The Rise of the Gig Economy: Fact or Fiction?

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Abstract

Gig work mediated through online platforms has received much recent attention. We find only one sector—the transportation services sector—in which there is unambiguous evidence of substantial and rapidly growing gig activity. A challenge for tracking and understanding the rise in gig activity is that core household surveys are missing the recent overall rise in self-employment that is apparent in administrative and private sector transactions data. We show that this limitation of available household survey data is evident even in the transportation services sector, where the growth in self-employment activity since 2013 has been exponential.

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I. The Gig Economy

The rise of the "gig economy" has attracted attention from both scholars and the popular media. Much of this attention has been devoted to the increase in jobs mediated through online platforms, which increasingly enable consumers to acquire goods and services from providers through apps on smartphones and other web based applications. There is a widespread perception that technological innovation is accelerating the pace of change in how work is organized.

This paper provides an overview of what we know and don't know about the hypothesized surge in the gig economy. There has been phenomenal growth, confirmed by at least three independent data sources, in the number of self-employed passenger drivers since 2013. The pace of this growth illustrates how quickly new technology can affect the labor market. Outside of this sector, however, the picture is considerably murkier.

Furthermore, as highlighted by Abraham et al (2018a, hereafter AHSSa), there has been a growing discrepancy between self-employment rates as measured in core household surveys such as the Current Population Survey (CPS) versus self-employment rates as measured in tax data. Over the past decade, the former show a slight decline whereas the latter show a notable increase. CPS data also have not captured the surge in passenger driver self-employment that is evident in other data. These facts suggest that, to understand the gig economy, the CPS and other core household surveys will need to be augmented by other types of data.

II. Definitions, Terminology and Data Sources

There is no accepted definition of the gig economy. AHSSa provide a taxonomy of alternative work arrangements that can be used to classify gig activity within the wide range of existing arrangements. Using this taxonomy, a gig worker is not paid a wage or salary; does not have an implicit or explicit contract for a continuing work relationship; and does not have a

predictable work schedule or predictable earnings when working. Applying this definition to the characteristics of the range of alternative work arrangements, we would consider independent contractors and freelancers, day laborers and on-demand or platform workers to be gig workers.

Under this definition, gig workers should be included in household survey data among the unincorporated self-employed. That group, which also includes unincorporated small business owners, is broader in concept than just gig workers. An important caveat is that many household surveys focus on main jobs and are not well designed to capture self-employment that is supplemental to a person's primary employment, something that other data suggest is relatively common. In tax data, some gig workers may receive an information return (either a Form 1099-MISC or a Form 1099-K), but not all gig work generates an information return, whether because the payer is not required to file one or because work is being done under the table, and the same forms may be used to report payments to other self-employed individuals who are not gig workers (Jackson, Looney and Ramnath 2017). All gig workers with more than minimal earnings should file a Schedule C and Schedule SE to report their income from gig work, but not all Schedule C or Schedule SE filers are gig workers.

Both household survey and tax data, then, provide estimates of the number of unincorporated self-employed individuals. Trends in these numbers are a sensible first place to look for suggestive evidence of whether gig work has been growing over time. Household survey data may be less likely to capture secondary self-employment than primary self-employment. Tax data will miss self-employment income that is not reported to the tax authorities. AHSSa show that data from the two sources combined provide a more comprehensive picture of self-employment than data from either source alone.

Private sector data sources offer an alternative means of measuring gig activity. Data

from Uber, Lyft and other ride sharing companies have been used to track the activities of rideshare drivers (e.g., Hall and Krueger 2018). Data on deposits to checking accounts via online platforms and data from online financial apps also have provided valuable information (e.g., Farrell and Greig 2016a, 2016b; Farrell, Greig and Hamoudi 2018; Koustas 2018). These types of data have the advantage that they identify payments to gig workers as opposed to self-employment activity more generally, but they may not capture all gig activity and may provide limited contextual information about the workers and their other sources of income.

III. Sectors with the Largest Increases in Self-Employment Activity

Multiple administrative data sources show substantial growth in self-employment over the past 10 years. Based on published Census Bureau statistics on nonemployer businesses, most of which are Schedule C sole proprietorships, the self-employment rate rose from 13 percent to 15 percent between 2004 and 2016. This may be indicative of a rise in the gig economy.[1]

Figure 1 displays the 15 3-digit North American Industry Classification System (NAICS) sectors with the fastest nonemployer growth from 2010 to 2016. Ranked industries are those with more than 100,000 nonemployers in 2010 and nonemployer growth of more than 10 percent from 2010 to 2016. Nonemployers in NAICS 485, Ground Passenger Transportation, grew by a phenomenal 298 percent or 651,000 over this period. Abraham et al (2018b, hereafter AHSSb) show that most of this growth occurred after 2013 among sole proprietors in NAICS 4853, Taxi and Limousine Services.

