The Impact of Third-Party Reporting on Tax Compliance: Evidence from Gig Workers*

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Abstract

The rise of platform gig work in recent years has meant more workers have self-employment earnings, which are not subject to tax withholding but generally covered by information reporting on 1099 returns. In 2017, many gig workers suddenly and unexpectedly stopped receiving a 1099 for their work activity, providing an opportunity to study the impact of third-party reporting on tax compliance for gig workers. We first exploit exogenous variation in receiving a 1099 information return using a border-county design in two states where all workers continued to receive a 1099. We find no impact of receiving a 1099 on whether one files a tax return, but find that each dollar reported on a 1099-K increases self-reported profits by 17 cents. We then use the state-level filings to impute the size of the national online platform workforce in 2017 and 2018. We estimate that 770,000 gig workers did not receive information returns due to the change in third-party reporting practices by online platforms and that $560 million in profits went unreported on income tax filings as a result.

*All results presented in this work using IRS data are drawn from the IRS Statistics of Income working paper "The Evolution of Platform Gig Work, 2012–2023" (Garin et al., 2024), which is publicly available on the IRS SOI website at https://www.irs.gov/pub/irs-soi/23rpevolutionofplatformgigwork.pdf. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and do not necessarily reflect the views or the official positions of the U.S. Department of the Treasury or the Internal Revenue Service. All results have been reviewed to ensure that no confidential information is disclosed.

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1 Introduction

Work mediated by online platforms has emerged as a widespread phenomenon over the last decade (Collins et al., 2019; Garin et al., 2024). The rise of platform gig work in recent years has meant more workers have self-employment earnings, which are not subject to tax withholding but generally covered by information reporting on 1099 returns. Across a diverse array of settings, third-party information reporting about payments has been shown to be crucial for effective tax collection (Kleven et al., 2011; Kleven, Kreiner and Saez, 2016; Pomeranz, 2015; Slemrod, 2019). However, a policy change intended to expand the scope of information reporting of small business income led to an unintended disruption in third-party reporting in the gig economy in 2017, when major platform gig firms switched to reporting at a higher threshold. As a result of this disruption, many platform-based gig workers with low-to-moderate earnings who were accustomed to receiving a 1099 return were no longer covered by information reporting. This raises the question: how do tax filers change their behavior when they stop receiving information returns? The answer matters both for tax administration, particularly as the US is currently considering plans to lower 1099 filing threshold and a growing number of states implement their own 1099 reporting requirements with low thresholds, and for efforts to measure the size of the gig economy based on tax return data (Garin, Jackson and Koustas, 2022).

In this paper, we study how the emergence of a gap in information reporting for gig economy payments between $600 and $20,000 following the adoption of the 1099-K return by OPE companies impacted individual tax filing behavior and the overall reporting of gig work more generally. To do so, we leverage the fact that two states, Massachusetts and Vermont, instituted state-level information reporting requirements for all gig economy payments above $600 beginning in 2017, the same year OPE companies began reporting on 1099-K. As a result, workers in these states continued to receive consistent information reporting even as the 1099-K gap emerged in the rest of the US, though the information collected by the states was not initially shared with the federal IRS. Drawing on the state-level information returns for MA and VT merged to the universe of US federal tax returns filed with the IRS, we evaluate the impacts of this reporting change using a border design that compares incumbent platform workers who lived in the same labor market but on opposite sides of the MA or VT state borders. The core identification assumption is that

underlying gig economy labor supply and earnings evolved in parallel on both sides of the border, so that any change in earnings reported on federal income tax returns reflects changes in taxpayer compliance due to the receipt of a state-level information return versus no information reporting.

We find that workers who no longer received information returns reporting their gig economy earnings reported lower self-employment revenues to the IRS on their income tax returns. For every dollar less of gig economy payments reported on an information return, workers report 28 cents less of receipts on their income tax return. After accounting for accompanying declines in the amount of expenses deducted, this amounts to 17 cents less in profits reported on Schedule C for ever dollar in gross payments not reported on a 1099 return. In practice, we find the dollar-for-dollar pass-through from information reporting to self-reporting is largest for older and higher-income tax payers, primarily because such individuals have higher baseline rates of reporting Schedule C and our estimates indicate that 1099-K reporting has larger effects on the intensive-margin amounts reported on Schedule C but not the propensity to file Schedule C.

We then consider the aggregate implications of this "1099-K gap". Using our data on state-level and federal information reporting, we estimate that 770,000 additional 1099 returns with information on gig economy payments would have been issued in the US for tax year 2018 if gig economy trends in MA/VT evolved in parallel to trends in the rest of the country. We estimate that the average amount that went unreported on each missing return in the coverage gap was $4,270. Applying our pass-through estimates from the border design, our results imply that each missing return resulted in $726 less in taxable profits reported on income tax returns in each case, amounting to $560 million in aggregate taxable profits omitted from income tax filings due to the 1099-K gap.

Our work provides novel evidence about the importance of third-party information reporting for tax administration. This research contributes to a growing body of empirical work on this topic, which is surveyed in Slemrod (2019). Several recent papers have also examined the introduction of 1099-K reporting in other settings. Slemrod et al. (2017) studied the initial introduction of 1099-K reporting in 2011 and found little impact on aggregate Schedule C reporting, but an surge in small business reporting Schedule C receipt amounts exactly matching the amounts on 1099-K. Adhikari, Alm and Harris (2021) show that areas with a greater share of purchases made using payment cards (transactions which were subject to 1099-K reporting) saw reported small business receipts increase

more after the introduction of the 1099-K. Similarly, Adhikari et al. (2022) show that taxi drivers in cities with ordinances requiring that drivers accept credit card payments increased Schedule C reporting after 2011 relative to taxi drivers in cities without ordinances. Our paper extends this literature in several ways. First, we examine a *decrease* in information reporting coverage that was an unintended byproduct of the 1099-K introduction; the effects of reducing third-party reporting coverage are not necessarily symmetric to the effects of expanding coverage. Second, we focus on gig economy workers, who largely engage in self-employment as a secondary or part-time source of income and may therefore be particularly responsive to information reporting. Additionally, we directly estimate the average pass-through of third-party reported amounts to Schedule C receipts (and net profits) which facilitates estimation of aggregate effects.

Our study also speaks to ongoing policy debates about the merits of lowering 1099-K reporting thresholds at the federal and state level. In large part due to concerns about the 1099-K gap, the 2021 American Rescue Plan Act (ARP) altered the reporting rules for the 1099-K, lowering thresholds from 2022 from $20,000 and 200 transactions to $600 with no minimum transactions as part. The ARP specified that the new reporting rules were supposed to go into effect in 2022; however, the implementation of the rule has been delayed for in part due to perceptions that increased third-party reporting would increase Americans' tax burdens.[1] In addition, a growing number of states have followed the example of MA and VT and introduced legislation to introduce state-level 1099-K reporting requirements for residents subject to lower thresholds. We provide evidence both about the causal impacts of such efforts on taxable earnings reported to tax authorities and the total amount of earnings in the current reporting hole that would be impacted by such reforms.

This paper also contributes to the literature measuring the rise of platform-based gig work and its contribution to broader trends in self employment. Earlier work highlights that online platform work is not well-captured by traditional labor force surveys and tax data is therefore a crucial resource to assess the impacts of the OPE (Abraham et al., 2018; Garin, Jackson and Koustas, 2022). Our work shows that accounting for the 1099-K gap is a first-order consideration

[1]For some examples of the incorrect narrative that information reporting is an increase in taxes, see, The Editorial Board, "The IRS Goes After Your Side Hustle," *Wall Street Journal*, Dec 7, 2022; The Editorial Board, "The IRS's Act of $600 Mercy," *Wall Street Journal*, Nov 21, 2023. In the latter article, the WSJ Editorial Board writes, "The reporting mandate contradicts the Administration's assurance that the IRS wouldn't use the additional $80 billion it received from the inflation reduction Act to target non-affluent Americans." The rule is now set to be implemented in 2025 for transactions in the tax year 2024 that exceed a $5,000 threshold.

when using tax data to measure growth in the online platform economy. We further explore the implications of our results for measuring gig economy trends in a companion piece Garin et al. (2024).

2 Background and Data

2.1 Third-Party Reporting for Online Platform Workers

Under US tax law, gig economy participants who do work through online platforms such as Uber, Lyft, or Doordash, are self-employed small business owners. As such, they are required to report their gig economy revenues, expenses, and net profits on Form 1040 Schedule C, and pay income and Medicare/Social Security taxes on their profits. Gig work earnings are not generally subject to withholding so participants are responsible for reporting their proceeds themselves. Importantly, however, the gross payments made by online platform companies to gig workers are subject to information reporting. Prior to 2011, online platform companies reported payments to platform workers to the IRS following the longstanding rules for reporting "nonemployee compensation" to independent contractors. Those rules required that all annual payments exceeding $600 had to be reported to the IRS on Form 1099-MISC Box 7. which was replaced by Form 1099-NEC beginning in 2020.

However, gig economy information reporting was impacted by the introduction of Form 1099-K reporting, which was established by the Housing Assistance Act of 2008 and went into effect beginning in 2011. Under the new reporting rules, all payments to small businesses processed by settlement entities that process payment card transactions or third-party-settlement entities (TPSEs) such as Paypal had to be reported by those entities to the IRS, so long as the total payments exceeded $20,000 over the year. This change was originally intended to *expand* the scope of third-party reporting, since many types of small-business revenues were processed by such entities, but had not previously been subject to third-party reporting. Yet, despite this intention, the 1099-K led to an *reduction* in third-party reporting in the gig economy as several major peer-to-peer platforms made a determination that they were actually TPSEs—that they were not themselves compensating gig workers but processing the compensation payments made by individual platform customers—and that those payments were therefore subject to 1099-K reporting

(with a $20,000 reporting threshold) and not nonemployee compensation reporting on 1099-MISC (with a $600 reporting threshold).[2] If platform companies adhered to the respective reporting for each return, the result would be that many payments that would have previously been reported to the IRS would no longer be covered by third-party reporting.

In practice, while many major platforms began reporting peer-to-peer payments on 1099-K beginning in 2012, most voluntarily issued 1099-Ks to all platform participants regardless of the earnings level through 2016 (Collins et al., 2019). Beginning in 2017, however, some large platforms announced changes in their reporting policies and have moved to only report income on the 1099-K if payments met the higher $20,000 reporting threshold. Using data described below, Figure 1 shows that, by 2018 platforms had essentially entirely ceased to report payments below $20,000 on federal 1099-Ks.

Partly in response to these changes in reporting rules, several states subsequently passed laws implemented state-level 1099-K reporting subject to a lower $600 threshold. Two states, Massachusetts and Vermont, implemented state-level 1099-K reporting requirements in 2017 coinciding exactly with the decline in federal 1099-K reporting. After 2019, several other states have implemented similar requirements; we list these states and the detail of their policies in Appendix Table B.1. We obtained the 2017 and 2018 1099-K filings in MA and VT and compare their distribution to the distribution of federal 1099-K filings in Figure 1. While there is a clear drop-off in federal 1099-Ks issued below $20,000 in 2017 and 2018, the distribution of *state* filings coincides with that of the federal returns above $20,000 but continues smoothly below $20,000 as well. Thus, the state-level returns offer a comprehensive picture of the the gig economy earnings that would otherwise have fallen into the 1099-K reporting gap for workers in covered states.[3]

2.2 Data

We draw on the universe of tax returns filed with the IRS between 2012 and 2018, including both individual income tax returns and information returns. We observe information reported by

[2]This determination only applied to the payments collected from individual platform customers; any incentive or bonus payments made by platform companies to workers were reported separately to workers on 1099-MISC Box 7 through 2019 and 1099-NEC beginning in 2020.

[3]Platforms were allowed to comply with state-level reporting rules either by filing a state-level information return or by issuing federal 1099-Ks to all workers covered by state-level reporting requirements. Panel (e) of Figure 1 shows that some companies took this latter route, as we do see some federal 1099-Ks with amounts less than $20,000 issued only to individuals in MA or VT.

individuals to the IRS on their Form 1040 income tax returns, including their self-employment revenues, expenses, and profits reported on Schedule C and their total self-employment profits subject to social security taxes on Schedule SE. In addition, we observe all payments to employees reported on W-2 information returns, as well as all payments to independent contractors and gig workers on 1099-MISC Box 7 and 1099-K. We measure participation in platform work based on receipt of an information return from a payer known to be an online platform. Updating Collins et al. (2019) to include platforms operating at any point through 2023, we focus on a list of over 90 different labor platforms that account for the overwhelming majority of payments to gig workers over the period studied (Garin et al., 2024).

We also have access to the state-level 1099-K data from Massachusetts and Vermont, states which have entered into data-sharing agreements with the IRS for tax years 2017 and 2018. For 2017 and 2018, both states require platforms to file state-level 1099-Ks to all payees with $600 or more in revenues. We are able to use taxpayer ID numbers to link all information on the state-level returns to federal tax information. While the state-level 1099-K covers all payments processed by TPSEs or payment card processors, we identify the returns issued by online platform companies using the same list described above.

