0.01	0.03
Other/Multiracial	0.13	0.15	0.11
Hispanic	0.10	0.12	0.08
Female	0.55	0.61	0.50
Retired	0.09	0.45	0.53
Disabled	0.01	0.18	0.19
Married	0.63	0.64	0.62
Child in Household	0.36	0.33	0.21
Identifies as Employed	0.92	0.15	0.11
Identifies as Self-employed	0.18	0.11	0.12
Unemployed	.	0.10	0.06
Has Health Insurance	0.89	0.87	0.87
Informal Hours (monthly)	20	16	15
Informal Earnings (monthly)	493	375	309
Labor-Intensive Gig Work Participation	0.58	0.52	0.59
Online Gig Work Participation	0.61	0.52	0.63
Sample Size	1,239	214	148

*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The first column consists of gig workers classified as employed based on their responses to the CPS-style questions. The second column consists of gig workers classified as nonemployed (either unemployed or not in the labor force) based on the CPS-style questions and who are reclassified as employed because they report having done gig work in the preceding 14 days. The third column consists of gig workers classified as nonemployed based on the CPS-style questions and who did not report having done gig work in the preceding 14 days and are therefore not reclassified as employed. All values are calculated by taking the weighted average of a given characteristic (within the relevant group) separately for each survey year (2015–2022) and then taking the unweighted average of those results. Other/multiracial includes White Hispanics, Native Americans, Native Hawaiians, Native Alaskans, and all others not identifying with another listed category. Hispanic identity was elicited separately from racial identity.

Figure 10: Reasons for Doing Gig Work, by Employment Status



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* For each set of bars, the sample is restricted to gig workers of a given employment status, where employment status is based only on responses to the CPS-style questions. Respondents could select multiple reasons for doing gig work.

Table 5: Gig Worker Demographics, by Inclusion of Gig Work When Answering CPS-style Questions

	Included Gig Work	Did <i>Not</i> Include Gig Work
Under Age 30	0.15	0.23
Aged 30–39	0.22	0.21
Aged 40–49	0.22	0.16
Aged 50–59	0.20	0.23
60 or Older	0.21	0.15
Less than \$30,000	0.21	0.13
\$30,000 to \$49,999	0.26	0.14
\$50,000 to \$99,999	0.27	0.36
More than \$100,000	0.25	0.37
Up to HS Grad	0.27	0.24
Some College	0.36	0.27
College Grad or Higher	0.38	0.49
Non-Hispanic White	0.78	0.75
Black	0.08	0.06
Asian	0.02	0.03
Other/Multiracial	0.12	0.15
Hispanic	0.09	0.13
Female	0.49	0.56
Retired	0.12	0.06
Disabled	0.01	0
Married	0.64	0.63
Child in Household	0.39	0.42
Identifies as Employed	0.86	0.96
Identifies as Self-employed	0.23	0.14
Has Health Insurance	0.82	0.91
Informal Hours (monthly)	26	13
Informal Earnings (monthly)	687	361
Labor-Intensive Gig Work Participation	0.65	0.48
Online Gig Work Participation	0.54	0.65
Did Gig Work in Preceding 14 Days	0.87	0.59
Sample Size	216	185

*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The first column consists of gig workers who said that they did include their gig work when answering the CPS-style questions, and the second column consists of gig workers who said that they did not do so. As the relevant question was posed only in the SIWP surveys from 2019 and 2021, values are calculated by taking the weighted average of a given characteristic (within the relevant group) separately for each of those two years and then taking the unweighted average of the results. Other/multiracial includes White Hispanics, Native Americans, Native Hawaiians, Native Alaskans, and all others not identifying with another listed category. Hispanic identity was elicited separately from racial identity.