The four 3-digit industries with the next highest growth rates in the published nonemployer statistics for the same 2010-2016 period are NAICS 488, Support Activities for

[1] AHSSa and AHSSb find similar patterns restricting attention to nonemployer sole proprietors, nonemployers whose primary activity is self-employment, and self-employed individuals filing a Schedule SE. Jackson, Looney and Ramnath (2017) report that the fraction of individuals filing a Schedule SE rose from about 10 percent in 2000 to over 12 percent in 2014.

Transportation; NAICS 611, Educational Services; NAICS 448, Clothing and Clothing Accessories Stores; and NAICS 446, Health and Personal Care Stores. None of these other industries is an obvious fit with the popular conception of the gig economy and their growth has been far less dramatic than the growth of NAICS 4853.

Still, some of the industries with growing numbers of nonemployers may have experienced growth in gig activity that is difficult to detect because it is combined with a large volume of more traditional self-employment activity. As an example, the number of nonemployer businesses in NAICS 541, Professional, Scientific and Technical Services, grew by 10 percent (320,000 businesses) between 2010 and 2016 from a large base of more than 3 million nonemployer businesses. Some of the scientists, engineers and managers who are the proprietors of these added businesses could be engaging in gig-like activity, but it is hard to tell.

IV. Is the Transportation Sector Unique?

Multiple data sources confirm that gig activity in the passenger transportation industry has grown phenomenally since 2013. Hall and Krueger (2018) show that the number of active Uber drivers was essentially zero in the middle of 2012 and grew exponentially over the next three years to 465,000 by the end of 2015. In the latest of a series of papers from the J.P. Morgan Chase Institute (hereafter JPMC), Farrell, Grieg, and Hamoudi (2018) also document rapid growth in transportation sector gig activity. They use monthly information on the transactions associated with each of 39 million active Chase checking accounts.[2] Of the accounts in their sample, 1.6 percent received income through at least one of 128 online platforms in the first quarter of 2018, up from 0.3 percent in the first quarter of 2013. Much of this growth is attributable to income received through one or more of 36 transportation platforms.

[2] Their sample is restricted to accounts with a primary account holder age 18 or older and at least five outflow transactions in the month.

Despite the differences in the data sources just summarized—Schedule C self-employment tax filings, Uber records, and deposits into checking accounts—all show dramatic growth in the prevalence of income from driving since 2013. These different sources also paint a consistent picture of the nature of the growth in transportation sector gig activity. Using the JPMC data, Farrell and Greig (2016b) find that more than half of online platform participants end their gig activity within twelve months. Farrell and Greig (2016a) show that, in months when wage and salary income dips, online platform participants are able to offset those declines with platform earnings. In a study of rideshare drivers who used online software to manage their finances, Koustas (2018) finds similar results. AHSSb provide additional evidence, finding, for example, that workers displaced from wage and salary jobs in labor markets that Uber entered in the prior year are 16 times more likely to enter self-employment in NAICS 4853 than workers displaced in markets where Uber has not entered.

In contrast to these data sources, the CPS does not capture the rapid rise in gig activity in the passenger transportation sector. The solid line in Figure 2 shows published statistics from the Census nonemployer statistics program on the number of nonemployers in NAICS 4853 from 1997 through 2015. This series grew very rapidly after 2013. Following the methodology in AHSSa, we matched observations in the CPS Annual Social and Economic supplement (CPS-ASEC) with Census nonemployer records for the same individuals for the years 2012 through 2015. When we use the nonemployer information for the (weighted) linked sample to estimate the number of NAICS 4853 nonemployers in those years, we obtain numbers very similar to the published figures (not shown). The dashed line in the figure is the estimated number of NAICS 4853 nonemployers for whom the CPS captures self-employment activity in any industry. In contrast to the estimates based on the same people's NAICS 4853 nonemployer activity, the

series based on the CPS responses grew very little over the 2013-2015 period.