3 Effects of the 1099-K Gap on Individual Reporting Behavior

3.1 Empirical Strategy

In this section, we examine the impact of the 1099-K gap on individual taxpayer reporting. To do this, we compare the behaviors of workers living in Massachusetts near the state border with workers living on the other side of the border in adjacent states around the introduction of state 1099-K (the "MA-1099-K") in 2017.[4] On the Massachusetts side of the border, workers continued to have all payments from platforms over $600 reported on an information return, while workers who live in adjacent states largely ceased to receive 1099-Ks for their platform earnings starting in 2017. Meanwhile, platform workers close to the border on either side operate in the same labor market and face identical labor conditions. Since states may have other differences in policy, we

[4]We do not include Vermont in our baseline analysis, given the small counts of total platform workers living near borders. However, we include Vermont in robustness results in the Appendix and find qualitatively similar results.

employ a difference-in-differences border design that compares differential evolution of outcomes on each side of the border around 2017. The identifying assumption is that there are no differential changes in policy or market conditions on opposite sides of the border around 2017 besides the introduction of the state 1099-K reporting.

In our baseline analysis, we focus on individuals in the workforce in 2016 who had earnings less than $20,000 reported on a federal 1099-K in 2016. This is the group most likely to be impacted by changes in 1099-K reporting in 2017. The MA law does not just affect 1099-K reporting for gig workers, but for a broader set of economic activity, mainly by small businesses. Massachusetts is a relatively small state with large counties; Figure A.2 shows that, for any county, the largest distance between a zipcode and the border is under 60 miles, but some counties, like Worcester county, extend from the top to the bottom of the state, and clearly reflect different labor markets. In our baseline specification, we restrict to workers who lived in zipcodes with a centroid within 15 miles of the border in 2016 and assign "treatment" status by their state of residence in 2016. Table B.2 shows descriptive statistics. Column (1) reports descriptive statistics for 2016 gig workers in our baseline sample, while Column (2) compares descriptive statistics for the broader 2016 tax workforce.

Our main individual-level specification is given as follows:

$$y_{it} = \beta \mathbb{I}\{State_i = MA\} * Post_t + \delta_i + \zeta_{p(i),t} + \epsilon_{it} \tag{1}$$

where the subscript i indexes an individual. The individual fixed effects δ_i captures any fixed difference in policy or sample composition across states. We include county border pair by year fixed effects, $\zeta_{p(i),t}$, which limits our comparisons to sets of individuals in pairs of counties that border each other, but happen to be in different states by absorbing trends common to everyone in the county pair.[5] We conduct our analysis on data from 2014 to 2018, and the "post" period is defined as 2017 and 2018. We also estimate dynamic versions of the same specification with year-specific effects (relative to the omitted pre-year 2016) in order to examine whether there were differential pre-trends across the border. We examine a balanced panel of individuals and code

[5]Note: one county can appear in more than one matched county pair, so the final dataset used in this analysis expands based on the number of county pairs. Each individual therefore appears once per border county pair their 2016 county of residence is a part of; we cluster at the individual level to account for this potential repetition of individuals.

outcomes as zeros whenever no tax information is present.

3.2 Main Results

Table 1 reports the "first-stage" effects of the introduction of the low-threshold state 1099-K in Massachusetts in 2017 on the information returns individuals receive from gig platform companies. Incumbent platform workers in Massachusetts are about 20 percentage points more likely to receive a 1099-K—including both federal and state 1099-K returns—and 18 percentage points more likely to receive any information return from a gig work platform in 2017 and 2018 than individuals on the other side of the border—including zero observations, this amounts to a $2,100–$2,500 increase in reported revenues on OPE 1099s on average. Panels A and B of Figure 2 show how these effects evolved over time. Importantly, we observe that the 1099-reported earnings of platform workers trend in parallel until 2017 when a sharp change in reporting occurs around the introduction of the state 1099-K in MA, supporting our identifying assumption.[6]

We examine the downstream implications for individual reporting in Panel (A) of Table 2. We find limited evidence that the introduction of the state 1099-K and the corresponding 20 percentage points increase in the share of individuals getting a 1099-K increase the probability of filing a Schedule C. We find a small 1.5 percentage point increase in the likelihood of filing Schedule C (a 3–4 percent increase over the control group rate), but we cannot reject zero effect at even a 10 percent confidence level. Nonetheless, we find evidence of nontrivial effects on reported profits. We observe that individuals report about $700 more gross receipts on Schedule C—about 30 percent of the increase in 1099-reported receipts. However, affected individuals also increase their reported expenses on Schedule C. On net, we find a highly statistically significant $420 increase in net profits reported on Schedule C. This increase in profits translates into a 2.8 percentage point higher probability (roughly a 10 percent increase over the control group rate) of paying self-employment taxes on Schedule SE—which is only required to be filed if Schedule C profits exceed $433—and a $328 increase in total profits reported on Schedule SE. Reassuringly, we find no estimated effect on third-party reported W-2 earnings, which should not be impacted by 1099-K reporting in any way.

[6] When calculating individual total 1099-K earnings (either on its own or as a component of OPE earnings), we draw on both state-level and federal returns. For individuals in MA and VT, we only use amounts on state-level 1099-Ks (which should also cover all payments that would be subject to federal 1099-K reporting), and for other individuals we use amounts on federal 1099-Ks.

Panels C and D of Figure 2 show that these outcomes also evolve in parallel up until 2017, where reporting increases suddenly among individuals on the MA side of the border.

To benchmark the magnitudes of these individual reporting effects to the "first-stage" effects on receiving a 1099-K, we estimate two-stage least squares specifications in which we treat the receipt of a 1099-K or the amount reported on the 1099-K as the explanatory variable using $\mathbb{I}\{State_i = MA\} * Post_t$ as an instrument. The estimates from these specifications, which are presented in Panel (B) of Table 2, quantify the pass-through of information return reporting to individual reporting on form 1040. We find that issuing a state 1099-K to an individual increases the probability of filing any Schedule C and Schedule SE by 6.4 and 12.3 percentage points respectively.[7] In dollar amounts, we find that each additional dollar reported on a state 1099-K that would have gone unreported otherwise raises receipts reported on Schedule C by 28 cents, Schedule C net profits after expenses by 17 cents, and Schedule SE earnings by 13 cents.[8]

To explore whether these pass-through rates differ across different types of filers, we present subgroup analysis in Appendix Figure A.4 and Appendix Table B.4. Interestingly, we find that receiving a state-level 1099-K rather than no 1099-K had larger impacts on the amount of Schedule C receipts reported by individuals who were male, older, higher income, and had filed a Schedule C previously. Notably, these are all subgroups with higher baseline rates of filing a Schedule C (as observed in the post-period control group mean for the "Files Sched C" outcome). Thus, these results are all consistent with 1099-K reporting having little or no impact on the extensive margin of Schedule C filing, but an increase in the amounts reported on Schedule C *conditional on filing a Schedule C*,

These results show that state-level 1099-K reporting made incumbent platform workers more likely to report greater amounts of earnings on Schedule C. One one hand, this is clear evidence that the information sent to individuals affects what they report on their tax returns, even if the state-level returns are not used for federal enforcement. On the other hand, we do not find that workers reduce their reported receipts dollar-for-dollar with the payments no longer reported on 1099 returns. One potential explanation is some tax payers who had received information returns

[7] The impact on Schedule SE filing is larger because higher reported Schedule C profits increase the likelihood of exceeding the $433 Schedule SE filing threshold.

[8] Due to winsorizing of extreme positive values of receipts and expenses—which are only reported in positive amounts—and winsorizing of both positive and negative values of Schedule C net profits, the estimates in Column 4 are slightly different than the difference in the estimates in Columns 2 and 3.

for gig work in the past had sufficient awareness of their tax obligations that they continued to report payments even if no longer receiving a 1099 return. Alternatively, it could be that many individuals fail to report gig economy proceeds on Schedule C regardless of receiving a state-level information return—either because they know the state-level return will not be used for federal enforcement or because they would fail to report payments even if reported on a federal information return. Consistent with this story, Collins et al. (2019) report that approximately 40 percent of individuals with OPE earnings reported on 1099s reported those receipts on a Schedule C in 2016 (before the emergence of the federal 1099-K gap). This latter explanation is also consistent with the heterogeneity analysis above.

3.3 Robustness

We show robustness to our two main sample restrictions in Appendix Table B.3. In our baseline specification, we restrict to workers who lived in zipcodes with a centroid within 15 miles of the border in 2016 either in Massachusetts or its bordering counties. First, in Panel A, we relax the distance restriction by showing our "first-stage" effects of receiving an OPE 1099 are robust to a wide range of distance restrictions. Second, our preferred specification relies on the comparison of Massachusetts and its bordering counties, as Vermont and its border counties have a small number of platform gig workers. To show robustness to this restriction, we show results using only the border counties for Massachusetts in Panel A, and we expand to include Vermont border counties in Panel B. Comparing Panel A and B illustrates that our results are robust to including individuals in Vermont border counties. Comparing across columns shows that our results are robust to restricting individuals to different distances (in miles) from the border.

4 Implications of the 1099-K Gap for Measurement of Gig Work in the US

4.1 Imputation Approach

A key question raised by the raw data is how much of the platform workforce is missing from the Federal 1099 data due to the high 1099-K reporting thresholds and what the aggregate implications

are for the taxable income reported on income tax returns. In this section, we draw on the available state-level 1099-K return data from MA and VT to estimate the size of the 1099-K gap. We then combine our estimates of the size of the reporting gap with the causal pass-through estimates from the previous section to estimate the overall impact of the 1099-K gap on taxable earnings reported to the IRS.

To impute the size of the 1099-K gap, we use the MA and VT data to estimate how the share of the national workforce with platform-based income would have changed from 2016 onward if the share of the national workforce with platform income grew at the same rate as in these two states (MA/VT). To motivate this approach, we compare the share of the workforce with labor earnings from online gig platforms (in excess of $600) in MA/VT versus the rest of the US in Panel A of Figure 3.[9] In the Figure, we measure OPE work using federal 1099 returns from 2014 to 2018 as well 2017 and 2018 state-level 1099-K returns for MA and VT residents.

Panel A of Figure 3 shows that although the *level* of OPE work was higher in MA/VT compared to the rest of the country in 2014, the *rate of increase* was the same from 2014 through 2016, before the onset of the federal 1099-K gap. After 2016, however, there is a clear divergence in the aggregate series—while the share of workers with platform payments reported on federal 1099 returns plateaus in 2017 in the broader US as platforms begin adhering to higher reporting thresholds, there is continued growth in MA and VT where the 1099-K reporting is subject to the lower $600 threshold. In contrast, when we only focus on the subset of workers with high OPE earnings in each year who were not impacted by changes in platform reporting behavior—those with OPE earnings on federal 1099 returns in excess of the statutorily required thresholds ($20,000 for 1099-K or $600 for 1099-MISC)—we find that the series continue to evolve in parallel through 2018. The similarity of the growth rates of the overall OPE shares in both MA/VT and the rest of the US through 2016 (and through 2018 for workers not affected by the emergence of the 1099-K gap) suggests that one might obtain a reasonable estimate of the national prevalence of platform work in 2017 and 2018 by extrapolating the observed 2017 and 2018 growth in the platform worker share in 2017 and 2018 to the rest of the US.

Motivated by Panel A of Figure 3, we impute the share of the national workforce with OPE

[9]Following Collins et al. (2019), we define the tax workforce as all individuals with labor earnings reported on a W-2 return or on 1040 Schedule SE as well as 1040 filers with contract work payments on 1099 returns. The components of the tax workforce through 2022 are provided in Garin et al. (2024) in Tables 1a and 1b.

earnings that *would* have been reported to the IRS had the federal 1099-K been subject to a consistent $600 reporting threshold by extrapolating from trends in MA and VT. We describe our approach in detail in Appendix C. In brief, we measure how the overall 1099 workforce (including OPE and all other contract work) grew from 2016 to 2017 and 2018 in MA and VT and how the overall 1099 workforce inclusive of workers with OPE earnings on state or federal 1099-Ks evolved relative to the subset of the 1099 workforce without any OPE earnings reported on state or federal 1099-Ks. We then extrapolate the growth of this ratio to the rest of the county assuming the corresponding ratios for the rest of the states would have evolved in parallel. This allows us to impose parallel growth trends while allowing for differences in the baseline 2016 prevalence of OPE work between MA/VT and the rest of the US. This approach also allows us to express the imputed evolution of the national overall 1099 workforce as the sum of the observable part of the workforce with federal 1099-MISCs and the OPE workers with no 1099-MISC earnings but with imputed earnings that would have reported on a 1099-K if the effective thresholds had not changed. We examine imputations using alternative methodologies in Appendix D, and find that our approach is relatively conservative but that the required parallel trends assumption is more plausible than alternative assumptions.

4.2 Imputed Trends Through 2018 and Estimates of the 1099-K Gap

Panel B of Figure 3 displays our estimates of the size of the platform workforce in 2017 and 2018 in the US, letting the share of the national workforce with platform gig earnings grow at the same rate as in MA and VT from 2016 to 2018.[10] Two important takeaways from these estimates stand out: First, the number of platform workers in the workforce continued to grow through 2018 and exceeded 2 million in that year. Second, 770,000, or nearly one-third of platform workers in 2018, were missing in the federal 1099 data because of the high 1099-K reporting threshold. These individuals would appear in the data if the federal 1099-K had been subject to a $600 threshold.

