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Insights from New Tax-Based Measures of Gig Work in the United States[1]

The "gig" economy has received a considerable amount of media and policy attention in recent years. Amid the active debate about the merits of gig work, there is also new literature that has emerged on measuring gig work (e.g., Katz and Krueger 2018; Collins et al. 2019; Abraham et al. 2018). Measuring the number of gig jobs and especially the growth rate of these jobs has proven difficult in the United States and in other countries. This is because, in most cases, gig work cannot be directly observed in government labor market surveys. The main approach to measuring gig work has been to launch new ad-hoc survey-based measures of gig work. While insightful, survey-based measures of gig work have important limitations and, in most cases, do not provide evidence on changes in gig work over time.

I begin by clarifying the definition of gig work used in this paper. I then describe the problem of measuring gig work in more detail. I highlight cross-country evidence and discuss literature from the North American context suggesting the main government labor market surveys may not accurately capture gig work. I briefly summarize new ad-hoc survey approaches to measuring gig work that attempt to better capture this sector. I then summarize new measures of gig work in the United States derived from tax records and discuss how these new estimates add to our understanding of gig work.

WHO IS A GIG WORKER?

The term "gig economy" has been used in different ways by the media and in the literature. In this paper, I will be using the term gig work to describe work done by self-employed workers who are being contracted by a firm. These types of workers are also referred to as "independent contractors" or "freelancers." This relationship with a firm is the distinguishing feature of gig work, in contrast to consumer-facing self-employment such as running a family-owned shop or restaurant.

Gig workers are one component of a broader "alternative workforce." The alternative workforce also includes temporary and contingent jobs done by wage employees. One important distinction to be made is that gig workers are self-employed, hence, they are not employees of firms they work for or with. This employee/non-employee distinction is important legally in the United States and many other countries because being classified as an employee carries a different legal status. Labor laws such as minimum wage, overtime provisions and protections for organizing a union only apply to wage employees and not self-employed gig workers. Benefits provision that occurs through firms, such as employer-sponsored health care in the United States, would also only apply to wage employees.

Gig work can encompass many different industries and occupations, from doctors to hair stylists to taxi drivers. Some new work that has emerged in recent years and that is being mediated by new online platforms, such as Uber and Etsy, appears to blur some of the lines described above. This new platform work has a consumer-facing element, but the platform workers must adhere to the platform policies, and can receive substantial direction and control by the platform. However, these workers, at least in the United States, have so far been legally classified as non-employees.[2] This new gig work mediated by new online platforms simply did not exist before the 2010s, which is evidence that at least some gig work must have grown over the last decade. These new gig jobs tend to have unique policy concerns, which is why it is useful to be able to separately measure online platform work alongside other long-term gig work.

THE SELF-EMPLOYMENT PUZZLE

Much of our understanding of modern labor markets comes from analyzing government labor market surveys, such as the Current Population Survey (CPS) in the United States. For researchers interested in studying gig work, however, these surveys have important limitations, as gig work is typically not separately identifiable. As a subset of self-employment, any rise in gig work should show up in self-employment statistics, all other factors being equal. Self-employment is identifiable in labor market surveys, so self-employment is a natural

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[2] This classification is currently facing a legal challenge in the US state of California - see, for instance, Rosenberg, E., "Can California Rein in Tech's Gig Platforms? A Primer on the Bold State Law That Will Try", *The Washington Post*, 14 January 2020, https://www.washingtonpost.com/business/2020/01/14/can-california-reign-techs-gig-platforms-primer-bold-state-law-that-will-try/.