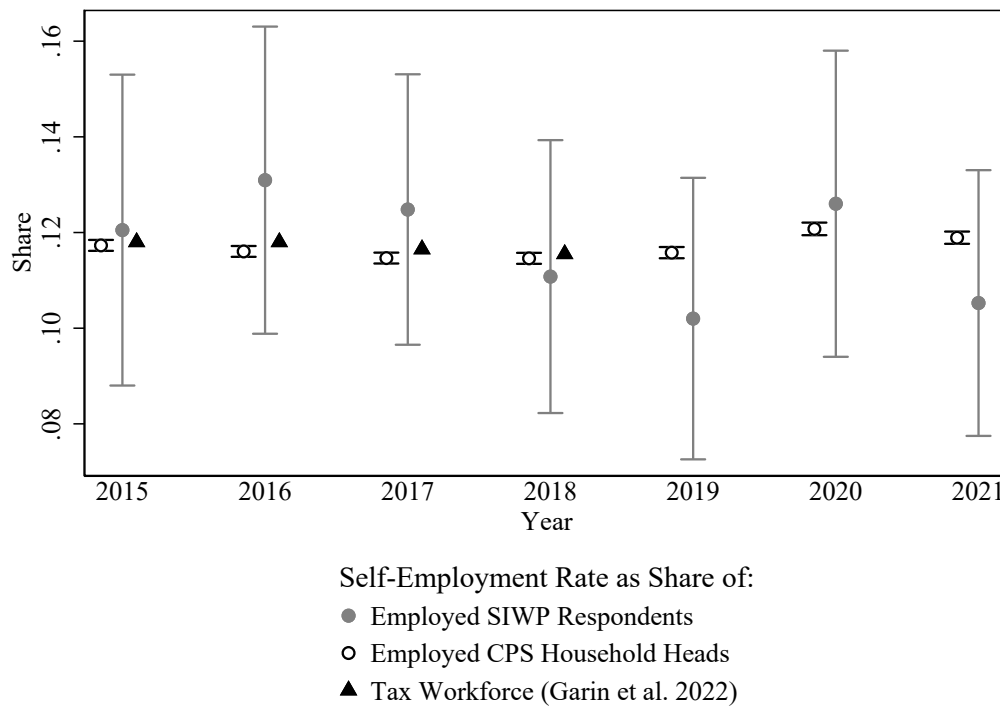
Table A1: Comparison of Informal Work Participation Rates with Survey of Household Economics and Decisionmaking

	SIWP	SHED
2016	0.264	0.276
2017	0.299	0.307
2018	0.257	0.289
2019	0.289	0.309
2020	0.237	0.270
2021	0.246	0.157
2022	0.238	0.158

*Source* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2016–2022, ©2013 Federal Reserve Bank of New York, and Federal Reserve Board SHED 2016–2022.

*Notes:* All values are calculated using each survey’s given weights. In 2018–2020, similarly to the SIWP, the SHED asked about participation, either as a side job or main job, in several specific informal work tasks. In 2016 and 2017, the SHED also asked about participation in individual tasks but only if the task was done as an intermittent or side job. In 2021 and 2022, the SHED elicited participation using a less detailed list of informal work tasks, consisting only of selling goods, renting property, and general freelance or gig work.

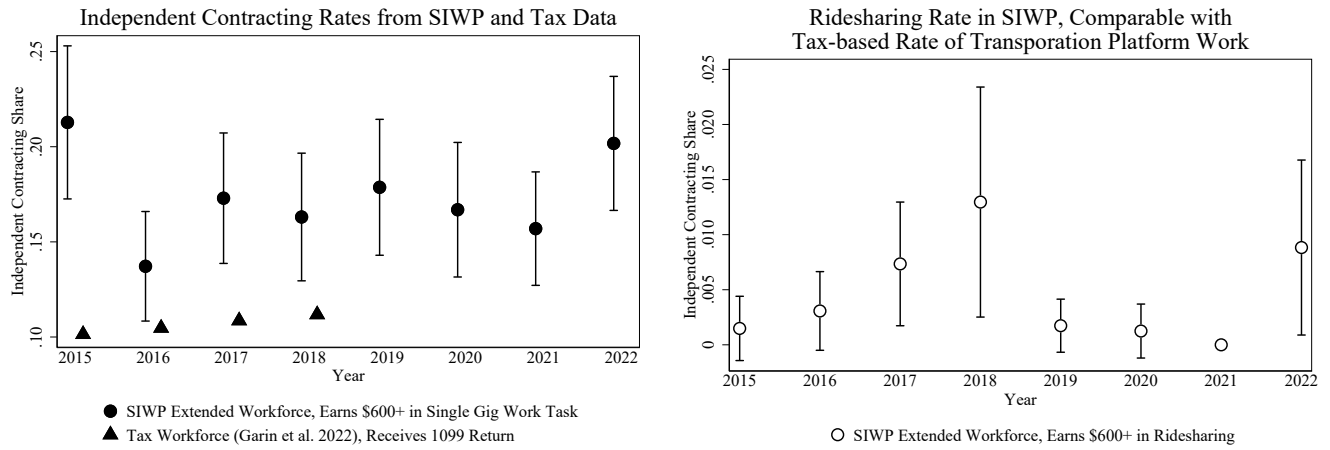
Figure A1: Self-employment Rates from SIWP, CPS, and Tax Data