To shed further light on the nature of platform work, Panel C of Figure 3 breaks down the platform workforce by whether their platform earnings come exclusively from transportation platforms. A striking finding is that nearly all platform work observed in the 1099 data is on transportation

[10]To examine the validity of extrapolating national trends from MA and VT data, we also display the predicted trend using this method going back to 2014 in the dotted line in Panel B of Figure 3. Reassuringly, the prediction prior to 2016 closely matches the observed national growth.

platforms, comprising ride-hailing and delivery apps. In each year since 2014, less than 10 percent of the platform-based workforce did something besides transportation-related work.[11] Panel C further breaks down transportation platform workers by whether they make more than $20,000 in *gross* earnings totaled across all platforms.[12] In each year, only a small minority of workers on transportation apps make more than that amount.[13] Collins et al. (2019) show in greater detail that typical earnings in the platform economy are small—particularly when one takes into account that the typical platform worker reports expenses equal to 40-60 percent of gross revenues.

We use our imputed series to extend the main trend analysis from Collins et al. (2019) through 2018 in Appendix Figure A.6. In our analysis, we define the "workforce" as all individuals who receive any wage (W-2) earnings, 1099-reported contract earnings, or Schedule SE self-employment earnings.[14] To highlight the contribution of the online platform economy, the figure breaks out individuals who have 1099-reported contract earnings from online platform companies.[15] Contract workers may also have wage/salary earnings reported on W-2 returns. To highlight which contract workers depend primarily on such work for their livelihoods over the year, we break out contract workers into the subset who are primarily self-employed (i.e. those whose self-employment net profits on Schedule SE exceed their W-2 earnings) and contract workers whose self-employment profits supplement W-2 earnings over the year.[16] The baseline series only include 1099 returns issued to individuals' TINs, but we also display the series including 1099 returns issued to EINs linked to individual TINs using Schedule C for years 2007 onward in dashed lines. Panel A displays

[11] Outside of transportation related platforms, OPE labor platforms include a wide variety of services including home repair services, creative platforms, tutoring, and social media content creation.

[12] We utilize our imputed series in calculating this breakdown, and we have to make a couple of assumptions to split the earnings above and below the $20,000 threshold among transportation related workers. The individuals with any other activity we observe directly. We also observe directly individuals with *gross* earnings over $20,000 from a single platform. Thus, the remaining individuals come from our imputation in Panel B. All imputed individuals do not have total *gross* earnings below $20,000 because a subset may work for multiple platforms and have a total of $20,000 from multiple platforms despite no single platform paying them more than $20,000. In 2016, we calculate the share of individuals with only 1099-K returns between $600-$20,000 *but* had total gross earnings of $20,000 or more, i.e. they worked for multiple platforms. We impose this breakdown in 2017 and 2018 as a way of splitting the imputed workers across the subgroups.

[13] The number of workers with platform-based income from activities other than transportation tasks who make more than $20,000 is very small and would be imperceptible in the figure.

[14] Following Collins et al. (2019), we only include individuals with 1099-reported contract earnings in the workforce when they receive a W-2 or file a tax return.

[15] A minority of online platform economy participants broken out in Figure A.6 also have contract payments on 1099-MISC for work outside the online platform economy.

[16] We cannot directly measure the share of net earnings workers derive from their independent contract work, because 1099 returns only report gross payments and not net income. Net income after expenses is determined on Schedule C; however, revenues reported or not reported on 1099 returns are not broken out separately so it is not possible to isolate the net earnings from 1099-reported contract work.

the prevalence in the full workforce, while Panel B restricts to individuals in the full-time workforce.

We observe substantial growth in the share of the workforce with earnings from online platform work in both panels of Figure A.6 beginning after 2012. By 2018, over one percent of the overall workforce in Figure A.6 Panel A had received payments for work on platforms. However, when we break out platform workers by whether their Schedule SE profits exceed their W-2 earnings, we find that in a large majority of cases such workers moonlight in the gig economy and derive the majority of their labor earnings from W-2 work.

Finally, we combine our results in section 4 with our results from the border design to estimate the national tax gap resulting from the 1099-K gap. We estimated that 770,000 workers did not receive an information return due to the 1099-K gap. Additionally, our IV estimates imply that for each additional dollar reported on a 1099-K Schedule C profits increase by 17 cents. On average, 1099-K gross amounts below the $20,000 threshold were $4,270 in 2016 suggesting $726 ($4,270 x $0.17) of additional profits reported. Multiplying 770,000 by $726, our estimate of increased Schedule C profits reported on the MA side of the border yields an estimated $560 million in national unreported profits due to the 1099-K gap.

5 Conclusion

Although the introduction of federal 1099-K reporting was intended to expand the scope of information reporting for small businesses, unanticipated responses by online platform companies led to an unintended *decrease* in the coverage of third-party information reporting for gig economy workers. In this paper, we combine federal tax return data with information returns from states that introduced information reporting requirements that cover payments omitted by the federal 1099-K gap. Incorporating state information returns in this setting allow us to make two key contributions in this paper: we evaluate how continued receipt of a 1099-K affects tax compliance and then estimate the overall impact of the 1099-K gap on the amount of earnings reported to the IRS.

First, we evaluate to what extent receipt of a 1099-K form affects tax compliance. This is policy relevant as The American Rescue Plan Act of 2021 lowered the 1099-K reporting threshold to $600 with no minimum number of transactions but is to be implemented starting in 2025. To examine whether receiving an information return affects tax filing behavior, we use a border design

to compare tax outcomes of platform gig workers in two states with state laws that closed the 1099-K gap, with neighboring states where the federal threshold was binding. We explore the spillovers of changes in 1099-K reporting to individual reporting of self-employment earnings on Form 1040 Schedules C and SE. We find that platform gig workers who received an information return reported on average $726 more in self-employment profits.

Second, we present a new framework using returns from states that have lower reporting thresholds to provide a more complete estimate of total platform work. In order to assess the size of any resulting reporting gap, we merge state 1099-K information returns from Massachusetts and Vermont that are subject to a lower reporting threshold to the federal tax return data. We use the information available from these two states to impute the national trend in platform work beyond 2016 assuming they would have evolved in parallel. Our imputation methodology suggests raw counts underestimate platform work by approximately 770,000 workers by 2018. Taken together, our estimates imply approximately $560 million in profits went unreported due to the 1099-K gap in 2018.

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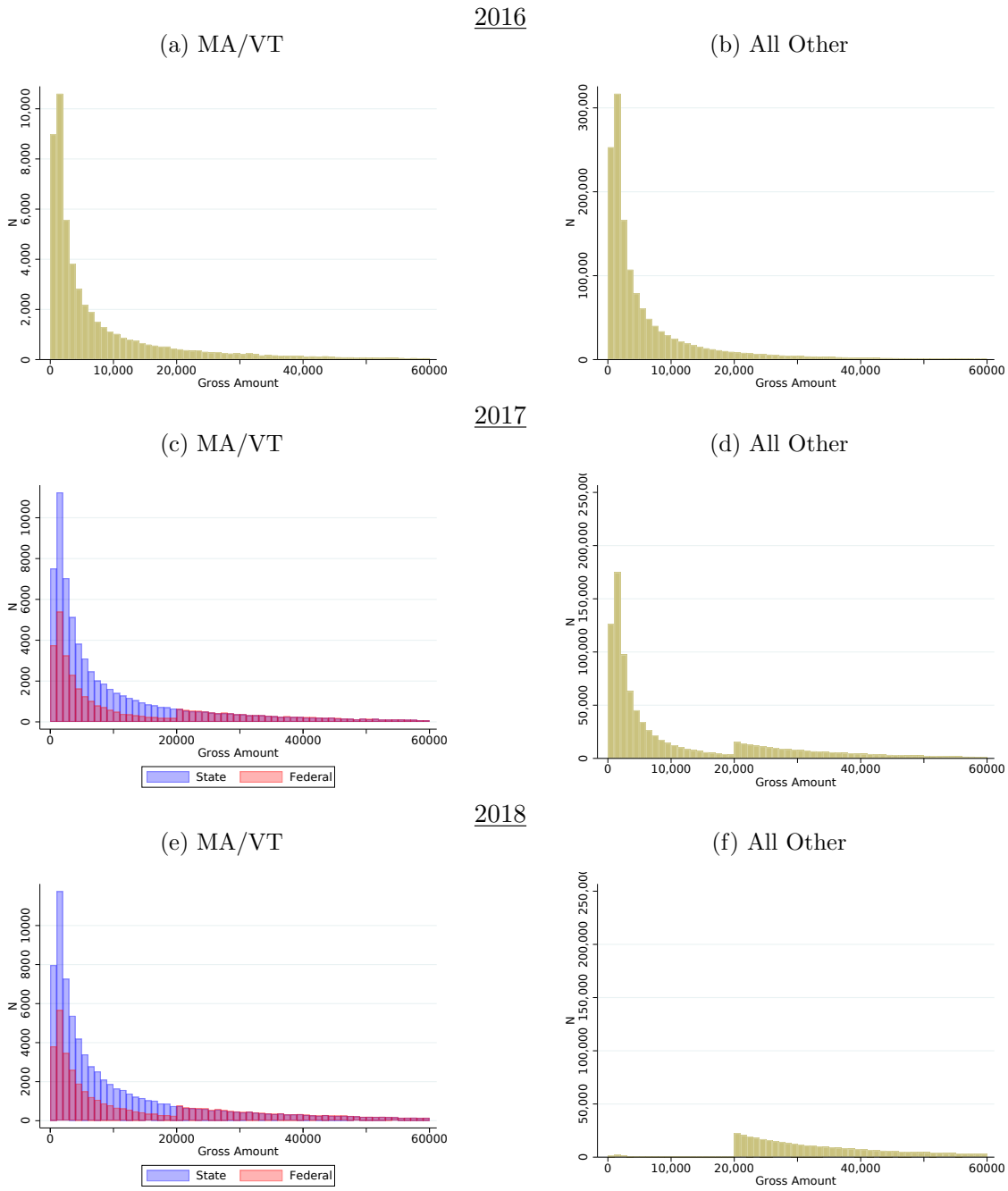
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Figures

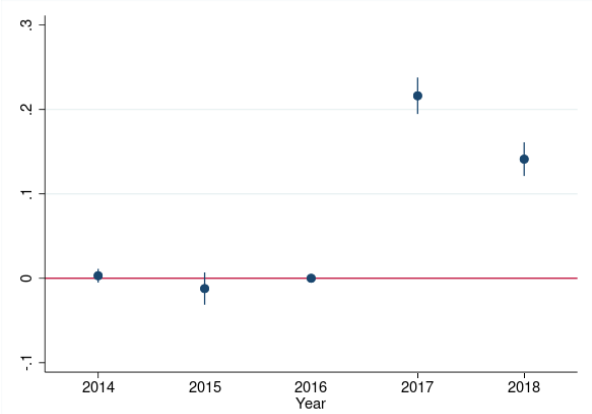
Figure 1: Distribution of Online Platform Economy 1099-Ks Issued to MA/VT Residents, Federal versus State Data



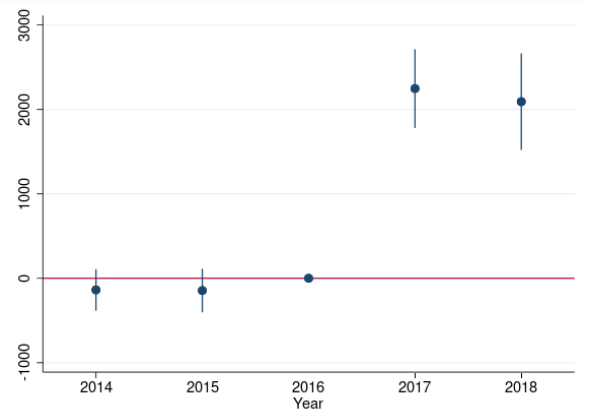
Note: The histograms document the distribution of 1099-K amounts in 2016-2018 for platform gig payers, restricting to returns with payments $\geq$ \$600. The left-hand panels restrict to the states of Massachusetts and Vermont. In those panels, The red bars represents the distribution of federal 1099-Ks, while the blue bars represents the distribution of 1099-Ks issued by the states of Massachusetts and Vermont in 2017-2018. The right-hand panels show the distribution of federal 1099-Ks only for the other 48 states in beige.