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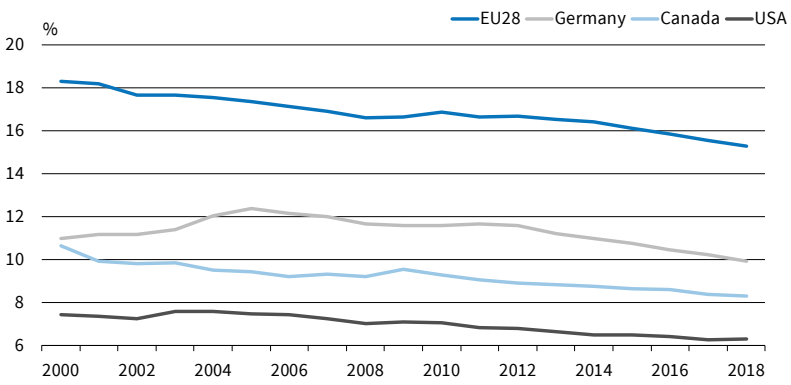
Figure 1
Self-employment Trends Across Selected Countries



Source: OECD. © ifo Institute

place to look to see if gig work might be growing. A priori, the United States might be expected to follow different trends from other countries in cross-country comparisons. New gig platforms largely started in the United States, and many operate there with far less regulation than in Europe or other OECD countries. Self-employment rates in the United States might therefore be expected to rise earlier and more sharply from the early 2010s.

To examine this hypothesis, Figure 1 shows self-employment rates since 2000 for Canada, Germany, the US and the EU28 from each country's respective labor-market survey (OECD 2020).

Somewhat surprisingly, there is no noticeable trend break in self-employment in recent years. US self-employment statistics appear to follow a similar negative trend seen in many other countries. This decline in self-employment is part of a long-run trend away from self-employment, documented in Blanchflower (2000).[3] In short, if the nature of work has been changing, it appears to have been steadily changing away from self-employment, not toward more self-employment.

Researchers studying self-employment in North America have noted a puzzling situation when comparing these survey-based measures of self-employment with counts of self-employed *tax filings*. As discussed in Abraham et al. (2018) in the context of the gig economy, but noted earlier in Abraham et al. (2013), self-employment tax filings are increasing in the US, in contrast to the household survey data on self-employment. A similar phenomenon has been observed in Canada (Jeon et al. 2019). To my knowledge, this direct comparison between survey and tax data has not een carried out for other countries and presents an opportunity for future research.

There are a variety of interpretations for this discrepancy between survey- and tax-filing-based measures of self-employment. One explanation specifically related to the gig economy is misclassifying gig work as wage employment instead of self-employment. Because gig workers do work for a firm, they might not realize they are self-employed, or think of themselves in this way when interviewed for a household survey. For example, a worker on the Amazon Mechanical Turk platform is technically an independent contractor, but they might think of themselves as "working for Amazon." This may lead gig workers to show up as wage employed on a labor market survey, even if they are technically self-employed for tax purposes.

In an attempt to better measure gig work, new surveys and survey questions have been created specifically that address gig and other forms of informal work. Some examples include Bracha and Burke (2016); Katz and Krueger (2019); Abraham et al. (2018); and Boeri et al. (2020). Because the wording of questions is designed to be more inclusive and, in many cases, encompass informal work more broadly, these surveys can sometimes show large numbers of workers engaged in gig work. Abraham et al. (2020) find that estimates of gig work can be very sensitive to the phrasing of the survey instrument, making it difficult to compare across surveys. While certainly insightful about the number of gig workers at a point in time, a disadvantage of fielding new ad-hoc surveys is that the results are only valid cross-sectionally, making it difficult to know whether gig work has increased over time. One notable exception of a survey facilitating comparisons over time is the US Bureau of Labor Statistics' Continent Worker Supplement (CWS) to the CPS, which has been fielded in 1997, 1999, 2001, 2005 and 2017. The CWS shows very little rise in its main estimate of independent contracting over time. One disadvantage of the CWS is that it focuses on full-time/primary work, although additional questions about electronically mediated work were added to the 2017 survey and asked to all workers.