The data discussed thus far suggest there is only one sector that unambiguously has experienced truly dramatic growth in gig activity to date. One view is that this is a preview of what will come in other sectors as buyers and sellers of goods and services increasingly recognize the opportunity to match and conduct transactions through online mediators. There are other surveys, however, that suggest a larger volume of gig activity outside of transportation. One of these is the Survey of Household Economics and Decisionmaking (SHED).[3]

The SHED defines gig work broadly, including offline service activities such as child care or house cleaning, offline sales such as selling items at flea markets or thrift stores, and online services or sales such as driving using a ride-sharing app or selling items online. Results from the SHED indicate that, in 2017, 31 percent of all adults engaged in gig work in the month before the survey, including 16 percent engaged in online activities. The 16 percent estimate of adults participating in online sales or services is an order of magnitude higher than the JPMC estimate that 1.6 percent of their sample had platform income in the first quarter of 2018.

Because some payments mediated by online platforms may not flow directly into individuals' checking accounts or be easily identifiable as such, it is possible that the JPMC estimates understate the amount of gig activity. Further, to the extent there has been growing use of alternative payment arrangements, such as transferring earnings to a debit card via Lyft's Express Pay or Uber's Instant Pay, measures based on checking account deposits may have understated recent growth. There is also, however, reason to be skeptical about the estimates from the SHED. The SHED, conducted by market research firm GfK as part of its online

[3] Board of Governors (2018) reports high-level findings from the 2017 SHED. Two other surveys using similar methods and producing broadly similar results are the Survey of Informal Work Participation (SIWP) (Bracha and Burke 2018) and the Enterprising and Informal Work Activities (EIWA) survey (Robles and McGee 2016).

KnowledgePanel, has a response rate of just over 4 percent. One might expect people who are willing to participate in an online panel to be more likely than the average person to engage in other online and informal activities.

V. Summary and Next Steps

A decade ago there were few smartphones, no apps providing instant access to goods and services, and considerably more limited access to wireless high speed broadband connections. The exponential growth in connectivity may have lowered the cost of segmentation for many industries' production processes (see Fort 2017). One likely consequence of declining costs of production segmentation is growth in gig activity.

To what extent has this in fact occurred? At this point there is only one sector—passenger transportation services—in which all of the available evidence points clearly to a dramatic shift in the nature of work attributable to gig activity. The changes in passenger transportation have been associated with significant shifts in worker demographics (e.g., drivers who are more likely to be young and female) and workers appear to be taking advantage of the opportunity to drive on a flexible basis to supplement income from other sources. There is little direct evidence, however, of substantial shifts in other sectors.

The rapid and dramatic changes in the passenger transportation sector nonetheless highlight the potential for change. Adoption of new technologies often involves long and variable lags. An important objective for economic measurement will be to capture changes in the nature of work as they occur in the years to come. Even in these early days, it is clear that the conceptual and measurement challenges are substantial. Core household surveys such as the CPS appear not to be capturing changes that other data sources tell us are occurring. Periodic household survey modules that ask more probing questions are a potential strategy for capturing

how work is changing (Abraham and Amaya 2018), but the recent experience with the Contingent Workforce Supplement highlights the challenges of designing short modules to inquire about these topics that adequately capture the complexity of existing arrangements (Bureau of Labor Statistics 2018).

We recommend a multi-pronged integrated approach to tracking the changing nature of work. Integrated survey and administrative data already have provided rich new insights, as have naturally occurring transactions data from the private sector. Finding ways to better integrate survey, administrative and private sector data—for example, redesigning the SHED so that it can be linked to administrative records or linking private sector data sources with administrative records to obtain a more comprehensive picture of growth—should be a high priority. Such integration, conducted in an environment in which protecting the confidentiality of the data is paramount, has the promise to fill some significant measurement gaps.