Figure 2: Event Studies Around Introduction of Massachusetts 1099K

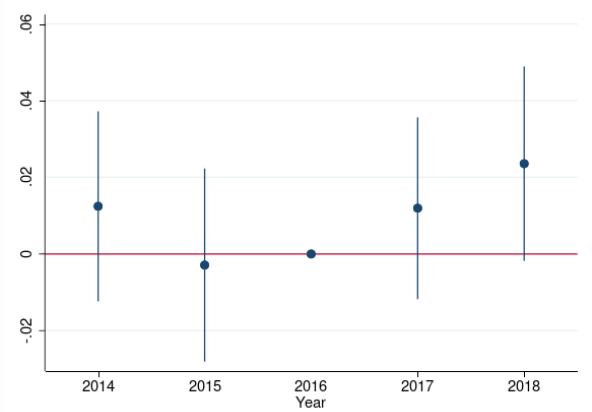
(a) Has OPE Gig 1099 (MISC or K)



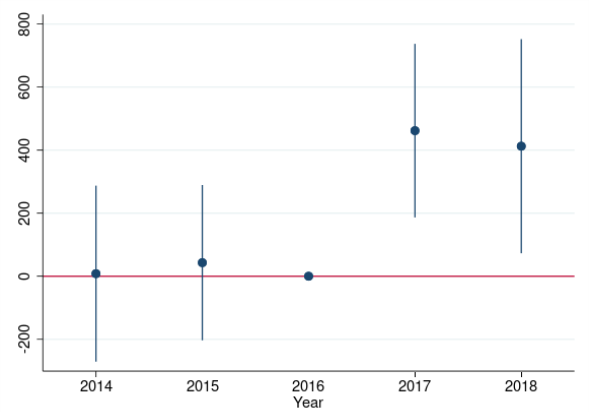
(b) OPE Gig 1099s $ Amount



(c) Files Schedule C



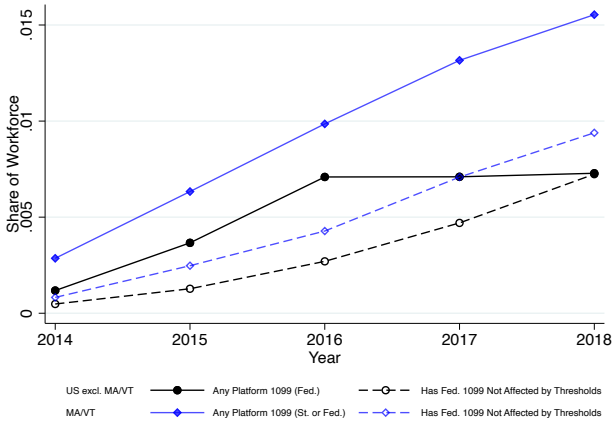
(d) Schedule C Profits/Loss



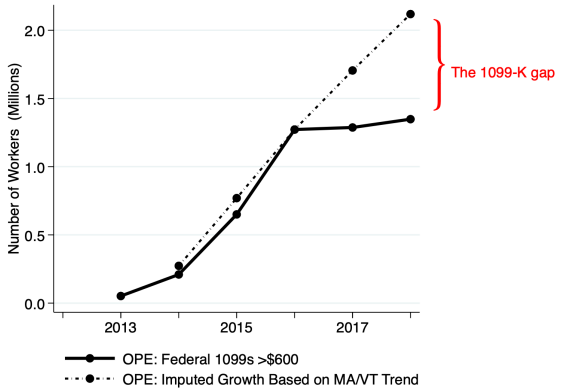
Note: Figures report coefficients from running a county border regression around the introduction of the state-level 1099-K reporting requirements in Massachusetts in 2017, which coincided with the emergence of the gap in federal 1099-K coverage for platform work. The sample is restricted to the border-county pairs between Massachusetts, and the following states: Connecticut, New York, New Hampshire, and Rhode Island. Within border-counties we restrict to individuals living ZIP codes within 15 miles of the border. All regressions include individual fixed effects, and border-pair x year fixed effects. Results are clustered at the individual level. The sample is a balanced panel of all individuals who were OPE gig workers in 2016 in one of the border counties, and we hold constant their 2016 border county for all years.

Figure 3: Imputed Trends in Platform Work

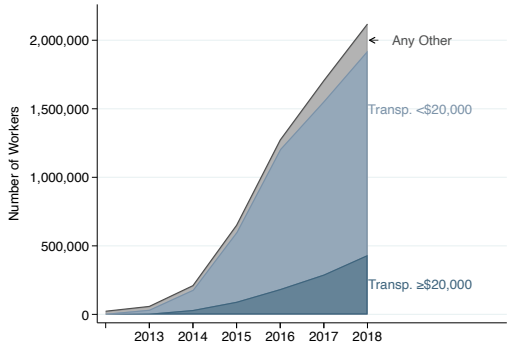
(a) Share of Workforce with OPE 1099, MA/VT Versus Rest of US



(b) Baseline Imputation



(c) Breakdown by Activity and Amount



Note: In Subfigure (a), we follow Collins et al. (2019) and define the tax workforce as all individuals with labor earnings reported on a W-2 return or on 1040 Schedule SE as well as 1040 filers with contract work payments on 1099 returns. For MA and VT residents we use both the federal data and 2017 and 2018 state-level 1099-K data, and in the rest of the US we use only federal data. Any platform work is defined as receive at least one 1099-MISC or a 1099-K with more than $20,000 from a platform. Restricts to amounts $\geq$ 600. Subfigure (b) shows the number of individuals participating in online platform work with at least $600 in payments from an online platform firm on a 1099-K or 1099-MISC form. The solid line displays the count of such individuals in the federal 1099 return data. The dashed line imputes growth in the share of the workforce with OPE income after 2016 based on observed growth in Massachusetts and Vermont incorporating the state-level 1099-K returns subject to a lower $600 threshold in those states. The difference between the solid and the dashed black lines in 2017 and 2018 represents the estimated size of the 1099-K gap. Additionally, we show prior to 2016 how closely the imputation tracks with the actual federal data during the period where the 1099-K is not a problem. Subfigure (c) breaks down the OPE participants in Subfigure (b) based on whether their OPE earnings were solely from transportation work. The individuals whose OPE earnings solely come from transportation work are further subdivided based on whether their total OPE gross earnings are above or below $20,000.

Table 1: Border Design Regression Results Around Introduction of Massachusetts 1099-K Return: Effects on Receipt of 1099Ks

	(1) Has OPE Any 1099	(2) Has OPE 1099-K	(3) Has OPE 1099-MISC	(4) K Amount OPE	(5) All OPE Amount	(6) Has Any 1099-K	(7) K Amount Any
Post x MA	0.182***	0.206***	0.0305***	2107.1***	2264.2***	0.226***	2491.5***
	(0.00980)	(0.00955)	(0.00736)	(228.5)	(250.6)	(0.00976)	(247.1)
Distinct i	10363	10363	10363	10363	10363	10363	10363
Distinct c	22	22	22	22	22	22	22
Dep. Means							
MA Pre	0.4178	0.4140	0.0713	2,110	2,250	0.4371	2,357
MA Post	0.4353	0.4210	0.2068	5,953	6,590	0.4499	6,466
Oth Pre	0.4234	0.4218	0.0330	2,123	2,190	0.4432	2,397
Oth Post	0.2498	0.2037	0.1489	3,677	4,158	0.2126	3,986
R^2	0.574	0.589	0.311	0.343	0.351	0.565	0.374

Note: Table reports results from running a county border regression around the introduction of the state-level 1099-K reporting requirements in Massachusetts in 2017, which coincided with the emergence of the gap in federal 1099-K coverage for platform work, following the specification in Equation 1. The sample is restricted to the border-county pairs between Massachusetts, and the following states: Connecticut, New York, New Hampshire, and Rhode Island. Within border-counties we restrict to individuals living ZIP codes within 15 miles of the border. All regressions include individual fixed effects, and border-pair by year fixed effects. The sample is a balanced 2014–2018 panel of outcomes for all individuals who were OPE gig workers in 2016 in one of the border counties, and we hold constant their 2016 border county for all years. Presented outcomes relate to the receipt of 1099s. Columns (1)-(5) are restricted to 1099-Ks and 1099-MISCs from gig platforms. Columns (6) and (7) refer to 1099-Ks issued by all payers. Standard errors clustered at the individual level are shown in parentheses ^{a} $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2: Border Design Regression Results Around Introduction of Massachusetts 1099-K Return: Pass-through of 1099-K Reporting to Amounts Reported by Tax Filers

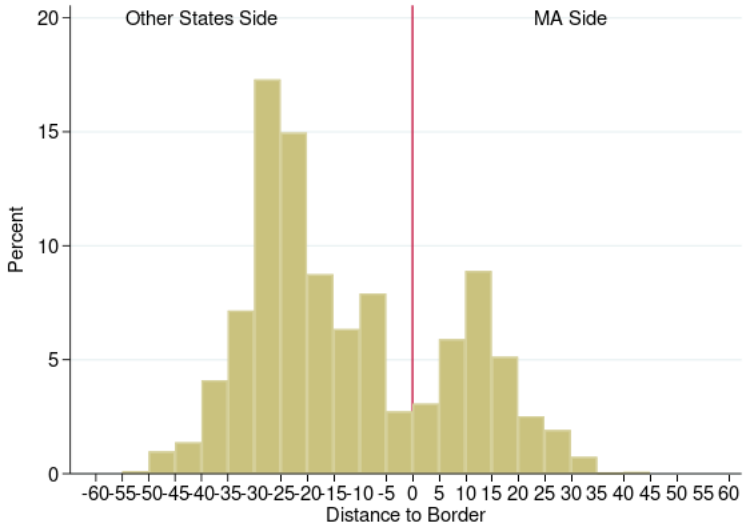
	(1) Files Sched C	(2) # Sched Cs	(3) Receipts	(4) Expenses	(5) Profits/Loss	(6) Files SE	(7) SE Earnings	(8) W2 Wages	(9) Files 1040
A. Reduced Form:									
Post x MA	0.0146	0.0184	692.8[a]	214.4	420.0**	0.0279**	328.3*	-250.9	0.00180
	(0.00954)	(0.0124)	(381.0)	(308.8)	(132.7)	(0.00865)	(128.9)	(411.6)	(0.00697)
B. IV:									
Has Any K	0.0644	0.0813				0.123***			0.00795
(IV = Post x MA)	(0.0409)	(0.0532)				(0.0366)			(0.0307)
All K Amount			0.278*	0.0861	0.169**		0.132**	-0.101	
(IV = Post x MA)			(0.141)	(0.120)	(0.0513)		(0.0493)	(0.163)	
Distinct i	10363	10363	10363	10363	10363	10363	10363	10363	10363
Distinct c	22	22	22	22	22	22	22	22	22
Dep. Means									
MA Pre	0.3652	0.4191	4,942	3,691	1,217	0.2419	1,638	25,561	0.8530
MA Post	0.4235	0.5077	9,571	7,477	2,095	0.2749	2,694	28,099	0.8359
Oth Pre	0.3859	0.4459	4,825	3,597	1,190	0.2517	1,603	23,903	0.8631
Oth Post	0.4226	0.5051	8,804	7,154	1,638	0.2569	2,328	26,838	0.8472
R^2	0.455	0.484	0.596	0.582	0.499	0.394	0.555	0.753	0.484

Note: Panel (A) reports results from running a county border regression around the introduction of the state-level 1099-K reporting requirements in Massachusetts in 2017, which coincided with the emergence of the gap in federal 1099-K coverage for platform work, following the specification in Equation 1. Panel (B) follows a two-stage least squares specifications in which we treat the receipt of a 1099-K or the amount reported on the 1099-K as the explanatory variable using $\mathbb{I}\{State_i = MA\} * Post_t$ as an instrument. The sample is restricted to the border-county pairs between Massachusetts, and the following states: Connecticut, New York, New Hampshire, and Rhode Island. Within border-counties we restrict to individuals living in ZIP codes within 15 miles of the border. All regressions include individual fixed effects, and border-pair x year fixed effects. The sample is a balanced 2014–2018 panel of outcomes for all individuals who were OPE gig workers in 2016 in one of the border counties, and we hold constant their 2016 border county for all years. Standard errors clustered at the individual level are shown in parentheses [a] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A Appendix Figures

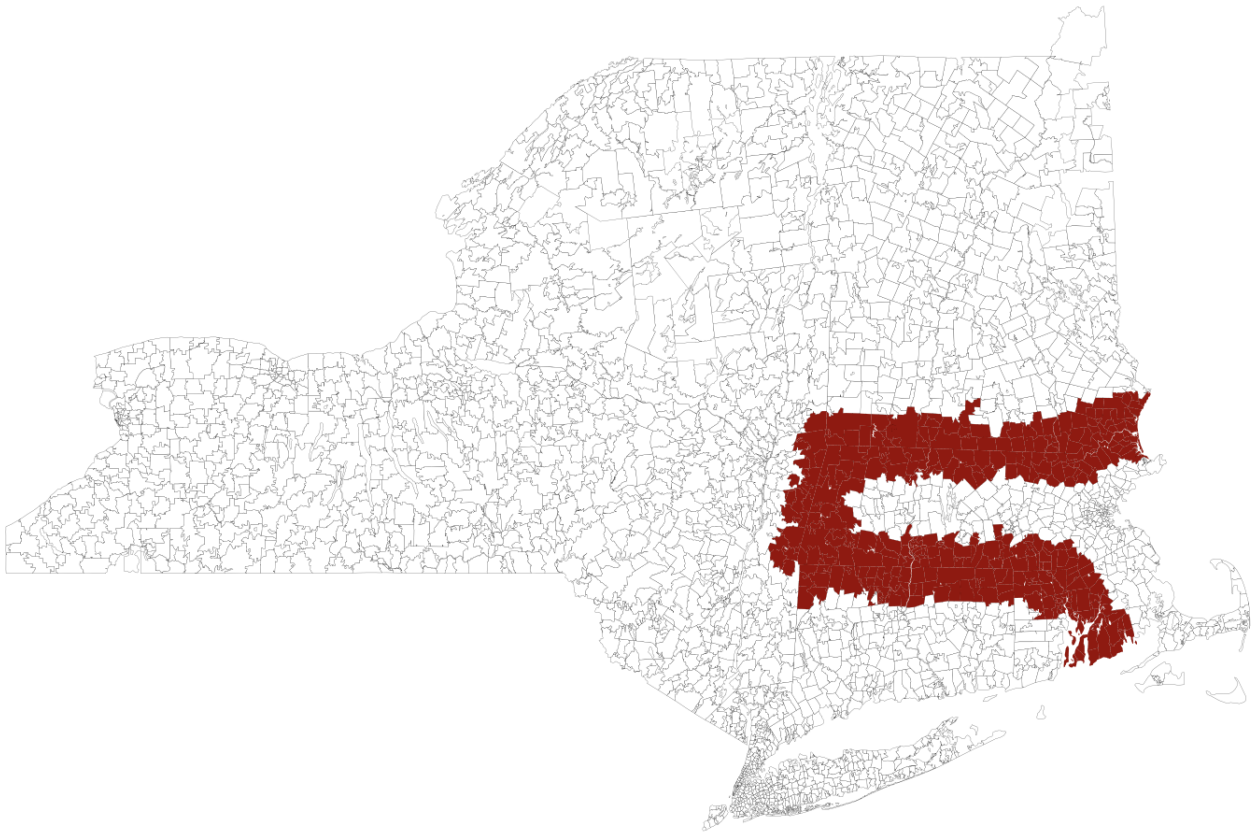
Figure A.1: Distribution of Distance between Closest Zipcode Centroids In Neighboring Border Counties