Before moving on, I would like to briefly discuss bank data as another novel data source being used to measure platform gig work. Because many companies pay workers by making a direct deposit into a bank account, data where these transactions are observable can allow researchers to measure gig work. The research institute at one prominent bank in the United States has been measuring platform gig work using this methodology (Farrell et al. 2018). I have also identified platform gig workers using data from a personal financial aggregator (Koustas 2018 and 2019). The main advantages of this approach are that gig work can be observed in high frequency, work on multiple platforms can be observed, and the nature of these datasets is that they provide a link to other income and in some cases expenditures. This methodology only really works for measuring work on new online platforms where direct deposit is often required, and the payer string is easily identifiable and is clearly associated with gig work. Other types of gig jobs outside of the major platforms will be difficult if not impossible to observe

[3] One noticeable exception to this trend is Britain, which has seen self-employment rise by 3 percentage points from 2000–2018.

in the data, even if a researcher knew exactly what to look for.

Of course, another potential data source is the gig platforms themselves. The platforms collect additional data useful for researchers, such as worker hours, and the platforms may allow researchers scope for designing experiments. While it has been possible for researchers to collaborate with particular companies, collaborating with many companies on a large scale is likely not feasible for measurement questions unless reporting were mandated by governments.

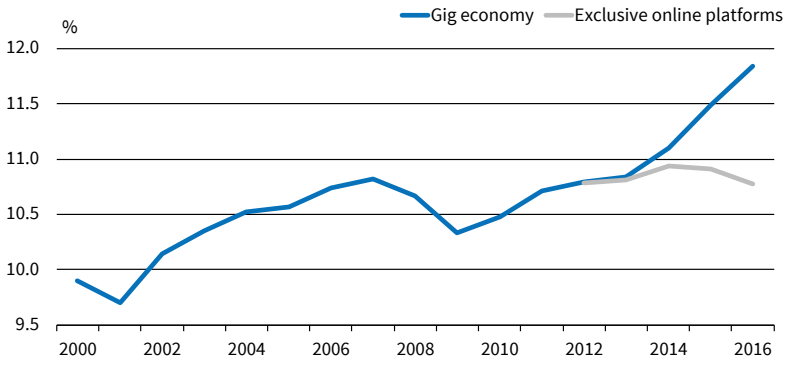
A NEW TAX-BASED MEASURES OF GIG WORK FOR THE UNITED STATES

In the US, new measures of gig work have been derived from tax data that overcome some of the limitations described above (Jackson et al. 2017; Collins et al. 2019; Lim et al. 2019). Measurement is made possible by a unique feature of tax-reporting in the United States: US firms are required to report to tax authorities the income they pay to their gig workers. As is the case in many countries, wage and salary employees will have their income reported directly by their firms to US tax authorities. Self-employed workers, on the other hand, will voluntarily report self-employment earnings when they fill out their taxes. Of course, self-employment income should be backed up by financials and there is always the risk of having these financials audited. The income of gig workers is double reported: firms report payments to gig workers of at least $600 to the tax authorities, in a similar way as they do for employees,[4] and gig workers also report this income as self-employment income when filing their taxes. These reports by firms can be used to estimate the number of gig workers in the United States and to gather other descriptive statistics on this workforce. To my knowledge, the United States is the only country where gig relationships are reported by firms to tax authorities, presenting a unique opportunity to isolate gig work from other self-employment filers.

These firm reports of gig workers have a number of advantages in terms of measurement. First, because the payers are observed by tax authorities, the data allows new online platform work to be separately identified from other gig work. Second, since the income is third-party firm reported, workers do not actually need to file their taxes to be counted. Tax filing can change from year to year for many reasons. For instance, tax filing tends to fall in recession years when fewer workers have income above tax-filing thresholds. Finally, while it is well known that self-employment income tends to be underreported, firms have no incentive to underreport gig relationships (in fact, the incentive is just the opposite, since firms will deduct these expenses as part of their business costs).

Figure 2

Gig Work and Self-employment in the United States



Source: Collins et al. (2019). © ifo Institute

KEY FINDINGS

One of the most basic questions is whether gig work is growing over time. Figure 2, from one of my papers (Collins et al. 2019), shows the share of the workforce with any gig work over the period 2000-2016. We find that the share of the workforce with income from gig work has grown by 1.9 percentage points of the workforce from 2000 to 2016, and now accounts for 11.8% of the workforce.