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* Employed SIWP respondents refers to those classified as employed based on their responses to the CPS-style questions. Self-employment for that group is based on a question in the SIWP (omitted in 2022) that asks them to choose between being (a) self-employed or (b) working for someone else. Employed CPS household heads refers to household heads aged 21 and older in the CPS-IPUMs classified as employed within that survey. Self-employment for this second group is based on the CPS instrument and includes both incorporated and unincorporated self-employment. The tax workforce as defined by Garin et al. (2022) consists of all individuals with labor income reported on any of several tax forms or returns, among whom the self-employed are those reporting self-employment income on Form 1040 Schedule SE.

Figure A2: Independent Employment Rates from SIWP and Tax Data



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York, and Garin et al. 2022.

*Notes:* The brackets around selected point estimates show the 95 percent confidence interval of the estimated proportion. In the left panel, the independent contracting rate in the SIWP is calculated as the share of the extended workforce with imputed single-year earnings of \$600 or more from a specific gig-work task, where the extended workforce consists of SIWP respondents who meet the gig-work earnings criteria just described as well as those classified as employed based on either the CPS-style questions or a separate SIWP question. Also in the left panel, the independent contracting rate in the tax workforce (from Garin et al. 2022) is defined as the share with firm-reported payments for contract labor exceeding \$600 on a 1099 return, out of a tax workforce consisting of all individuals with labor income reported on any of several tax forms or returns. In the right panel, the SIWP ridesharing rate is calculated as the share of the extended workforce (just described) with imputed single-year earnings of \$600 or more in ridesharing activities alone. The minimum earnings threshold is applied to render the rate comparable with the tax-based rates of transportation-platform work described in Garin et al. (2022).

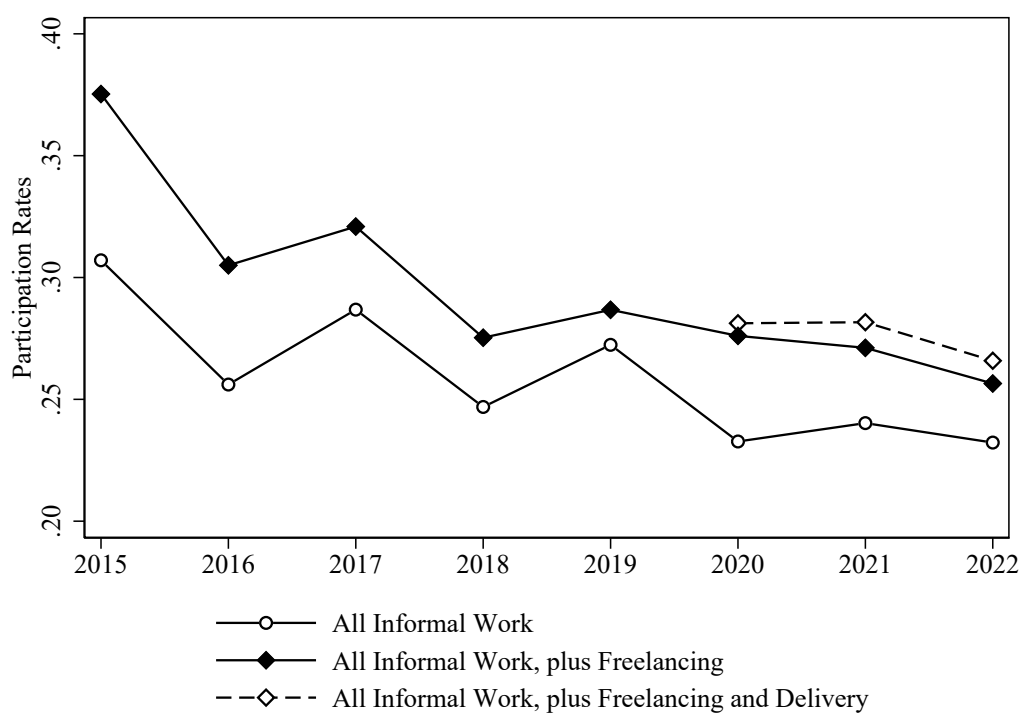
Table A2: Average Employment Rates in SIWP and CPS, 2015–2022

	CPS	SIWP
Employed	0.61	0.64
Employed Part Time	0.08	0.14

*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York, and Current Population Survey (CPS) 2015–2022, US Census Bureau.