Figure A.2: Platform Gig Workers, Massachusetts and Vermont



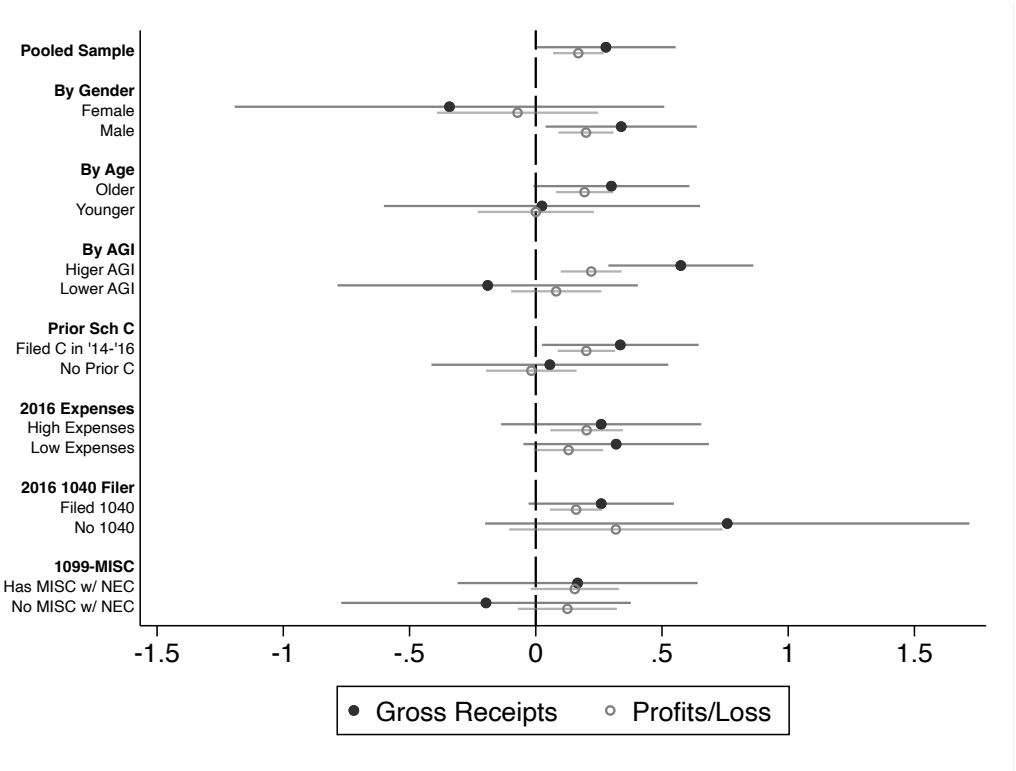
Notes: Figure shows distance between closest ZIP code centroid on opposite side of the state border for the indicated sample.

Figure A.3: Zipcodes in Main Estimation Sample



Notes: Figure shows Massachusetts Borders, 15 Mile Spatial Bandwidth

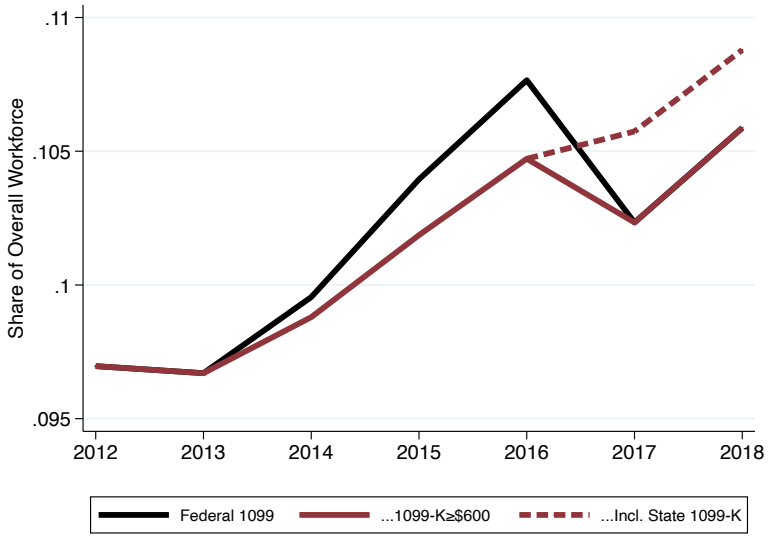
Figure A.4: Heterogeneity in IV Pass-Through Estimates



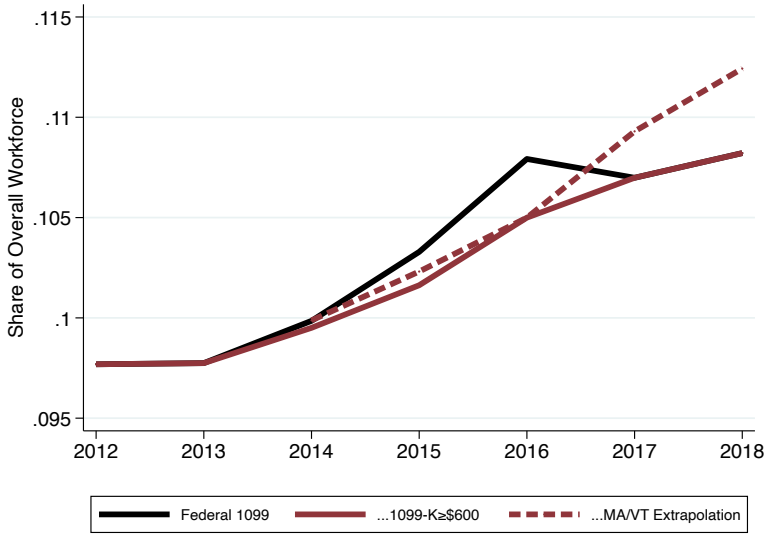
Note: Table reports results from running a county border regression around the introduction of the M-1099-K in 2017, specification 1. The sample is restricted to the border-county pairs between Massachusetts, and the following states: Connecticut, New York, New Hampshire, and Rhode Island. Within border-counties we restrict to individuals living zipcodes within 15 miles of the border. All regressions include individual fixed effects, and border-pair x year fixed effects. Results are clustered at the individual level. The sample is a balanced panel of all individuals who were OPE gig workers in 2016 in one of the border counties, and we hold constant their 2016 border county for all years. Each panel represents a different outcome variable from Table 2 which are related to the receipt of 1099s. We present in column (1) the main results from Table 2 and heterogeneity by subgroups in each of the columns (2)-(15).

Figure A.5: Estimating National Prevalence of all Contract work in 2017 and 2018, Using MA and VT

(a) **MA and VT, Actual Data**



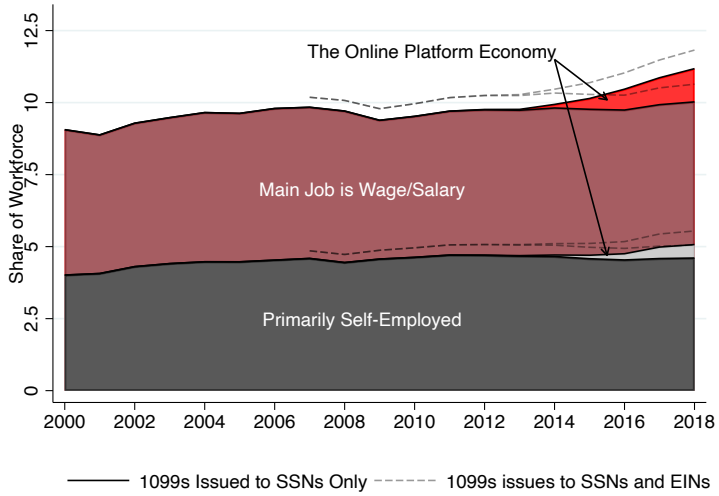
(b) **National, Extrapolation Method for Platform Work:**



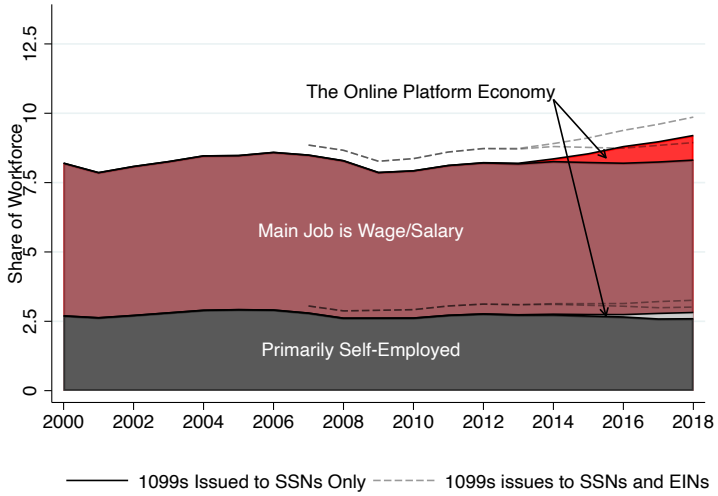
Note: Subfigure (a) shows data only for MA and VT. In solid black, we show the share of the workforce receiving a any 1099-MISC or an OPE 1099-K. In solid red, we exclude individuals with less than $600 in payments from an online platform firm on a 1099-K. The dashed red line displays the share of such individuals in the State MA-1099-K data in 2017 and 2018. In subfigure (b) we show similar trends at the national level. Here the dashed line imputes growth in the share of the workforce with 1099 work after 2016 based on observed growth in Massachusetts and Vermont.

Figure A.6: Overall Prevalence of Contract Work through 2018, With Platform Economy Imputation in 2017 and 2018

(a) All Workforce Participants



(b) With Earnings $\geq$ \$15,000 (\$2015)



Notes: Figure shows the share of individuals in the workforce with firm-reported payments for contract labor are reported on a 1099 Information Return. The workforce is defined as all individuals appearing on a 1040 return in a year who have labor income reported on a W-2 return, a 1099 return, or on Schedule SE as well as individuals individuals with positive earnings on either a W-2 who do not file Form 1040. Panel A shows rates in the total workforce, while Panel B restricts to the workforce with at least \$15,000 in labor earnings reported on Form W-2 and Schedule SE combined. Following the method in Collins et al. (2019), we separately break out the subset of independent contractors with 1099-reported payments from online platform economy firms. "Earnings Primarily from Self-Employment" defined as having the majority of wage plus Schedule SE earnings coming from Schedule SE; "Earnings Primarily from Wages" is defined as the complement. The baseline series only includes 1099 returns issued to individual SSNs; for years beginning 2007, we also display each series including all 1099s issued to EINs listed on individual Schedule Cs in dashed lines.

B Appendix Tables

Table B.1: State 1099-K Reporting Requirements

State	Minimum Transaction Value	Minimum Transaction Count	Date Effective/Applicable
Vermont	Gross payments exceed or are equal to $600 in calendar year	No minimum	Applies to all payments on or after January 1, 2017
Massachusetts	Gross payments exceed, or are equal to $600 in calendar year	No minimum	Applies to all payments on or after January 1, 2017. May be filed using MA-1099-K.
Illinois	Gross payments exceed $1,000 in the calendar year	AND 4 or more transactions	New de minimis thresholds effective January 1, 2020. 1099-Ks required to be filed with IL from January 1, 2019.
Virginia	Gross payments exceed or are equal to $600	No minimum	January 1, 2020.
Maryland	Gross payments exceed or are equal to $600	No minimum	June 1, 2020
Missouri	Gross payments exceed or are equal to $1,200	No minimum	Timing uncertain.
Arkansas	Gross payments exceed or are equal to $2,500	No minimum	Timing uncertain.
California	App-based driver, gross payments of $600 or more	No minumum	January 1, 2021
New Jersey	Gross payments exceed or are equal to $1,000	No minimum	January 1, 2021.

Notes: States with mandatory 1099-K reporting, but no change in minimum reporting threshold: Florida (effective 2021), Kansas, Tennessee, Iowa, Connecticut, and Oregon.