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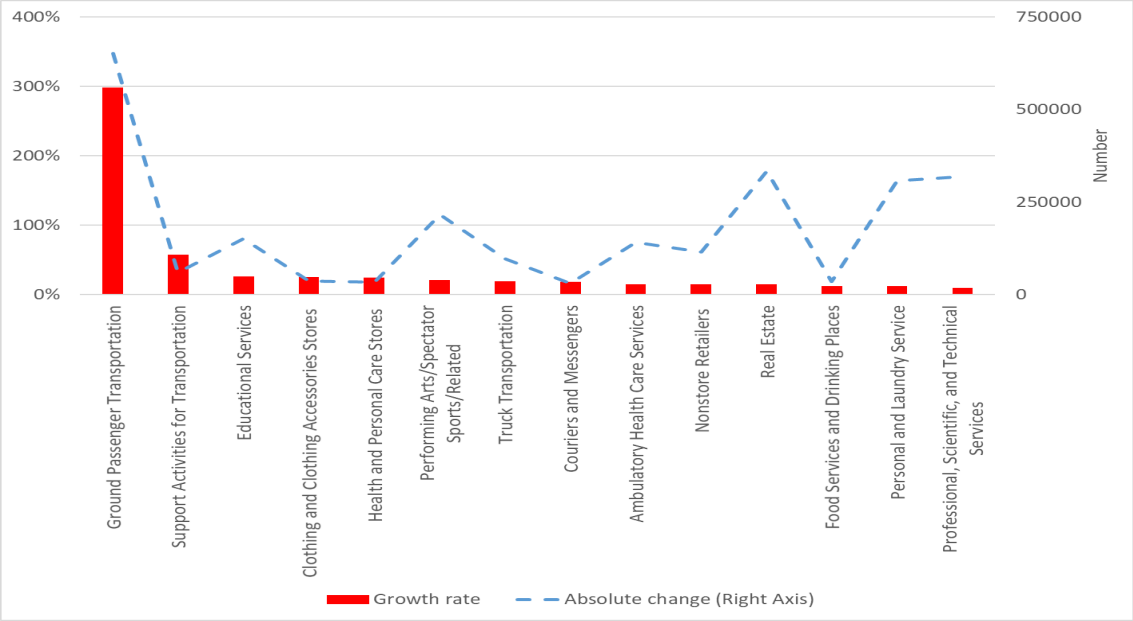
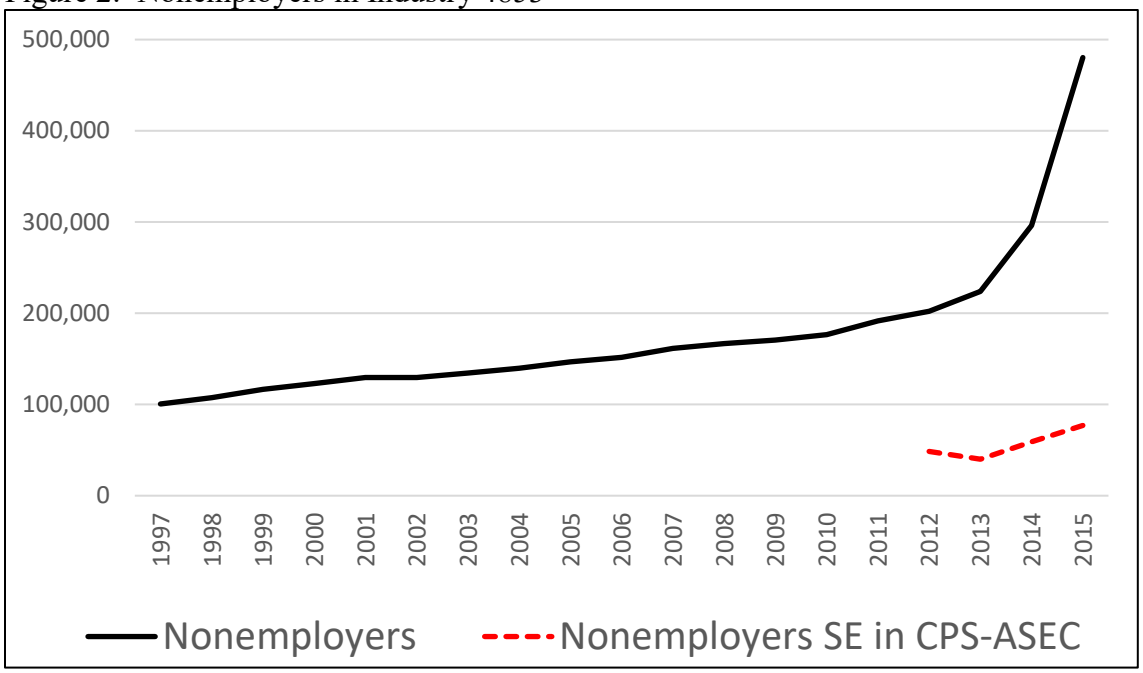
Figure 1: Fast Growing Nonemployer Industries, 2010-16



Note: Source is published nonemployer statistics. Industries are those with more than 100,000 nonemployers in 2010 and at least 10 percent growth from 2010 to 2016.

Figure 2: Nonemployers in Industry 4853



Note: Solid line published estimates. Dashed line estimates of NAICS 4853 nonemployers reporting self-employment in the CPS-ASEC.