*Notes:* All values are calculated by taking the weighted average of a given characteristic separately for each year (2015–2022) and then taking the unweighted average of those results. CPS values for an individual year are based on the December survey only, are nonseasonally adjusted, and are calculated among household heads aged 21 and older. SIWP values for an individual year are calculated over the analysis sample, and employment status is based on responses to the CPS-style questions.

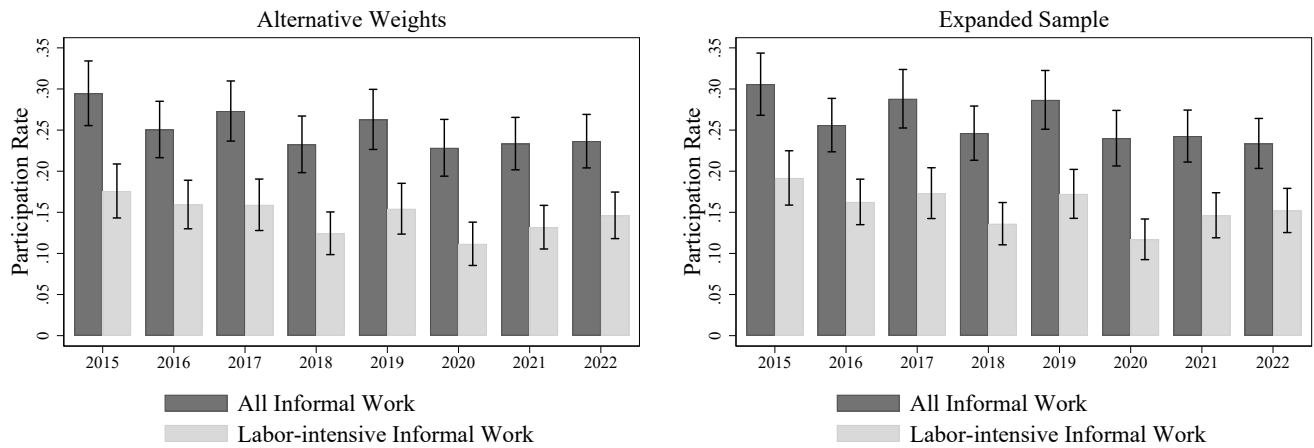
Figure A3: Participation Rates, Inclusive of Freelancing and Delivery Work



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* All informal work refers to individuals reporting positive paid hours and current engagement in at least one non-survey informal task. The all informal work plus freelancing series adds those reporting current engagement in freelancing who were not already included in the first series. The last line further adds those reporting current engagement in app-based delivery services and who were not already included in the first or second series. Information on delivery work is available only starting in 2020.

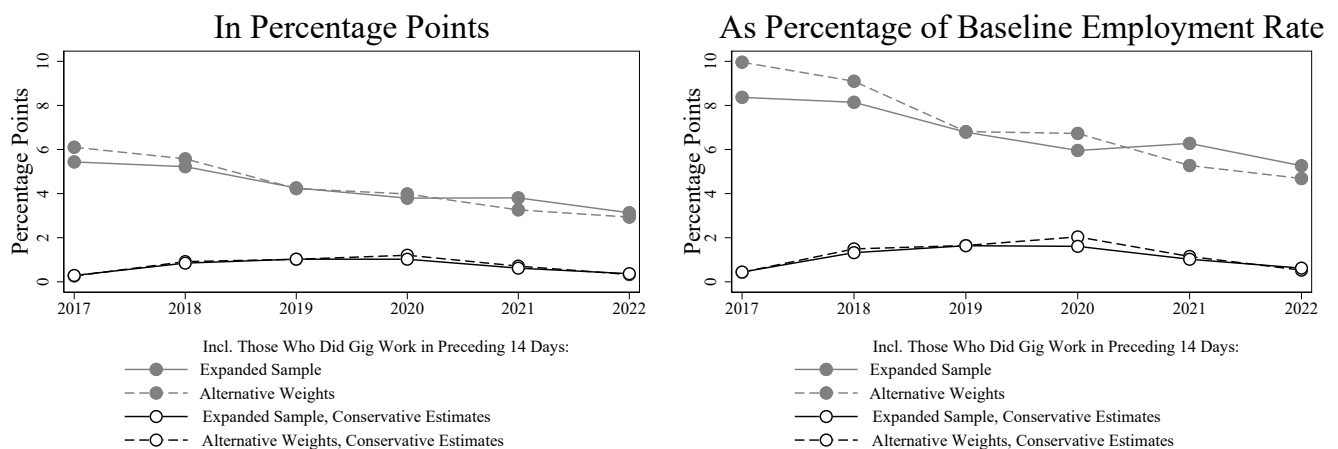
Figure A4: Gig Work Participation Rates, Sensitivity Analysis