Table B.2: Summary Statistics for MA Border Sample

	(1)	(2)
	Gig Workforce 2016 Sample	Tax Workforce 2016 Sample
Age	39.03	42.15
Female	0.20	0.49
Has a OPE Gig 1099 ANY	1.00	0.01
Has a OPE Gig 1099-K	1.00	0.01
Has a OPE Gig 1099-MISC	0.12	0.00
$ Amount OPE 1099-K	4,732.20	45.58
$ Amount OPE 1099-MISC	196.38	4.73
$ Amount OPE 1099	4,948.86	50.75
Files Schedule C	0.68	0.12
# Schedule Cs	0.79	0.13
Schedule C Receipts	6,632.39	6,192.54
Schedule C Expenses	5,134.38	4,373.63
Schedule C Profits/Loss	1,497.87	1,803.19
Files Schedule SE	0.43	0.10
Schedule SE Earnings	2,115.21	2,505.86
W-2 Wages	24138.61	39689.75
Total Earnings	26279.05	42180.39
Files Form 1040	0.89	0.93
Observations	16,465	3,515,253

Notes: Table reports summary statistics in 2016 for the samples in our county border regression around the introduction of the M-1099-K in 2017, specification 1. The sample is restricted to the border-county pairs between Massachusetts, and the following states: Connecticut, New York, New Hampshire, and Rhode Island. Within border-counties we restrict to individuals living zipcodes within 15 miles of the border. Column (1) includes the sample of all individuals who were OPE gig workers in 2016 in one of the MA border counties. Column (2) includes the sample of all individuals in the tax workforce in 2016 in one of the MA border counties.

Table B.3: Bandwidth Robustness for Distance to the Border

(a) Massachusetts Border Sample

	(1) Has OPE All Zips	(2) Has OPE Zips < 50	(3) Has OPE Zips < 40	(4) Has OPE Zips < 30	(5) Has OPE Zips < 25	(6) Has OPE Zips < 20	(7) Has OPE Zips < 15	(8) Has OPE Zips < 10	(9) Has OPE Zips < 5
Post x MA	0.184***	0.184***	0.185***	0.183***	0.182***	0.179***	0.182***	0.182***	0.144***
	(0.00709)	(0.00709)	(0.00711)	(0.00709)	(0.00745)	(0.00848)	(0.00980)	(0.0133)	(0.0211)
Distinct i	28084	28084	28084	26537	19484	13669	10363	7791	2556
Distinct c	22	22	22	22	22	22	22	20	16
Dep. Mean	0.4224	0.4224	0.4227	0.4210	0.4082	0.3939	0.3885	0.3959	0.3910
R^2	0.555	0.555	0.554	0.551	0.561	0.573	0.574	0.548	0.538

(b) Massachusetts + Vermont Borders Sample

	(1) Has OPE All Zips	(2) Has OPE Zips < 50	(3) Has OPE Zips < 40	(4) Has OPE Zips < 30	(5) Has OPE Zips < 25	(6) Has OPE Zips < 20	(7) Has OPE Zips < 15	(8) Has OPE Zips < 10	(9) Has OPE Zips < 5
Post x MA	0.185***	0.185***	0.186***	0.184***	0.182***	0.180***	0.183***	0.186***	0.151***
	(0.00705)	(0.00705)	(0.00707)	(0.00705)	(0.00742)	(0.00844)	(0.00975)	(0.0132)	(0.0210)
Distinct i	28477	28477	28477	26935	19879	14060	10657	7952	2578
Distinct c	36	36	36	36	36	36	36	33	21
Dep. Mean	0.4220	0.4221	0.4225	0.4208	0.4083	0.3946	0.3891	0.3960	0.3906
R^2	0.556	0.556	0.555	0.551	0.561	0.574	0.574	0.548	0.538

Note: Table reports results from running a county border regression around the introduction of the M-1099-K in 2017, specification 1. We show robustness to what mile distance we restrict on within border-counties, each column restricts to individuals living in zipcodes within X miles (denoted by column header) of the border. All regressions include individual fixed effects, and border-pair x year fixed effects. Results are clustered at the individual level. The sample is a balanced panel of all individuals who were OPE gig workers in 2016 in one of the border counties, and we hold constant their 2016 border county for all years. Panel A shows robustness among the MA border counties. Panel B additionally includes Vermont border counties.

Table B.4: Heterogeneity in Instrumental Variable Pass-Through Estimates: Border Design Regression Results Around Introduction of M-1099-K

(a) Files Schedule C

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
Has Any K															
= (Post x MA)	0.0644	0.128	0.0513	0.0673	0.0621	0.106*	0.00319	0.0686	-0.0185	0.0317	0.0909[a]	0.0585	0.106	0.0176	-0.0584
	(0.0409)	(0.0908)	(0.0460)	(0.0472)	(0.0794)	(0.0508)	(0.0677)	(0.0471)	(0.0752)	(0.0589)	(0.0549)	(0.0447)	(0.0883)	(0.0643)	(0.0609)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	0.3652	0.3397	0.3711	0.3977	0.3380	0.4069	0.3273	0.5129	0.0000	0.6029	0.2598	0.4063	0.0637	0.4494	0.3091
MA Post	0.4235	0.3596	0.4373	0.4487	0.3935	0.4662	0.3848	0.5352	0.1473	0.6955	0.3030	0.4632	0.1324	0.6961	0.2422
Oth Pre	0.3859	0.3742	0.3894	0.4235	0.3482	0.4235	0.3554	0.5270	0.0000	0.6103	0.2759	0.4249	0.0613	0.4665	0.3419
Oth Post	0.4226	0.3689	0.4367	0.4585	0.3748	0.4584	0.3934	0.5226	0.1490	0.6823	0.2951	0.4591	0.1185	0.7006	0.2706
R^2	0.0415	0.0517	0.0350	0.0439	0.0357	0.0779	-0.000301	0.0528	-0.0178	0.0247	0.0496	0.0404	0.0385	0.00772	-0.0417

(b) # of Schedule Cs Filed

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
Has Any K															
= (Post x MA)	0.0813	0.0667	0.0854	0.0990	0.0480	0.159*	-0.0260	0.0820	0.0158	0.0634	0.0947	0.0767	0.120	0.0444	-0.0957
	(0.0532)	(0.121)	(0.0596)	(0.0610)	(0.106)	(0.0650)	(0.0899)	(0.0624)	(0.0909)	(0.0834)	(0.0681)	(0.0584)	(0.108)	(0.0952)	(0.0719)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	0.4191	0.3930	0.4253	0.4666	0.3777	0.4586	0.3834	0.5887	0.0000	0.7319	0.2806	0.4666	0.0713	0.5356	0.3416
MA Post	0.5077	0.4242	0.5257	0.5382	0.4708	0.5540	0.4658	0.6438	0.1714	0.8607	0.3514	0.5559	0.1547	0.8747	0.2636
Oth Pre	0.4459	0.4338	0.4496	0.4934	0.3980	0.4803	0.4180	0.6089	0.0000	0.7456	0.2989	0.4914	0.0668	0.5677	0.3794
Oth Post	0.5051	0.4520	0.5192	0.5446	0.4533	0.5332	0.4823	0.6277	0.1695	0.8330	0.3442	0.5491	0.1384	0.8751	0.3028
R^2	0.0398	0.0196	0.0436	0.0484	0.0205	0.0871	-0.0148	0.0469	0.00396	0.0354	0.0425	0.0398	0.0376	0.0151	-0.0576

(c) Schedule C Receipts

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
All K Amount															
= (Post x MA)	0.278*	-0.342	0.339*	0.300[a]	0.0244	0.575***	-0.190	0.335*	0.0558	0.259	0.318[a]	0.259[a]	0.758	0.166	-0.197
	(0.141)	(0.434)	(0.153)	(0.158)	(0.319)	(0.147)	(0.304)	(0.158)	(0.239)	(0.202)	(0.187)	(0.147)	(0.489)	(0.243)	(0.293)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	4,942	3,048	5,336	6,611	3,293	4,752	5,114	6,941	0.0000	12,560	1,567	5,468	1,082	7,886	2,984
MA Post	9,571	5,239	10,460	10,818	7,964	9,727	9,431	12,469	2,408	20,109	4,904	10,454	3,099	19,011	3,293
Oth Pre	4,825	3,372	5,197	6,254	3,317	4,706	4,922	6,588	0.0000	11,296	1,650	5,285	993	7,174	3,541
Oth Post	8,804	6,113	9,492	9,942	7,267	8,364	9,162	11,207	2,230	17,849	4,366	9,574	2,388	17,553	4,021
R^2	0.131	-0.219	0.153	0.134	0.0117	0.231	-0.124	0.147	0.0446	0.114	0.147	0.128	-0.0867	0.0900	-0.0718

(d) Schedule C Expenses

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
All K Amount = (Post x MA)	0.0861	-0.179	0.102	0.0724	0.0478	0.313**	-0.262	0.107	0.0825	0.0359	0.170	0.0803	0.350	-0.0582	-0.302
	(0.120)	(0.363)	(0.130)	(0.137)	(0.250)	(0.119)	(0.264)	(0.136)	(0.181)	(0.178)	(0.151)	(0.125)	(0.333)	(0.209)	(0.257)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	3,691	2,223	3,996	5,006	2,388	3,542	3,827	5,184	0.0000	10,066	868	4,086	795	5,853	2,253
MA Post	7,477	4,059	8,178	8,534	6,109	7,838	7,150	9,743	1,874	16,204	3,612	8,203	2,153	14,526	2,789
Oth Pre	3,597	2,305	3,927	4,763	2,367	3,827	3,411	4,912	0.0000	9,086	905	3,930	828	5,105	2,773
Oth Post	7,154	4,510	7,828	8,343	5,540	7,379	6,971	9,144	1,708	15,139	3,236	7,776	1,973	13,841	3,499
R^2	0.0530	-0.128	0.0623	0.0425	0.0292	0.174	-0.210	0.0618	0.0819	0.0178	0.104	0.0508	0.0377	-0.0498	-0.135

(e) Schedule C Profits and Losses

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
All K Amount = (Post x MA)	0.169**	-0.0723	0.199***	0.193***	0.000377	0.220***	0.0809	0.200***	-0.0176	0.201**	0.130[a]	0.160**	0.317	0.155[a]	0.125
	(0.0513)	(0.163)	(0.0557)	(0.0580)	(0.117)	(0.0616)	(0.0913)	(0.0582)	(0.0916)	(0.0733)	(0.0701)	(0.0530)	(0.216)	(0.0892)	(0.100)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	1,217	824	1,299	1,515	929	1,118	1,307	1,709	0.0000	2,379	702	1,340	313	1,970	716
MA Post	2,095	1,234	2,273	2,237	1,906	1,867	2,302	2,725	539	3,942	1,278	2,260	886	4,487	505
Oth Pre	1,190	1,072	1,222	1,428	940	790	1,515	1,625	0.0000	2,092	748	1,310	189	1,979	759
Oth Post	1,638	1,572	1,657	1,590	1,710	978	2,175	2,050	510	2,706	1,113	1,780	456	3,725	497
R^2	0.0603	-0.0494	0.0591	0.0457	-0.00234	0.0594	0.0456	0.0610	-0.0294	0.0481	0.0667	0.0654	-0.348	0.0623	0.0125

(f) Files Schedule SE

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
Has Any K = (Post x MA)	0.123***	0.113	0.126**	0.159***	0.0464	0.178***	0.0504	0.136**	0.0180	0.137*	0.116*	0.129**	0.0678	0.0837	0.0344
	(0.0366)	(0.0840)	(0.0410)	(0.0423)	(0.0722)	(0.0448)	(0.0615)	(0.0430)	(0.0597)	(0.0562)	(0.0474)	(0.0400)	(0.0754)	(0.0668)	(0.0477)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	0.2419	0.2217	0.2464	0.2634	0.2239	0.2516	0.2330	0.3372	0.0062	0.3776	0.1817	0.2685	0.0464	0.3117	0.1954
MA Post	0.2749	0.2297	0.2846	0.2893	0.2588	0.2740	0.2757	0.3455	0.1002	0.4460	0.1991	0.2988	0.0997	0.5120	0.1171
Oth Pre	0.2517	0.2470	0.2533	0.2801	0.2227	0.2492	0.2538	0.3423	0.0038	0.3763	0.1906	0.2780	0.0325	0.3248	0.2118
Oth Post	0.2569	0.2359	0.2626	0.2705	0.2390	0.2301	0.2787	0.3169	0.0927	0.4030	0.1853	0.2787	0.0759	0.4926	0.1281
R^2	0.0494	0.0290	0.0524	0.0575	0.0183	0.0703	0.0198	0.0598	0.00650	0.0515	0.0464	0.0531	0.0208	0.0260	0.0127

(g) Schedule SE Earnings

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
All K Amount = (Post x MA)	0.132**	0.0464	0.143**	0.170**	-0.0447	0.191**	0.0334	0.153**	0.0103	0.166*	0.0943	0.123*	0.291	0.130	0.00920
	(0.0493)	(0.152)	(0.0532)	(0.0546)	(0.118)	(0.0587)	(0.0893)	(0.0560)	(0.0848)	(0.0689)	(0.0694)	(0.0510)	(0.211)	(0.0845)	(0.0980)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	1,638	1,256	1,719	2,037	1,254	1,578	1,693	2,286	35	3,468	827	1,802	436	2,514	1,055
MA Post	2,694	1,804	2,878	2,932	2,378	2,647	2,736	3,492	721	5,218	1,576	2,925	1,001	5,399	895
Oth Pre	1,603	1,407	1,654	1,918	1,266	1,314	1,837	2,184	12	3,100	868	1,760	292	2,470	1,129
Oth Post	2,328	2,069	2,397	2,399	2,243	1,913	2,666	2,935	667	4,121	1,448	2,535	607	4,692	1,036
R^2	0.0763	0.0180	0.0816	0.0678	-0.0566	0.0976	0.0254	0.0810	0.00983	0.0691	0.0663	0.0790	-0.295	0.0718	0.00220