The time series shows interesting patterns. Gig work grew in the early 2000s, long before the rise of online platforms. It declined during the Great Recession and has increased by around 1 percentage point of the workforce since 2012. The dashed line excludes gig workers who work for firms identified as online platforms. We find that virtually all expansion of the gig workforce since 2011 comes from online platform work. By 2016, about 2 million Americans, or 1 percentage point of the workforce, had income from an online platform.

While gig work has grown as a share of the workforce, we find that workers in 2016 were no more likely to earn their livelihood through *full-time* gig work than they were a decade earlier. In the overall gig economy, about 60% also have a wage or salary job over the course of the year. Among work for new online platforms, the share with another wage job over the course of the year is much higher, approximately 80%. In fact, most workers on online platforms make less than 2,500 US dollars. These findings shed important light on the way workers interact with and use gig-economy jobs. Moreover, these findings present lessons and challenges for survey measures of gig work. Since gig income is for small amounts and may occur intermittently, people might not recall this income on annual surveys. Moreover, given that much of the work is part-time, it will be explicitly excluded

[4] Technically, firms report compensation to non-employees on tax Form 1099MISC. Some online platforms use a different tax form with different reporting requirements (Collins et al. 2019) for more details.

from surveys that ask about a primary job, like the CWS in the United States.

We find important heterogeneity in our trends across demographic groups and regions of the United States. Men are considerably more likely to do gig work, and virtually all the growth in gig work among men has come from platform work in recent years. On the other hand, the propensity of women to do gig work has grown by about 25% since 2000, and women are much less likely to do platform work. Platform work is much more common among younger workers, whereas other gig work is more common among older workers. Platform work also tends to be more common in cities in the US, which is likely due to network effects, whereas non-platform gig work is much less concentrated and much more common in rural areas in the Plains and southern states.

We also find differences in the way households use gig work compared with other self-employment. In Garin et al. (2020), we compare and contrast new online platform work with other gig work, as well as with consumer-facing self-employment. We find that people who start platform work do so around smaller income losses than other gig workers. The biggest declines in income occur when starting consumer-facing self-employment. In addition, we show that it is more common for non-gig self-employed workers to claim tax incentives like the Earned Income Tax Credit (EITC), a refundable tax credit in the United States for lower-income households, when they start gig work. This may be because self-reported self-employment may be more likely to be reported when incentivized by the tax code. Recall that our measure of gig income based on firm reports is not subject to these same incentives because it is reported by firms.

Because gig income is double-reported in the US, this also allows us to study the share of gig work that is being reported to tax authorities. Not all gig work requires reporting in the US: profits (i.e., net revenues after accounting for expenses) must exceed a reporting threshold.[5] Moreover, there is non-compliance with the tax code. Among the online platforms, we find that around 40% of gig workers do not show up in individual self-reported tax filings. While much of the non-reported income is likely for small amounts, the bottom line is that firm-reported measures will do a better job of showing a more complete picture of the gig workforce.

DISCUSSION AND CONCLUSIONS

In this paper, I discussed some limitations of labor force surveys for measuring gig work and presented a new measure of gig work in the United States that is able to overcome some of these issues. This measure is based on firm-reporting of gig relationships to tax authorities. To my knowledge, this is a unique feature of the US tax system. Using this measure, I presented some new insights about gig work in the United States. A key finding is that while gig work has been growing, most gig work is done as a second job rather than full-time work. This is especially true for the work being done on new online platforms. These facts about the ways households interact with gig work are important to document, and they can help inform the way researchers model gig work and policymakers regulate it going forward.

It is not immediately clear how similar US gig work is to the gig work of other countries and exploring any differences across countries remains an exciting area for future research. Measuring gig work outside the US will continue to require new data collection efforts on top of labor force surveys or simple counts of self-employment tax filings. Surveys that run continuously for many years and employ scientific survey methods will undoubtedly be the most useful for understanding trends in gig work. However, this type of survey is costly, particularly if multiple questions are required to elicit participation in gig work. Other sources may exist or could be modified in the future to measure gig work. The OECD has recently released draft guidelines for reporting platform gig work to tax authorities that, if adopted, may facilitate measurement of the platform component of the gig economy (OECD 2020b). I hope the issues and new approaches discussed in this paper will provide insights for researchers and policy-makers in other countries who are interested in measuring gig work.