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The black line through each bar shows the 95 percent confidence interval of the estimated proportion. The all informal work participation rate is defined as the weighted share of the analysis sample reporting current participation and positive paid hours performing any non-survey informal work task. The labor-intensive informal work participation rate is similarly defined, excluding also gig work involving the rental or sale of one's own property. The alternative weights for a given year target the overall employment rate and the part-time employment rate among household heads aged 21 and older in the December CPS of the same year, as well as selected average demographic characteristics among household heads aged 21 and older in the preceding year's ACS. The expanded sample is created by relaxing the original selection criteria used to construct the analysis sample, for example raising the caps on gig work hours and earnings. See Section A2 of the paper for a complete description of the criteria used for the expanded sample.

Figure A5: Employment Rate Revisions, Adding Individuals Doing Gig Work in Preceding 14 Days, Sensitivity Analysis



*Source:* Survey of Informal Work Participation within the Survey of Consumer Expectations (SCE-SIWP) 2015–2022, ©2013 Federal Reserve Bank of New York.

*Notes:* The percentage point revisions (left panel) represent the raw difference between the revised employment rate percentage for a given year and the sample's baseline employment rate percentage for the same year. The percentage revisions (right panel) represent that same difference expressed as a percentage of the sample's baseline employment rate. The baseline employment rate refers to the percentage of SIWP respondents in the given year who are classified as employed based on the CPS-style questions. The two sets of revision criteria are the same as those described in the notes to Figure 6, but here the calculations are made (a) using the alternative weights described in the Figure A4 notes and (b) using the expanded sample (and the original weights) described in Section A2 of the paper.



Exhibit B1: CPS-style Elicitations of Employment Status

**Q44**

LAST WEEK, did you do ANY work for either pay or profit?

*Please select only one.*

- ☐ Yes
- ☐ No
- ☐ Unable to work in ANY job for at least the next 6 months. This is due to a medical condition or disability.

**Q45**

LAST WEEK, did you have a job either full or part time? Include any job from which you were temporarily absent.

*Please select only one.*

- ☐ Yes
- ☐ No
- ☐ Unable to work in ANY job for at least the next 6 months. This is due to a medical condition or disability.

**Q46** (If Q44 and Q45 are both “No”)

LAST WEEK, did you do 15 hours or more of unpaid work in a family business or farm?

*Please select only one.*

- ☐ Yes
- ☐ No

**Q47** (If Q44 is “No” and Q45 is “Yes”)

What was the main reason you were absent from work last week?

- ☐ On layoff (temporary or indefinite)
- ☐ Slack work/business conditions
- ☐ Waiting for new job to begin
- ☐ Vacation/personal days
- ☐ Own illness/injury/medical problems
- ☐ Child care problems
- ☐ Other family/personal obligation
- ☐ Maternity/paternity leave
- ☐ Labor dispute
- ☐ Weather affected job
- ☐ School/training
- ☐ Civic/military duty
- ☐ Other (please specify)\_\_\_\_\_

**Q48** (If “On layoff” is selected in Q47)

Has your employer given you a date to return to work?

*Please select only one.*

- ☐ Yes
- ☐ No

**Q49** (If Q48 is “No”)

Have you been given any indication that you will be recalled to work within the next 6 months?

*Please select only one.*

- ☐ Yes
- ☐ No

**Q50** (If Q44, Q45, and Q46 are all “No”, OR if Q44 is “No,” Q45 is “Yes,” and “On layoff,” “slack conditions,” “waiting for a new job to begin,” or “other” is selected for Q47)

Have you been given any indication that you will be recalled to work within the next 6 months?

*Please select only one.*

- ☐ Yes
- ☐ No

**Q51** (If Q50 is “Yes”)

What are all of the things you have done to find work during the last 4 weeks?

☐ \_\_\_\_\_

**Q52** (If Q50 is “Yes”)

Last week, could you have started a job if one had been offered?

*Please select only one.*

- ☐ Yes
- ☐ No

**Q52x1** (If Q52 is “No”)

Why not?