(h) W2 Wages

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
All K Amount = (Post x MA)	-0.101	-0.583	-0.0151	-0.0987	-0.128	-0.364[a]	0.275	-0.0421	-0.486	-0.165	-0.107	-0.0683	-0.356	0.223	-0.128
	(0.163)	(0.519)	(0.176)	(0.178)	(0.365)	(0.211)	(0.272)	(0.171)	(0.485)	(0.179)	(0.277)	(0.168)	(0.702)	(0.213)	(0.449)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	25,561	21,695	26,405	26,944	24,378	39,421	13,005	26,959	22,104	25,259	25,695	27,381	12,220	23,208	27,126
MA Post	28,099	23,952	28,998	27,848	28,559	41,989	15,515	29,477	24,691	25,741	29,143	30,213	12,597	22,207	32,018
Oth Pre	23,903	20,785	24,721	24,519	23,327	37,441	12,894	24,851	21,308	23,697	24,004	25,427	11,191	20,053	26,007
Oth Post	26,838	23,879	27,620	26,250	27,741	41,075	15,262	27,658	24,593	25,475	27,507	28,619	11,996	18,841	31,209
R^2	0.0180	0.0205	0.00200	0.0147	0.0280	0.0406	-0.109	0.00778	0.0256	0.0301	0.0145	0.0129	-0.00462	-0.111	0.00562

(i) Files 1040

	(1) All	(2) Female	(3) Male	(4) Older	(5) Younger	(6) Higher AGI	(7) Lower AGI	(8) Filed C 2014-16	(9) No C in 2014-16	(10) High C Expenses 2016	(11) Low C Expenses 2016	(12) Filer 2016	(13) Non-filer 2016	(14) Has Any NEC in 2017-18	(15) Has no NEC in 2017-18
Has Any K = (Post x MA)	0.00795	0.0126	0.0201	0.0106	0.00447	0.0000691	0.0107	0.0144	-0.0171	0.0114	0.00281	0.0198	-0.0909	0.0524	-0.0401
	(0.0307)	(0.0556)	(0.0336)	(0.0371)	(0.0464)	(0.0291)	(0.0603)	(0.0306)	(0.0901)	(0.0376)	(0.0447)	(0.0301)	(0.134)	(0.0468)	(0.0488)
Distinct i	10363	1936	8717	6291	5335	5000	5363	7549	2814	3332	7031	9191	1172	4061	6302
Distinct c	22	20	22	22	22	22	21	21	22	20	22	22	19	20	22
Dep. Means															
MA Pre	0.8530	0.9097	0.8436	0.7992	0.9191	0.9603	0.7558	0.9233	0.6792	0.9341	0.8171	0.9285	0.2994	0.8545	0.8520
MA Post	0.8359	0.8878	0.8276	0.7929	0.9012	0.9372	0.7441	0.9074	0.6590	0.9243	0.7967	0.9085	0.3032	0.8624	0.8182
Oth Pre	0.8631	0.9260	0.8485	0.8042	0.9292	0.9609	0.7836	0.9254	0.6926	0.9372	0.8267	0.9317	0.2920	0.8638	0.8627
Oth Post	0.8472	0.9187	0.8305	0.8049	0.9112	0.9429	0.7694	0.9092	0.6775	0.9285	0.8073	0.9105	0.3200	0.8607	0.8398
R^2	0.0000754	-0.00797	0.00147	0.000349	-0.00325	-0.00262	-0.000764	0.00219	-0.00496	-0.000218	-0.00143	0.00267	-0.0215	0.00183	-0.00929

Note: Table reports results from running a county border regression around the introduction of the M-1099-K in 2017, specification 1. The sample is restricted to the border-county pairs between Massachusetts, and the following states: Connecticut, New York, New Hampshire, and Rhode Island. Within border-counties we restrict to individuals living zipcodes within 15 miles of the border. All regressions include individual fixed effects, and border-pair x year fixed effects. Results are clustered at the individual level. The sample is a balanced panel of all individuals who were OPE gig workers in 2016 in one of the border counties, and we hold constant their 2016 border county for all years. Each panel represents a different outcome variable from Table 2 which are related to the receipt of 1099s. We present in column (1) the main results from Table 2 and heterogeneity by subgroups in each of the columns (2)-(15).

C Baseline Methodology for Imputing Trends in Online Platform work

We leverage the lower reporting threshold in MA and VT on State 1099-K forms in 2017-2018 to impute how these trends would have continued nationally if all states were subject to a lower $600 reporting threshold. In Figure A.5a, for Massachusetts and Vermont, we show trends in the receipt of 1099 forms (1099-MISC from any payer or 1099-K from an OPE platform) as a share of the overall tax workforce, which is defined as individuals with wages and/or self-employment on Schedule SE, or individuals filing a 1040 with a 1099-MISC or 1099-K from a gig platform. First, the share of the workforce with either a Federal 1099-K (from OPE platforms) and/or a Federal 1099-MISC is shown in black. In red, we restrict to individuals receiving a 1099-K of greater than $600. In practice, this restriction appears to only be binding in years 2014 and later, when some gig platforms start issue forms starting at $1. Finally, in the dashed red line we additionally include individuals who receive a state 1099-K from MA or VT. Starting in 2017 and 2018, the State 1099-K forms capture an additional fraction of the workforce who are earning between $600-$20,000 from gig platforms that no longer appear on Federal 1099Ks, as seen by the divergence of the red and dashed red line in Figure A.5a.

Our exact methodology for imputing national trends builds on the sub-components plotted in Figure A.5a and works as follows. When considering trends in OPE as a share of the workforce, the receipt of a 1099-K affects both our numerator (the 1099 workforce) and the denominator (the overall tax workforce); therefore, we must adjust both components accordingly. This affects the overall tax workforce (the denominator) because we include individuals in our tax workforce definition if they file a tax return, Form 1040, and have 1099 earnings even with no wages (W-2) nor self-employment profit (Schedule SE). Thus, absent the receipt of a 1099, we are not capturing them in the tax workforce definition, and so we need to account for both the change to the 1099 and tax workforce.

We define two groups of states: (1) those with state 1099-Ks, i.e. Massachusetts and Vermont (denoted "MA" for short in all equations that follow), and (2) all states nationally (denoted "NAT" in all equations). Our calculation proceeds in two steps. First, for 2017 and 2018, we impute how much the 1099 workforce grew relative to 2016. Second, we impute how much the "gig only" subgroup of the overall tax workforce grew —these are the only individuals that would not otherwise be counted (i.e. individuals with only a 1040 and gig 1099-K, and no W-2s, 1099-MISCs nor SE) —denote these $TWmultiplier_{2017}^{NAT}$ and $TWmultiplier_{2018}^{NAT}$. For both parts, we assume the groups grew nationally at the same rates in 2017 and 2018 as we observed in MA and VT.

C.0.1 Imputation Part 1: Adjust 1099 Workforce

First, we impute and adjust the 1099 workforce. In both MA/VT and nationally at baseline (in 2016), we calculate the ratio of the overall 1099 workforce including those receiving 1099-Ks (from OPE platforms) to the overall 1099 workforce excluding those receiving 1099-Ks (from OPE platforms). By calculating this at baseline, this flexibly allows for the possibility that 1099-Ks account for a different fraction of the 1099 workforce in MA and VT than they do nationally. These multipliers can be interpreted as how much times larger would the 1099 workforce be when

you include 1099-Ks (from gig platforms) versus exclude them.

$$1099multiplier^{NAT}_{2016} = \frac{\text{1099 Workforce including 1099-Ks}^{NAT}_{2016}}{\text{1099 Workforce excluding 1099-Ks}^{NAT}_{2016}}$$
$$1099multiplier^{MA}_{2016} = \frac{\text{1099 Workforce including 1099-Ks}^{MA}_{2016}}{\text{1099 Workforce excluding 1099-Ks}^{MA}_{2016}}$$
$$1099multiplier^{MA}_{2017} = \frac{\text{1099 Workforce including 1099-Ks}^{MA}_{2017}}{\text{1099 Workforce excluding 1099-Ks}^{MA}_{2017}}$$
$$1099multiplier^{MA}_{2018} = \frac{\text{1099 Workforce including 1099-Ks}^{MA}_{2018}}{\text{1099 Workforce excluding 1099-Ks}^{MA}_{2018}}$$

At the national level, we can only calculate this ratio in 2016 due to the K-gap, however we can calculate this ratio in all years for MA and VT. We then assume that the share of the 1099 workforce receiving 1099-Ks grows nationally at the same rate as in MA/VT. We also account for different baseline (in 2016) 1099 multipliers in MA/VT and nationally in case 1099-Ks made up a different share initially. Therefore, nationally, we estimate the 1099-K workforce multiplier in 2017 or 2018 as the following:

$$1099multiplier^{NAT}_{2017} = \left(\frac{1099multiplier^{MA}_{2017}}{1099multiplier^{MA}_{2016}}\right) * 1099multiplier^{NAT}_{2016}$$
$$1099multiplier^{NAT}_{2018} = \left(\frac{1099multiplier^{MA}_{2018}}{1099multiplier^{MA}_{2016}}\right) * 1099multiplier^{NAT}_{2016}$$

Finally, we use the actual observed 2017 and 2018 national data on the 1099 workforce (excluding 1099-Ks), and our above multipliers to back out the size of the national 1099 workforce including 1099-Ks:

$$\textbf{Adjusted } \text{1099 Workforce including 1099-Ks}^{NAT}_{2017} = 1099multiplier^{NAT}_{2017} * \text{1099 Workforce excluding 1099-Ks}^{NAT}_{2017}$$
$$\textbf{Adjusted } \text{1099 Workforce including 1099-Ks}^{NAT}_{2018} = 1099multiplier^{NAT}_{2018} * \text{1099 Workforce excluding 1099-Ks}^{NAT}_{2018}$$

C.0.2 Imputation Part 2: Adjust Tax Workforce

In this second step, we account for the under-counting of the tax workforce size when we add in additional 1099-K recipients through the imputation. In practice, this change to the tax workforce is quite small as it only affects an already small subset of the tax workforce, the group we denote as gig only: individuals with only a 1040 and gig 1099-K or 1099-MISC, and no wages (W-2) or self-employment profits (Schedule SE). Our methodology is identical to above when we calculate the 1099 workforce multipliers. We compare the ratio of the gig only subset of the tax workforce when you include 1099-Ks to when you exclude the 1099-Ks. This multiplier tells you how much larger the gig-only tax workforce group is when you include 1099-Ks versus exclude them at baseline

(in 2016).

$$TW multiplier_{2016}^{NAT} = \frac{\text{Gig Only including 1099-Ks}_{2016}^{NAT}}{\text{Gig Only excluding 1099-Ks}_{2016}^{NAT}}$$
$$TW multiplier_{2016}^{MA} = \frac{\text{Gig Only including 1099-Ks}_{2016}^{MA}}{\text{Gig Only excluding 1099-Ks}_{2016}^{MA}}$$
$$TW multiplier_{2017}^{MA} = \frac{\text{Gig Only including 1099-Ks}_{2017}^{MA}}{\text{Gig Only excluding 1099-Ks}_{2017}^{MA}}$$
$$TW multiplier_{2018}^{MA} = \frac{\text{Gig Only including 1099-Ks}_{2018}^{MA}}{\text{Gig Only excluding 1099-Ks}_{2018}^{MA}}$$

Again in 2017 and 2018, we observe in MA and VT how this multiplier grows relative to 2016. We assume similar growth nationally in this "gig only" group as we observe in MA and VT. We also account for baseline (in 2016) differences in the multipliers. Then in a similar method to above, we then can calculate the national multiplier for this gig only group in the tax workforce:

$$TW multiplier_{2017}^{NAT} = \left(\frac{TW multiplier_{2017}^{MA}}{TW multiplier_{2016}^{MA}}\right) * TW multiplier_{2016}^{NAT}$$
$$TW multiplier_{2018}^{NAT} = \left(\frac{TW multiplier_{2018}^{MA}}{TW multiplier_{2016}^{MA}}\right) * TW multiplier_{2016}^{NAT}$$

Finally, we can estimate the size of the gig only tax workforce in 2017 and 2018 with by using our multipliers and the actual observed size of the "gig only" group excluding 1099-Ks.

$$\textbf{Adjusted Gig only Workforce}_{2017}^{NAT} = TW multiplier_{2017}^{NAT} * \text{Gig Only excluding 1099-Ks}_{2017}^{NAT}$$
$$\textbf{Adjusted Gig only Workforce}_{2018}^{NAT} = TW multiplier_{2018}^{NAT} * \text{Gig Only excluding 1099-Ks}_{2018}^{NAT}$$

We then calculate the size of the tax workforce using the adjusted "Gig only" workforce above rather than the actual observed "Gig only" workforce counts. In practice, this means we use the measures for Gig only $\text{Workforce}_{2017}^{NAT}$ and Gig only $\text{Workforce}_{2018}^{NAT}$ in the tax workforce count when we sum up all the subgroups of the tax workforce. This leaves us with the final adjusted tax workforce numbers: **Adjusted** $\text{Tax Workforce}_{2017}^{NAT}$ and **Adjusted** $\text{Tax Workforce}_{2018}^{NAT}$.