[5] Around 400 US dollars in the United States.

REFERENCES

Abraham, K., J. Haltiwanger, K. Sandusky and J. Spletzer (2013), "Exploring Differences in Employment Between Household and Establishment Data", *Journal of Labor Economics* 31, S129–S172.

Abraham, K., J. Haltiwanger, K. Sandusky and J. Spletzer (2018), "Measuring the Gig Economy: Current Knowledge and Open Issues", *NBER Working Papers* 24950.

Abraham, K., B. J. Hershbein and S. N. Houseman (2020), "Contract Work at Older Ages", *Upjohn Institute Working Paper* 20-323, https://doi.org/10.17848/wp20-323.

Boeri, T., G. Giupponi, A. B. Krueger and S. Machin (2020), "Solo Self-employment and Alternative Work Arrangements: A Cross-Country Perspective on the Changing Composition of Jobs", *Journal of Economic Perspectives* 34, 170–195.

Collins, B., A. Garin, E. Jackson, D. Koustas and M. Payne (2019), "Is Gig Work Replacing Traditional Employment? Evidence from Two Decades of Tax Returns", *SOI Working Paper*, https://www.irs.gov/pub/irs-soi/19rp-gigworkreplacingtraditionalemployment.pdf.

Blanchflower, D. (2000) "Self-employment in OECD countries", *Labour Economics* 7, 471–505.

Bracha, A. and M. A. Burke (2016), "Who Counts as Employed? Informal Work, Employment Status, and Labor Market Slack", *Federal Reserve Bank of Boston Working Paper Series* 16–24.

Farrell, D., F. Greig and A. Hamoudi (2018), *The Online Platform Economy in 2018*, J. P. Morgan Chase & Co. Institute, https://institute.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/institute/pdf/institute-ope-2018.pdf.

Garin, A., E. Jackson, D. Koustas and C. McPherson (2020), "Is New Platform Work Different than Other Freelancing", *AER Papers and Proceedings* 110, 156–161.

Jackson, E., A. Looney and S. Ramnath (2017), "The Rise of Alternative Work Arrangements: Evidence and Implications for Tax Filing and Benefit Coverage", *Office of Tax Analysis Working Paper* #114. https://www.

treasury.gov/resource-center/tax-policy/tax-analysis/Documents/WP-114.pdf.

Jeon, S. H., H. Liu and Y. Ostrovsky (2019), "Measuring the Gig Economy in Canada Using Administrative Data", *Analytical Studies Branch Research Paper Series* 11F0019M No.437, Statistics Canada, https://www150.statcan.gc.ca/n1/en/catalogue/11F0019M2019025.

Katz, L. F. and A. B. Krueger (2018), "The Rise and Nature of Alternative Work Arrangements in the United States, 1995–2015", *ILR Review* 72, 382–416.

Koustas, D. (2018), *Consumption Insurance and Multiple Jobs: Evidence from Rideshare Drivers*, https://uchicago.app.box.com/v/DKoustas-RideSmoothing-WP, mimeo.

Koustas, D. (2019), "What Do Big Data Tell Us About Why People Take Gig Economy Jobs?" *AER Papers and Proceedings* 109, 367–371.

Lim, K., A. Miller, M. Risch and E. Wilking (2019), "Independent Contractors in the US: New Trends from 15 Years of Administrative Tax Data", *SOI Working Paper*.

OECD (2020a), *Self-employment Rate (Indicator)*, Paris, doi: 10.1787/fb58715e-en.

OECD (2020b), *Model Rules for Reporting by Platform Operators with Respect to Sellers in the Sharing and Gig Economy*, OECD Public Consultation Document, https://www.oecd.org/tax/exchange-of-tax-information/public-consultation-document-model-rules-reporting-platform-operators-with-respect-sellers-sharing-gig-economy.pdf.