*Please select only one.*

- ☐ Waiting for new job
- ☐ Own temporary illness
- ☐ Going to school
- ☐ Other (please specify) \_\_\_\_\_

**Q53** (If Q44 is “Yes” or Q45 is “Yes”)

How many hours per week do you USUALLY work at your job? If you have more than one job, report your usual hours for all of your jobs combined?

☐ Please type your answer: \_\_\_\_\_

**Q54** (If Q53 is < 35)

Do you want to work a full time work week of 35 hours or more per week?

*Please select only one.*

- ☐ Yes
- ☐ No
- ☐ Regular hours are full-time

**Q55** (If Q53 is < 35 and Q54 is NOT “regular hours are full-time”)

Some people work part-time because they cannot find full time work or because business is poor. Others work part time because of family obligations or other personal reasons. What is your MAIN reason for working part-time?

*Please select only one.*

- ☐ Slack work/business conditions
- ☐ Could only find part-time work
- ☐ Seasonal work
- ☐ Child care problems
- ☐ Other family/Personal obligations
- ☐ Health/medical limitation
- ☐ School/training
- ☐ Retire/Social Security limit on earnings
- ☐ Full-time workweek is less than 35 hours
- ☐ Other (please specify) \_\_\_\_\_

**Q56** (If Q55 is “Slack work,” “Could only find part-time work,” or “Other.”)

Do you want to work a full time work week of 35 hours or more per week?

*Please select only one.*

- ☐ Yes
- ☐ No

Exhibit B2: SIWP-style Elicitation of Employment Status

**Q8**

What best describes your current employment situation?

*Please select only one.*

- ☐ Working full-time (whether you are self-employed or working for someone else)
- ☐ Working part-time (whether you are self-employed or working for someone else)
- ☐ Temporarily laid-off (this means that you expect to get back to your previous workplace)
- ☐ On sick or other leave from a job
- ☐ Have no job but would like to have a job
- ☐ Have no job and not interested in having a job

Exhibit B3: Last Informal Work Timing

**Q28a** (If reporting current participation in any informal task)

When did you last engage in any of the above informal paid activities or side jobs?

- ☐ Within the last 7 days
- ☐ Between 8 to 14 days ago
- ☐ Between 15 and 21 days ago
- ☐ Between 22 and 30 days ago
- ☐ More than 30 days ago, please specify: \_\_\_\_\_

#### Exhibit B4: Inclusion of Informal Work in CPS-style Employment Questions

**Q57** (If reporting current participation in any informal task)

Earlier in this survey, you indicated that you are currently engaged in paid informal work activities or side jobs. In particular, you mentioned that you are engaged in [list all informal activities in which respondents engaged]. Please think of these informal work activities. We are interested to know: did you include these informal work activities in answering the question “LAST WEEK, did you do ANY work for either pay or profit?” that appeared earlier in the survey? It is not a problem either way; we simply want to know which activities you considered in your previous response.

*Please select only one.*

- ☐ Yes  
☐ No

#### Exhibit B5: Reasons for Doing Informal Work

**Q32x2** (If reporting current participation in any informal task)

You indicated that you are currently engaged in informal paid activities or side jobs. What are the reasons why you are currently engaged in these informal paid activities or side jobs?

*Please select all that apply.*

- ☐ To earn money as a primary source of income  
☐ To earn extra money on top of pay from a current job, retirement, pension, disability, or other regular source of income  
☐ To maintain existing job-related skills  
☐ To network/meet people  
☐ Just for fun (as a hobby)  
☐ Other (please specify)\_\_\_\_\_

#### Exhibit B6: Willingness to Give Up Gig Work Hours

**Q36c** (If reporting themselves as employed or on leave, and not self-employed)

Suppose your current employer (or a similar employer) offered you the opportunity to work more hours per week and let you choose when to work them. This offer does not include any benefits (beyond any benefits that you may currently get). How likely would you be to give up informal hours in order to work more hours for this employer if...

	Not Likely	Somewhat Likely	Very Likely
The offered pay is more than 2 times as much as the pay you make in a side-job or other informal paid work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The offered pay is between 1.5 and 2 times as much as the pay you make in a side-job or other paid informal work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The offered pay is either equal to or up to 1.5 times as much as the pay you make in a side-job or other paid informal work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The offered pay is between as much and just below the pay you make in a side-job or other paid informal work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The offered pay is less than as much as the pay you make in a side-job or other paid informal work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>