C.0.3 Imputation Part 3: Final Steps to Create Imputed Series

We now combine the imputed values calculated in part 1 and part 2 in order to create our adjusted trends. The first imputed series that we create is the "adjusted 1099 Workforce share" - this is the share of the workforce with a 1099. The second imputed series that we create is the subset of the 1099 workforce that are platform gig workers.

The first imputed series is a simple fraction combining part 1 and part 2. The series demonstrates what share of the tax workforce is a 1099 worker. We take the adjusted 1099 Workforce including 1099-Ks, calculated in part 1, and divide this by the adjusted Tax Workforce, calculated

in part 2 using our imputed "Gig Only" workforce group.

$$\textbf{Adjusted } 1099 \text{ Workforce Share}^{NAT}_{2017} = \frac{\textbf{Adjusted } 1099 \text{ Workforce including 1099-Ks}^{NAT}_{2017}}{\textbf{Adjusted } \text{Tax Workforce}^{NAT}_{2017}}$$

$$\textbf{Adjusted } 1099 \text{ Workforce Share}^{NAT}_{2018} = \frac{\textbf{Adjusted } 1099 \text{ Workforce including 1099-Ks}^{NAT}_{2018}}{\textbf{Adjusted } \text{Tax Workforce}^{NAT}_{2018}}$$

The end result of our national extrapolation method, the share of the tax workforce who receive a 1099, is reported in Figure A.5b. Appendix D, we discuss alternative imputation procedures for estimates of platform work.

In our second imputed series, we break down the 1099 workforce into the subset who engage with an OPE platform. Recall from section 2, online platforms in the OPE issue 1099-Ks. Thus, 1099 individuals who do not engage in online platform work are not affected by the reporting thresholds as all such work is reported on 1099-MISCs. We accurately observe the 1099 Workforce Share *excluding* OPE workers in all years. Therefore, we can back out the imputed growth in the OPE as a share of the workforce as follows:

$$\textbf{Adjusted } 1099 \text{ OPE workforce share} =$$
$$\textbf{Adjusted } 1099 \text{ Workforce Share} - 1099 \text{ Workforce Share } \textit{excluding} \text{ OPE}$$

The end result of this series is presented in figure 3, in levels, and is discussed in the next section.

D Alternative Imputation Procedures

In this Appendix, we provide multiple alternative imputation methodologies for measuring platform work, and the 1099-K gap. Some alternative imputations are more sophisticated and require more assumptions than others, and so we present all alternatives here for completeness. These alternatives highlight the potential range of values that the true underlying trends may exhibit.

D.1 Alternative Imputation 1

Our main alternative imputation leverages raw counts of 1099 OPE work and the gross amounts on the 1099-Ks rather than utilizing the share of the workforce engaged in 1099 work. We build on our imputation methodology described in Appendix C, and incorporate a third key component: 1099-K dollar *gross* amounts.

We combine the 1099-K returns based on the *gross amounts* into two groups: amounts of $600-20,000 and more than $20,000, as we observe the latter group in all years for all states. Thus, we calculate the ratio of 1099-Ks with gross amounts $\in [600, 20,000)$ to gross amounts $\geq 20,000$ in the base year 2016, and for both types of states (MA and VT, versus all other states). Note that we normalize all of our count measures, C_y, to be counts of 1099-Ks per 1,000 population in year y to make them comparable across state groups (MA and VT, versus all other states). We will later re-inflate the counts per 1,000 population to a total count. We use 2016 as a base year, since it's the closest year to our imputed years and therefore we think most comparable.

We define the following ratio R_{2016}, where C_y is defined to be counts of 1099-K per 1,000 population in year y:

$$R_{2016} = \frac{C^{(MA,600-20k)}_{2016}}{C^{(MA,20k+)}_{2016}} * \frac{C^{(Other,600-20k)}_{2016}}{C^{(Other,20k+)}_{2016}}. \tag{2}$$

For each year y (where $y \in 2017, 2018$) the value for other states can be imputed using ratio R_{2016} as follows:

$$C_y^{(Other,600-20k)} = \frac{1}{R_{2016}} * \frac{C_y^{(Other,20k+)} * C_y^{(MA,600-20k)}}{C_y^{(MA,20k+)}} \tag{3}$$

Finally, since C_y is a count per 1,000 population in year y, we use state populations to aggregate these counts to a total state level count rather than a per 1,000 population measure:

$$[\textbf{Imputed Count of 1099K}]_y^{(Other,600-20k)} = C_y^{(Other,600-20k)} * \frac{\text{population}}{1000} \tag{4}$$

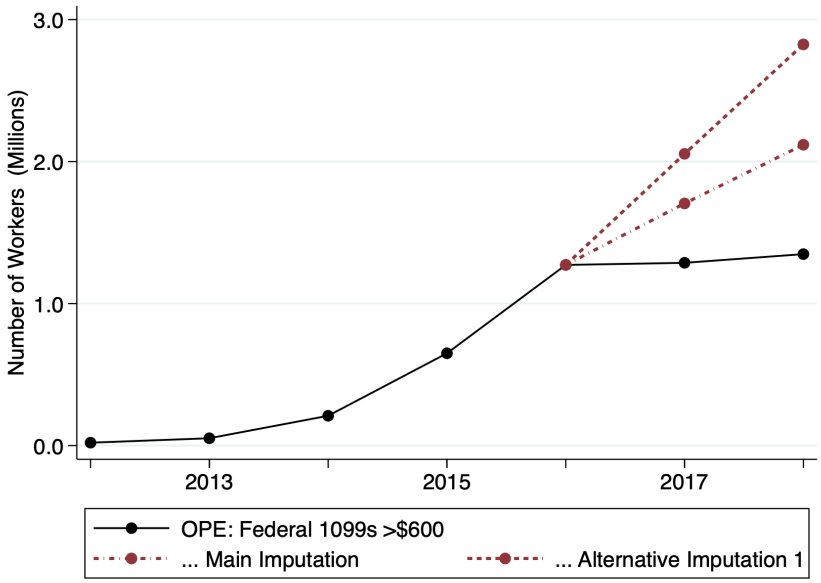
In summary, for years where we have complete information we use the available data, and for years where we are missing data then we use the imputation. Thus, for all years we use true counts for 1099-Ks $\geq \$20,000$, and from 2017 onward we use our imputed values for 1099-Ks $\in [600, 20000)$ in states for which we do not have state 1099-K data (i.e. all states other than MA and VT). We are then able to fill in the missing components of our imputation.

Finally, when considering how these imputed 1099-K measures translate into new platform work counts at the individual level, we need to consider that some of the individuals we are imputing to have 1099-Ks between [600,20000) may have also received a 1099-MISC from a platform and thus are already accounted for on the extensive margin. We calculate this share in 2016, our base year. Only 25.56% of individuals with 1099-Ks also had a 1099-MISC. Thus to get the overall number of individuals with OPE work, we discount our 1099-K imputed count by (1-.2556) and add this to the OPE 1099-MISC counts. Putting this all together, we get a final adjusted number of OPE works as follows:

$$\begin{aligned}\textbf{Adjusted Count of OPE}_y = (\text{Count with OPE MISC})_y^{All} + (1 - .2556) * [&(\text{Count of 1099K})_y^{(MA,20k+)} \\ &+ (\text{Count of 1099K})_y^{(MA,600-20k)} + (\text{Count of 1099K})_y^{(Other,20k+)} \\ &+ (\textbf{Imputed Count of 1099K})_y^{(Other,600-20k)}]\end{aligned}$$

In Figure D.1, we present the trend of this alternative imputation, labeled "Alternative Imputation 1", and compare it with our main imputation described in Appendix C, labeled "Main Imputation". This alternative specification predicts a larger K-gap, and suggests our main imputation is more conservative.

Figure D.1: Alternative Specification for MA/VT Imputation



Note: We show trends in the number of individuals participating in online platform work with at least $600 in payments from an online platform firm on a 1099-K or 1099-MISC form. The solid line displays the count of such individuals in the Federal 1099 return data. The two dashed lines impute growth in the share of the workforce with OPE income after 2016 based on observed growth in Massachusetts and Vermont incorporating the state-level 1099-K returns subject to a lower $600 threshold in those states. The "Main Imputation" is described in Section C and "Alternative Imputation 1" is described in Append Section D.

D.2 Various Other Imputation Alternatives

We also present two simple imputations as a comparison to our main imputation. While these imputations require less assumptions, as we will show, they do not perform as well in terms of pre-trends.

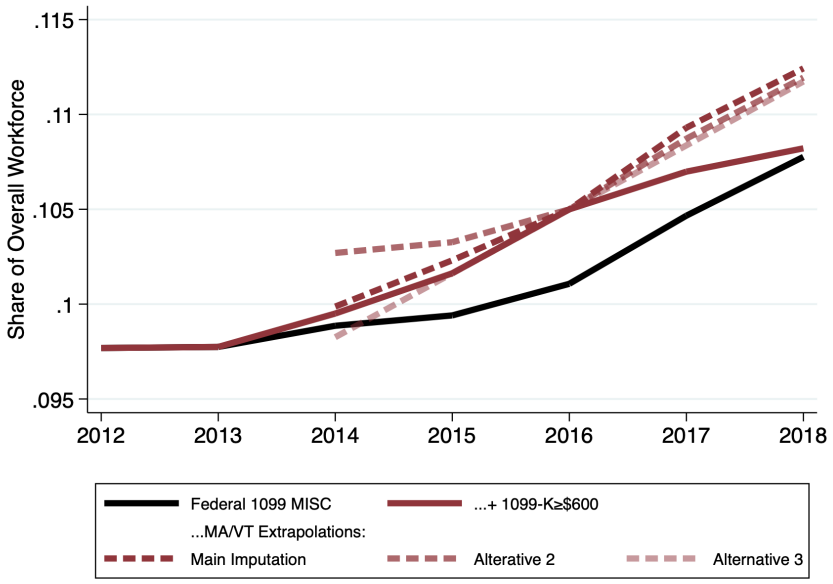
In our "Alternative 2" imputation, we assume that the 1099 workforce grew in parallel to the Federal 1099 MISC series, which is the subset of the 1099 workforce who does not receive an OPE 1099-K. This methodology imposes what share of the 1099 workforce receives an OPE 1099-K in the base year (2016), and inflates the Federal 1099 MISC series accordingly. In Figure D.2a, one can see that the "Alternative 2" line is parallel to the Federal 1099 MISC series.

In "Alternative 3", we impute the 1099 workforce in 2017 and 2018 by assuming that the 1099 Workforce grows linearly, the solid red line. We extrapolate a linear trend from 2015 to 2016 forward into 2017 and 2018.

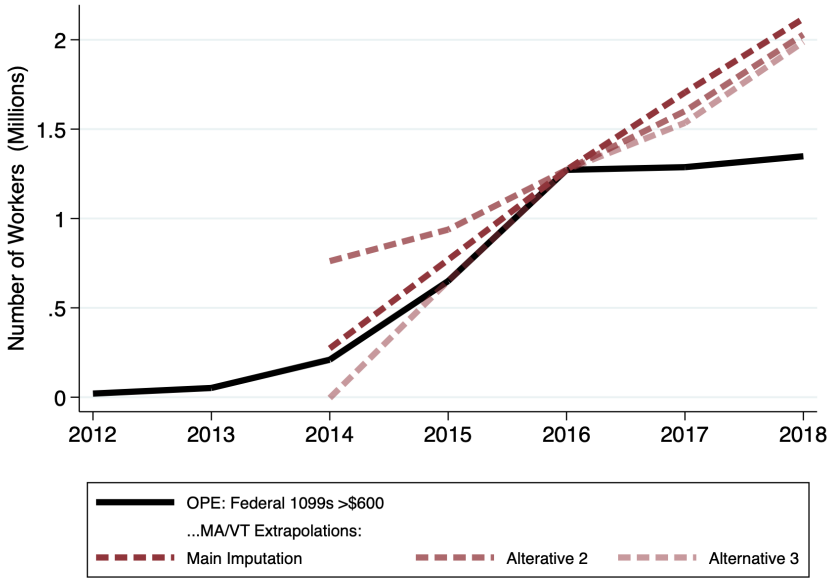
In figure D.2a, we show these two alternative imputations along with the main imputation to highlight the potential range of values that the true underlying trends may exhibit. Despite these alternative imputations being calculated as a share of the workforce, we also present these alternative series with OPE counts in Figure D.2b.

Figure D.2: Measures of the 1099 Workforce: Alternative Imputations

(a) As a Share of the Workforce



(b) In Counts



Note: We show trends in the number of individuals participating in online platform work with at least $600 in payments from an online platform firm on a 1099-K or 1099-MISC form. The solid line displays the count of such individuals in the Federal 1099 return data. The two dashed lines impute growth in the share of the workforce with OPE income after 2016 based on observed growth in Massachusetts and Vermont incorporating the state-level 1099-K returns subject to a lower $600 threshold in those states. The "Main Imputation" is described in Section C and "Alternative 2" and "Alternative 3" are described in Appendix Section D. In Panel B, we transform the imputations in Panel A which are measured as a share of the workforce to be in counts of individuals with OPE work.